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University College

University College

UNIV 101 Introduction to the University

Semester course; 1 lecture hour. 1 credit. Designed to orient new students to the traditions, purposes and expectations of a university education. Students will assess their expectations and evaluate their academic strengths and goals. Through lectures, guest speakers and individual projects, students will learn of VCU resources designed to help them solve problems and to achieve a rewarding and successful academic program. This course is required for students admitted conditionally to VCU; it is recommended for all first-year students.

UNIV 102 MINDSET for Academic Success

Semester course; 1 lecture hour. 1 credit. Restricted to first-year students with 24 or fewer earned credit hours who want to improve college success skills. The student, with assistance from his or her adviser, will create an individualized program of study to improve academic performance.

UNIV 103 Education and Career Planning

Semester course; 1-3 lecture hours. 1-3 credits. May be repeated for a total of 3 credits. An education- and career-planning course focusing on the process of researching and selecting a major. Through course work, research, guest speakers and informational interviewing, students will discover various educational and career options. Topics will include interest, abilities and work-values assessments, decision-making models and career development theories. One- and two-credit versions of the course are offered with correspondingly reduced meeting schedules.

UNIV 111 Focused Inquiry I

Semester course; 3 lecture hours. 3 credits. Utilizes contemporary themes to give students opportunities and practice in writing, critical thinking, oral presentation, collaborative learning, information retrieval and evaluation, and social and civic responsibilities. Incorporates common reading materials and course activities across all sections.

UNIV 112 Focused Inquiry II

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 111 or equivalent. Builds on skills introduced in UNIV 111 by providing practice in expository essays, argument and contextual analysis. Focuses on practice in writing in a variety of genres, framing writing according to both purpose and audience and identifying academically valid sources. This course is writing intensive.

UNIV 151 Focused Learning Workshop in BIOL 151

Semester course; 3 workshop hours. 1-2 credits. Corequisite: BIOL 151. Designed to assist students in improving their understanding of complex biology material. Will supplement the BIOL 151 class lecture. Course assists students with integrating how-to-learn with what-to-learn for BIOL 151. Includes both discussion and study-skills strategies. Students required to complete homework assignments and to demonstrate mastery of specific study techniques. In addition to the semester-long 2-credit offering, a 1-credit course is opened to students after the first BIOL 151 exam.

UNIV 152 Focused Learning Workshop in BIOL 152

Semester course; 3 workshop hours. 1-2 credits. Corequisite: BIOL 152. Designed to assist students in improving their understanding of complex biology material. Will supplement the BIOL 152 class lecture. Course assists students with integrating how-to-learn with what-to-learn for BIOL 152. Includes both discussion and study-skills strategies. Students required to complete homework assignments and to demonstrate mastery of specific study techniques. In addition to the semester-long 2-credit offering, a 1-credit course is opened to students after the first BIOL 152 exam.

UNIV 200 Inquiry and the Craft of Argument

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 112 with a minimum grade of C. A research and writing process course that emphasizes critical analysis, elements of argument, inquiry-based research skills, writing conventions of academic argument and the presentation of argument and research into new mediums.

UNIV 211 Food for Thought

Semester course; 3 lecture hours. 3 credits. An interdisciplinary exploration of food using analytical lenses from sociology, anthropology, philosophy, art, literature, history, political science, psychology, economics and religious studies.

UNIV 213 The Truth About Lying

Semester course; 3 lecture hours. 3 credits. Students will engage in collaborative inquiry to critically consider their own beliefs, common notions of ethical behaviors and practical standards through exploring the nature and function of lying. Students will work together to build a foundation of knowledge on the subject of lying and investigate a broad range of disciplines through the lie to question, abandon and embrace value judgments imperative to their daily lives.

UNIV 217 Finding Your Voice in Contemporary Society

Semester course; 3 lecture hours. 3 credits. Prerequisites: UNIV 111 and 112. Focuses on strategies for expression in contemporary society. This course examines the messages that are conveyed in our society and how people decode and understand those messages. Course will focus on popular culture themes and practical problem-solving.

UNIV 222 Pseudoscience

Semester course; 3 lecture hours. 3 credits. Course critically evaluates controversial fringes of scientific inquiry, such as those related to paranormal investigations and quack medicine. By engaging with topics chosen from astronomy, anthropology, biology, mathematics, medicine, philosophy and psychology, students will apply critical thinking skills to a variety of strange and provocative ideas.

UNIV 250 Undergraduate Teaching Assistant Program

Semester course. 1 credit. May be repeated for up to 2 credits. Prerequisites: successful completion of UNIV 111 and 112 with minimum grades of B. Utilizes classroom practice to further the core skills developed in UNIV 111 and 112 (writing, critical thinking, oral presentation, collaborative learning, information retrieval and evaluation, and social and civic

responsibilities) as well as exposing students to the practice, possibilities, rewards and responsibilities of the act of teaching.

UNIV 251 Undergraduate Teaching Assistant Program

Semester course; 1 credit. May be repeated for up to 2 credits. Prerequisites: instructor permission; successful completion of UNIV 200 or HONR 200 with minimum grade of B. Utilizes classroom practice to further the core skills developed in UNIV 200 (including writing, critical thinking, collaborative learning, information retrieval and evaluation) as well as exposing students to the practice, possibilities, rewards and responsibilities of the act of teaching.

UNIV 270 Introduction to Leadership Studies

Semester course; 3 lecture hours. 3 credits. Open only to students participating in the Emerging Leaders Scholarship Program. Introductory study of leadership theory, group dynamics and human relationships used in volunteer organizations and leisure delivery systems. Foundations of leadership/follower behavior, advanced facilitation techniques and techniques of decision-making, problem-solving, conflict management and program evaluation will be examined.

UNIV 291 University Special Topics

Semester course; variable hours. 1-4 credits. May be repeated with different content. Specialized topics in subject and competency areas related to the core curriculum program not provided by an existing course or program. May be multidisciplinary. Graded as pass/fail or normal letter grading at the option of the instructor.

UNIV 299 What's the Big Idea?

Semester course; 3 lecture hours. 3 credits. Each section in this interdisciplinary course will focus on a particular "big question" that has intrigued thinkers throughout time and across cultures. As students move from personal to global and from theoretical to practical investigations of the question, they will come to understand inquiry as a complex cycle of questioning, gathering, examining, interpreting, comparing, analyzing and evaluating, with important application to decision-making and problem-solving in the "real world."

UNIV 350 Peer Leadership Program

Semester course; 3 credits. May be repeated for up to 6 credits. Prerequisite: 2 credits of UNIV 250 with a minimum grade of B. Building on skills introduced in UNIV 250, this course gives students hands-on experience in the practice of creating and maintaining student engagement.

UNIV 391 University Special Topics

Semester course; variable hours. 1-4 credits. May be repeated with different content. Specialized topics in subject and competency areas related to the core curriculum program not provided by an existing course or program. May be multidisciplinary. Graded as pass/fail or normal letter grading at the option of the instructor.

UNIV 499 BIS Senior Capstone

Semester course; 3 lecture hours. 3 credits. Prerequisites: senior standing and 18 hours in focus area. Students will synthesize and evaluate the theoretical, methodological and substantive issues discovered during course work in the focus area.

College of Humanities and Sciences

African American Studies

AFAM 104/SOCY 104 Sociology of Racism

Semester course; 3 lecture hours. 3 credits. The course will explore the direct and indirect ways in which racial attitudes are acquired, their effect on individuals and society, and the institutional and ideological manifestations of racism as a "faith system," as exploitation and as a form of human conflict. The central focus of interest will be on black-white relationships.

AFAM 105/HIST 105 Survey of African History

Semester course; 3 lecture hours. 3 credits. A survey of African civilization from prehistory to the present, emphasizing the events, ideas and institutions that have shaped, influenced and defined Africa's place in the world. First semester: to 1800. Second semester: 1800 to the present.

AFAM 106/HIST 106 Survey of African History

Semester course; 3 lecture hours. 3 credits. A survey of African civilization from prehistory to the present, emphasizing the events, ideas and institutions that have shaped, influenced and defined Africa's place in the world. First semester: to 1800. Second semester: 1800 to the present.

AFAM 111 Introduction to Africana Studies

Semester course; 3 lecture hours. 3 credits. Using a multidisciplinary approach, this course will familiarize students with important events developments, personalities and other phenomena that help facilitate the study and understanding of peoples of African descent dispersed throughout the world from their early continental African past to their present existence. Formerly AFAM 103.

AFAM 121/DANC 121, 122 Tap Technique I

Semester courses; 1 lecture and 2 studio hours. 2, 2 credits. Beginning study and training in the principles of tap technique with emphasis upon style, body alignment, spatial patterning, flexibility, strength and kinesthetic awareness to move the body in the style required for tap dancing.

AFAM 122/DANC 121, 122 Tap Technique I

Semester courses; 1 lecture and 2 studio hours. 2, 2 credits. Beginning study and training in the principles of tap technique with emphasis upon style, body alignment, spatial patterning, flexibility, strength and kinesthetic awareness to move the body in the style required for tap dancing.

AFAM 126/DANC 126, 127 African-Caribbean Dance I

Semester courses; 1 lecture and 2 studio hours. 2, 2 credits. Dance based on the movements and rhythms of Africa and the Caribbean.

AFAM 127/DANC 126, 127 African-Caribbean Dance I

Semester courses; 1 lecture and 2 studio hours. 2, 2 credits. Dance based on the movements and rhythms of Africa and the Caribbean.

AFAM 151/DANC 151, 152 Jazz Dance Technique I

Semester courses; 1 lecture and 2 studio hours. 2, 2 credits. Prerequisite: DANC 102 or permission of instructor. Study and training in the principles and concepts of jazz technique. Emphasis on body alignment, flexibility, balance, rhythmic awareness and mastery of isolated movements of body parts. The course includes the exploration of the relationship between jazz music and jazz dance.

AFAM 152/DANC 151, 152 Jazz Dance Technique I

Semester courses; 1 lecture and 2 studio hours. 2, 2 credits. Prerequisite: DANC 102 or permission of instructor. Study and training in the principles and concepts of jazz technique. Emphasis on body alignment, flexibility, balance, rhythmic awareness and mastery of isolated movements of body parts. The course includes the exploration of the relationship between jazz music and jazz dance.

AFAM 200/ANTH 200/INTL 200 Introduction to African Societies

Semester course; 3 lecture hours. 3 credits. This course introduces the student to the African continent, its peoples and cultures. It covers such general characteristics as the physical and geographical features, climate, topography, traditional economies, languages, religions, social systems and other cultural features that are traditional to its people.

AFAM 204 Africa in Transition

Semester course; 3 lecture hours. 3 credits. Prerequisite: AFAM/ANTH/INTL 200 or permission of instructor. The impact of modern social change upon the traditional aspects of Africa. Various aspects of social change as it applies to Africa today will be explored.

AFAM 206/SOCY 206/GSWs 206 African American Family Relationships

Semester course; 3 lecture hours. 3 credits. Focuses on the African-American family from the 1940s to the present. Examines the values and the interpersonal/role relationships that are involved in forming and maintaining African-American families in the contemporary United States. Topics include dating and sexual relationships, marital relationships, parent-child relationships and relationships with members of the extended family.

AFAM 211 Africana Social and Political Thought

Semester course; 3 lecture hours. 3 credits. Guides students in identifying and mapping the continuities and discontinuities in political and social thought of the African world. Through an exploration of the various works of scholars, activists and artists, this course will expose students to nondominant narratives in an effort to expand the breadth and depth of interdependence in Africana contributions to ideas such as, but not limited to, the arts, justice, equality and human emancipation.

AFAM 250/MHIS 250 Introduction to African-American Music

Semester course; 3 lecture hours. 3 credits. An introductory survey of black involvement with the development of music in America from 1607 to the present. African-American musical styles will be

studied from many aspects including their African roots and contemporary popular expression.

AFAM 302/POLI 302 Politics of the Civil Rights Movement

Semester course; 3 lecture hours. 3 credits. The main objectives of the course are to introduce and examine the personalities and activities of the modern Civil Rights Movement. The course provides the historical background leading up to the peak years of the struggle for racial equality in America. It has special focus on the events of the 1960s and, particularly their implication for the current state of U.S. Civil Rights.

AFAM 303/THEA 303 Black Theatre

Semester course; 3 lecture hours. 3 credits. A study of the major developments in the evolution of black theatre through readings and studio performances in black-related and black-theatre dramaturgy.

AFAM 305/GSWs 305/SOCY 305 African American Family in Social Context

Semester course; 3 lecture hours. 3 credits. Prerequisite: SOCY 101 or SOCY/AFAM/WMNS 206. A socio-historical examination of the development of the family system of Americans from Africa. Focuses on large-scale (macro level) processes such as changes in the major mode of economic production and in political systems and the corresponding changes in black family structure and functioning. Presents the theoretical material on African-American families and social change that prepares students for further study of the family as a social institution and for the study of family policy. This course is designed to meet the needs of upper division social science majors.

AFAM 307/RELS 307/INTL 307 Black Religion

Semester course; 3 lecture hours. 3 credits. An analysis of the role of religion in the lives of blacks with an emphasis on African religions and philosophies, the black church in America, and the roles of the various faiths, sects and cults.

AFAM 309/ANTH 309/INTL 309/GSWs 309 Global Women's Health

Semester course; 3 lecture hours. 3 credits. Explores issues in women's health from a national and international perspective with an emphasis on the experiences of women in the African diaspora. Theories in medical anthropology are employed to examine key themes.

AFAM 310 African American Health: Health Disparities

Semester course; 3 lecture hours. 3 credits. Examines health and health disparities among African-Americans in the U.S. Explores the primary health concerns and issues in the African-American community. Topics include impacts of infant mortality, cardiovascular disease, AIDS, violence and cancer on the overall health status of African-Americans.

AFAM 311 African Diaspora Experiences

Semester course; 3 lecture hours. 3 credits. Traces the geography and history of dispersed African peoples from their motherland to all parts of the world and reveals the cultural, social, political and economic developments of peoples of African descent worldwide. Surveys the evolution and implication of the trans-Atlantic, trans-Saharan, and trans-Indian

Ocean slave trade, in particular the dimensions of experiences of African-descended peoples with emphasis not only on North and South America but also the Caribbean, Europe, Asia, Papua New Guinea and Australia.

AFAM 315/ECON 315/INTL 315 Economic Development

Semester course; 3 lecture hours. 3 credits.

Prerequisites: ECON 203 with a minimum grade of B and ECON 211; or ECON 210 and ECON 211. An introduction to the process of economic development including a survey of development theory and a study of the experience of both underdeveloped and developed countries. Economic policies and tools of economic planning for stimulating development will be presented.

AFAM 318/POLI 318/GSW 318 Politics of Race, Class and Gender

Semester course; 3 lecture hours. 3 credits. A study of the racial, class and gender influences on the history and development of political values, conflicts, processes, structures and public policy in the United States.

AFAM 322/PSYC 322 Personality and Behavior of the African American

Semester course; 3 lecture hours. 3 credits.

Prerequisite: PSYC 101. A study of personality factors, such as motivation, ego functioning and the socialization processes with special emphasis on living conditions of African-Americans.

AFAM 333/GEOG 333/INTL 333 Geography of Africa

Semester course; 3 lecture hours. 3 credits. A study of the land forms, climate, peoples, livelihoods, settlement patterns and cultural groupings of sub-Saharan Africa.

AFAM 342/ARTH 342 African-American Art

Semester course; 3 lecture hours. 3 credits.

Prerequisites: ARTH 104 and UNIV 200 or HONR 200, both with a minimum grade of C. A study of the art forms produced by Americans of African origin from the 17th century to the present with an emphasis on contemporary trends in black art.

AFAM 343/POLI 343 Black Political Thought

Semester course; 3 lecture hours. 3 credits. An

historical and sociological perspective on the political and social ideas of black thinkers from David Walker to the present.

AFAM 345/POLI 345 African-American Politics

Semester course; 3 lecture hours. 3 credits. In this course, students will discuss and analyze the dynamics of the black experience in the American political system. The status of African-Americans in the United States and the struggle for racial equality will be examined, as will the manner in which American institutions have responded to these phenomena. Students will examine the race/class metric in African-American politics, particularly policies of Affirmative Action as a black progress strategy.

AFAM 346 Mental Health Across the African Diaspora

Semester course; 3 lecture hours. 3 credits. Surveys theory and research on the interaction of culture and

mental illness focusing primarily on populations of African descent in a seminar format. Topics to be addressed, through the lens of the Africana world, include epidemiological and ethnographic research on major psychiatric disorders, culture-bound syndromes and idioms of distress, mental health of immigrants and refugees, and cross-cultural competence in clinical practice.

AFAM 347 African American Children and Families

Semester course; 3 lecture hours. 3 credits. Reviews cultural variations in the physical, cognitive, emotional and social development of African American children. Addresses historical and contemporary frameworks of child development and highlights the strengths and limitations of extant research paradigms in the study of African American children. Considers integrity-based approaches that explain the developmental competencies of African American children in response to environmental risks that exceed normative expectations.

AFAM 350/MHIS 350/INTL 370 Studies in the Music of the African Continent and Diaspora

Semester course; 3 lecture hours. 3 credits. May be repeated for a maximum of 6 credits. Prerequisite: MHIS 243 or MHIS/AFAM 250. An in-depth examination of selected topics and issues in African-derived musical and cultural traditions.

AFAM 356/POLI 356/INTL 356 Government and Politics of Africa

Semester course; 3 lecture hours. 3 credits. Introduces students to the basic outlines of government and politics in Africa. The course will consider such topics as colonialism, elitism and nationalism and modernization strategies. Using the comparative approach, the course will primarily focus on West, East and Central Africa.

AFAM 357/POLI 357/INTL 357 Politics of Southern Africa

Semester course; 3 lecture hours. 3 credits. An examination of racial and political developments in the southern tip of Africa. While South Africa will be the primary focus of analysis, other countries in the region such as Zimbabwe, Angola and Mozambique will be studied.

AFAM 358/ANTH 358 African Art and Architecture

Semester course; 3 lecture hours. 3 credits. A study of African art and architecture from prehistoric times to the present. Special emphasis is placed on form, content, function and meaning, as well as the impact of African art on modern and African-American art.

AFAM 361/HIST 361 Americans from Africa

Semester course; 3 lecture hours. 3 credits. A study of the history and culture of blacks in the United States, designed to analyze some of the most important aspects of black life and the attitudes of the dominant society within which blacks lived. The second semester emphasizes the changing status, expectations and ideologies of black Americans in the 20th century. First semester: to 1877. Second semester: since 1877.

AFAM 362/HIST 362 Americans from Africa

Semester course; 3 lecture hours. 3 credits. A study of the history and culture of blacks in the United States, designed to analyze some of the most important

aspects of black life and the attitudes of the dominant society within which blacks lived. The second semester emphasizes the changing status, expectations and ideologies of black Americans in the 20th century. First semester: to 1877. Second semester: since 1877.

AFAM 363/ENGL 363/INTL 366 African Literature

Semester course; 3 lecture hours. 3 credits.

Prerequisites: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291, or 295. A survey of the literature of Africa with particular emphases on fiction and on West Africa. Some attention also will be given to orature.

AFAM 365/ENGL 365/INTL 367 Caribbean Literature

Semester course; 3 lecture hours. 3 credits.

Prerequisites: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291, or 295. A survey of West Indian writings. Attention will be given to African, European and Amerindian influences, as well as to the emergence of a West Indian literary tradition.

AFAM 379/ENGL 379 African-American Literature

Semester course; 3 lecture hours. 3 credits.

Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291 or 295. An examination of the culture and literature of African-Americans from their roots in Africa and the African Diaspora to the present day. Authors may include Wheatley, Jacobs, Wilson, Brown, Dubois, Hurston, Wright, Gaines and Morrison.

AFAM 387/HIST 381 History of West Africa to 1800

Semester course; 3 lecture hours. 3 credits. A study of the transformation of West African societies from early times to 1800, with emphasis on the rise of states and empires, the introduction, spread and impact of Islam, the Atlantic slave trade and its effects, and colonialism.

AFAM 388/HIST 384 Africa: Social, Cultural and Economic History

Semester course; 3 lecture hours. 3 credits. A study of economic, social and cultural developments in Africa from the beginning of the 19th century to the present, with emphasis on agricultural and industrial development, trade, Africa's involvement in the world economy, changes in labor systems, racial dominance, African initiatives and resistance, religion and social evolution, and Africa in world affairs.

AFAM 389/HIST 383 History of Southern Africa

Semester course; 3 lecture hours. 3 credits. A study of the history and culture of the peoples of southern Africa. Deals with the areas that presently are the Republic of South Africa, Lesotho, Swaziland, Botswana, Namibia and Zimbabwe. Emphasizes the interaction among the various communities and ethnolinguistic groups in southern Africa.

AFAM 390/HIST 380/GSW 390 Africa and the Americas: Slavery, Gender and Race

Semester course; 3 lecture hours. 3 credits. Examines various aspects of slavery in Africa and selected parts of the African diaspora, including the United States, Canada and the Caribbean, with special emphasis on the role played by race and gender. Topics will include

African conditions of servility, the trans-Atlantic trade in enslaved Africans, and chattel slavery, demography, labor, law, discipline, abuse, resistance and status.

AFAM 392/HIST 376 Caribbean History to 1838

Semester course; 3 lecture hours. 3 credits. An exploration of changes in the structure of Caribbean society from the late 15th century to 1838, with emphasis on the development of plantation slavery, social stratification, race, slave resistance, the Haitian Revolution, African cultural patterns and abolition.

AFAM 393 Akhenaten to Cleopatra

Semester course; 3 lecture hours. 3 credits. A survey of Egyptian history from the period of the Empire (New Kingdom, c. 1570 B.C.) through the Ptolemaic Age of Cleopatra (c. 30 B.C.). Particular areas of concentration will include the Amarna Period of Akhenaten and various aspects of Egyptian daily life.

AFAM 394 Service-learning in African American Health

Semester course; 3 lecture hours. 3 credits. Prerequisite: AFAM 310. Open to African-American studies majors only. Provides an overview of critical public health issues and intervention strategies that may influence life chances and disease susceptibility among African-Americans through a service-learning format.

AFAM 399 Interdisciplinary Research Methods

Semester course; 3 lecture hours. 3 credits. Introduces students to the interdisciplinary processes whereby those working in the field develop their arguments and interpretations concerning the black experience. Students will develop increased skills in library research and an awareness of the importance of such methodologies as archaeology, oral history, case studies, participant observations, experiments and surveys. Students will be introduced to the need for critical analysis, the role of biases and frames of references and the reason why scholars working in the field often reach different conclusions with reference to issues of fact, interpretation and significance.

AFAM 401/SOCY 401 African-Americans and the U.S. Health Care System

Semester course; 3 lecture hours. 3 credits. Prerequisites: AFAM 103, AFAM/SOCY/WMNS/GSW 305 or permission of the instructor. Explores issues surrounding the disparity in health status and health outcomes between African-Americans and other groups in the United States. Students are required to participate in an experiential exercise designed to enhance learning.

AFAM 411 Applied Concepts in Africana Studies

Semester course; 3 lecture hours. 3 credits. Prerequisite: AFAM 111 with a minimum grade of C. Pre- or corequisite: AFAM 399. Explores the processes and challenges involved in studying the experiences of African-descended peoples, with a focus on the development of an idea or observation into a finished and well-executed research product. Investigates how these processes unfold in the works of specific black studies researchers, as they capture the varied consciousnesses, histories and social forces surrounding black life in America, Africa and throughout the diaspora.

AFAM 413/ARTH 350 African and Oceanic Art

Semester course; 3 lecture hours. 3 credits. A study of the architecture, painting, sculpture and civilizations of the major art-producing tribes of West Africa and Oceania from the 13th century to the present.

AFAM 416/ANTH 416 The Origin and Evolution of the Idea of Race

Semester course; 3 lecture hours. 3 credits. Prerequisite: ANTH/INTL 103 or AFAM 103 or permission of instructor. Explores the origins and social history of the "idea" of race from the Middle Ages to the end of the 20th century. Using both historical and anthropological scholarship, the course presents an analytical framework for race as a sociocultural phenomenon.

AFAM 420/ANTH 420/INTL 420 Women of Africa

Semester course; 3 lecture hours. 3 credits. Prerequisite: ANTH/INTL 103 or AFAM 103. Looks at the traditional roles of women in African Societies and examines how women have coped in different environments. Focuses on the institutionalized aspects of similarities and differences in women's lives in pastoral and horticultural societies and those with mixed economies, and contrasts these with women's roles in large state societies of Africa and in the modern urbanized context.

AFAM 440/ARTH 440 Contemporary Art and Architecture of Africa

Semester course; 3 lecture hours. 3 credits. Prerequisite: ARTH 390 with a minimum grade of C. A study of the impact on African art and architecture of colonialism, urbanization and modernization. Special emphasis is placed on the search for a new identity by contemporary African artists.

AFAM 451/INTL 451/RELS 451 Religion, Racism and Social Justice

Semester course; 3 lecture hours. 3 credits. Prerequisites: RELS 340/INTL 341, WLRD 210 or WRLD 220; UNIV 200 or HONR 200. Explores the complex history and contemporary relationships between religion, racism and social justice.

AFAM 474/MASC 474 Minorities and the Mass Media

Semester course; 3 lecture hours. 3 credits. Prerequisite: MASC 101 with a minimum grade of C. Examines historical and contemporary issues associated with the presence and portrayal of selected minorities in/by mainstream mass media in the United States. Primary emphasis is placed on the examination of African-Americans and Hispanic-Americans. Asian-Americans, Native Americans and women also are covered.

AFAM 491 Topics in African-American Studies

Semester course; 3 lecture hours. 3 credits. May be repeated with different topics for a maximum of 9 credits; 3 credits may be applied to the African-American studies minor. An in-depth study of specialized areas of African-American studies.

AFAM 492 Independent Study

Semester course; variable hours. Variable credit. Maximum 4 credits per semester. Maximum total of 4 credits in all independent study courses. Prerequisites:

completion of 12 credits in African-American studies courses; junior or senior standing.

AFAM 494 Internship in African American Health

Semester course; 150 clock hours in appropriate organization. 3 credits. Prerequisites: AFAM 310, either AFAM/ANTH/INTL/WMNS/GSW 309 or AFAM/PSYC 322, and AFAM 394. Applicants must be approved by the internship coordinator. Open to African-American studies majors of senior standing only. Students are placed in organizations that offer supervised work or research experience in a health setting appropriate to their interests. A final report must be submitted upon completion of the internship.

AFAM 499 Capstone Seminar in Africana Studies

Semester course; 3 lecture hours. 3 credits. Prerequisites: AFAM 111, AFAM 211, AFAM 311, AFAM 399 and AFAM 411; and senior standing. Involves the planning and execution of a major research project demonstrating the interdisciplinary processes through which those working in the field of Africana studies use diverse sources to develop their arguments and interpretations.

American Studies

AMST 195 Richmond

15 contact hours. 1 credit. A series of mini-courses dealing with aspects of Richmond's literary and historical importance from the city's beginning to the present.

AMST 391 Topics in American Studies

Semester course; 3 lecture hours. 3 credits. May be repeated once for credit. Selected issues or problems in American civilization with materials drawn from such areas as history, the social sciences, philosophy, literature, the arts and mass communications.

AMST 394 Perspectives in American Studies

Semester course; 3 lecture hours. 3 credits. Prerequisites: 6 credits in American-related courses. An introduction to the methods, significant works and major trends in American studies. May be taken for American literature credit by English majors. May not be used to satisfy the literature requirement of the College of Humanities and Sciences.

Anthropology

ANTH 103/INTL 103 Introduction to Anthropology

Semester course; 3 lecture hours. 3 credits. A general survey of anthropology with emphasis on learning about and from global cultures, and on the four fields of anthropology.

ANTH 105/INTL 104 Introduction to Archaeology

Semester course; 3 lecture hours. 3 credits. A survey of archaeological sites, methods and theories from around the world, from the earliest human cultures, to the rise and spread of civilizations, to the modern era.

ANTH 200/AFAM 200/INTL 200 Introduction to African Societies

Semester course; 3 lecture hours. 3 credits. This course introduces the student to the African continent, its peoples and cultures. It covers such general characteristics as the physical and geographical features, climate, topography, traditional economies, languages, religions, social systems and other cultural features that are traditional to its people.

ANTH 210 Biological Anthropology

Semester course; 3 lecture hours. 3 credits. Prerequisite: ANTH/INTL 103. Explores the disciplinary subfield of biological anthropology. Emphasis on the history and study of humans as biological organisms. Topics include genetic, social and ecological determinants of variation in human growth and biological diversity, as well as human adaptation and adaptability, disease, diet, and nutrition.

ANTH 220 Cultural Anthropology

Semester course; 3 lecture hours. 3 credits. Prerequisite: ANTH/INTL 103. Explores the disciplinary subfield of social and cultural anthropology. Provides an overview of key themes and theories in the subject, as well as the analytical and methodological tools to critically consider cultural difference, social organization and social change, with reference to a representative range of culture areas and the empirical fields studied by cultural anthropologists.

ANTH 230 Anthropological Linguistics

Semester course; 3 lecture hours. 3 credits. Prerequisite: ANTH/INTL 103. Explores the disciplinary subfield of anthropological linguistics. Emphasis is on the interactions between language and culture from a comparative perspective, as well as the relationship between language and social identities and relationships. Also an introduction to the field's methodology, research techniques, analytical tools and their applications.

ANTH 301/BIOL 341 Human Evolution

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 200 or HONR 200 with a minimum grade of C. Introduces the range of human diversity as well as a broad understanding of evolution and evolutionary biology, particularly as it applies to hominid evolution. Specific topics include basic genetics, primatology, paleontology, and growth and development.

ANTH 302 Archaeological Theory

Semester course; 3 lecture hours. 3 credits. Prerequisites: ANTH 105/INTL 104 and UNIV 200 or HONR 200 with a minimum grade of C. Covers the basic theoretical perspectives and tools of archaeology, including analysis and interpretation of archaeological materials. Students will review the intellectual history of archaeology, applying a variety of theoretical approaches to archaeological data sets and sites.

ANTH 303 Archaeological Methods and Research Design

Semester course; 3 lecture hours. 3 credits. Prerequisites: ANTH 105/INTL 104 and UNIV 200 or HONR 200 with a minimum grade of C. Introduces the basic practices of archaeology, including planning, excavation, artifact analysis, documentary research, mapping, dating sites and artifacts, and interpretation and presentation of findings. Students will participate

in an active field research program and will apply methods at an active site and lab.

ANTH 304/SOCY 304/GSWs 304 The Family

Semester course; 3 lecture hours. 3 credits. Prerequisite: SOCY 101 or ANTH/INTL 103. The family in its social and cultural context. Analysis of child rearing, marriage, kinship, family crises and family change in various societies around the world.

ANTH 307 Human Osteology

Semester course; 3 lecture hours. 3 credits. Prerequisite: ANTH 210. Corequisite: ANTZ 307. Emphasizes human skeletal development and the identification of specific bones and their anatomical landmarks, including the determination of side for paired bones. Also discussed are methods of estimating age, sex and stature from human skeletal remains and application of human skeletal data to broader anthropological questions.

ANTH 309/AFAM 309/INTL 309/GSWs 309 Global Women's Health

Semester course; 3 lecture hours. 3 credits. Explores issues in women's health from a national and international perspective with an emphasis on the experiences of women in the African diaspora. Theories in medical anthropology are employed to examine key themes.

ANTH 310/FRSC 310 Forensic Anthropology

Semester course; 3 lecture hours. 3 credits. Prerequisites: ANTH 210 and ANTH 307. A comprehensive overview of forensic anthropology, including its development and the theory and methodology on which it is based.

ANTH 312/GEOG 312 History of Human Settlement

Semester course; 3 lecture hours. 3 credits. A cultural and historical geography of human migration and settlement over the earth. Topics may include agricultural and urban systems, exploration, colonization and imperialism, and changing relationships with the environment, during and since the Middle Ages.

ANTH 315 Field Methods and Research Design in Cultural Anthropology

Semester course; 3 lecture hours. 3 credits. Prerequisites: ANTH/INTL 103, and ANTH 220 or ANTH 230. Overview of quantitative and qualitative anthropological field techniques as well as the ethical dimension of anthropological fieldwork. Basics of research design, effective methodology and writing grant proposals.

ANTH 328/FRLG 328/ENGL 392/LING 392 Language, Culture and Cognition

Semester course; 3 lecture hours. 3 credits. Prerequisite: ANTH 230. Introduces theoretical and methodological foundations for the study of language from sociocultural perspectives. The perspectives include linguistic, philosophical, psychological, sociological and anthropological contributions to the understanding of verbal and nonverbal communication as a social activity embedded in cultural contexts. No prior training in linguistics is presupposed.

ANTH 331 Public Culture: Anthropology Through Film

Semester course; 3 lecture hours. 3 credits. Prerequisites: ANTH/INTL 103; WRLD 230. Explores how anthropology can contribute to a critical analysis of films as cultural representations. Class discussion will relate particular films both to the cultural context they depict and to the cultural context in which they were produced. Will also examine films as images that produce cultural meanings with the potential to affect the viewer's understanding of the world and comprehension of self.

ANTH 348/INTL 348 South American Ethnography

Semester course; 3 lecture hours. 3 credits. Prerequisites: ANTH/INTL 103 and UNIV 200 or HONR 200 with a minimum grade of C. General ethnographic survey of both highland and lowland indigenous cultures of South America and cultural changes as a result of European contact.

ANTH 349/INTL 349 Rethinking a Continent: Latin America

Semester course; 3 lecture hours. 3 credits. Prerequisites: ANTH/INTL 103 and UNIV 200 or HONR 200 with a minimum grade of C. This course surveys contemporary cultures of Latin America. It addresses historical sociocultural developments from an anthropological perspective and introduces concepts from social justice studies, development anthropology and applied anthropology.

ANTH 350/INTL 350 Rethinking a Continent: Europe

Semester course; 3 lecture hours. 3 credits. Prerequisites: ANTH/INTL 103 and UNIV 200 or HONR 200 with a minimum grade of C. A survey of historical sociocultural developments from an anthropological perspective with an emphasis on integrative and disintegrative forces that have shaped cultures and identities in Europe. Introduces concepts from sociocultural anthropology, social justice studies and applied anthropology.

ANTH 355 Death and Burial

Effective Spring 2015
Semester course; 3 lecture hours. 3 credits. Prerequisite: ANTH 103 or ANTH 105. Explores beliefs about the dead across time and space, the transformations physical bodies undergo after death and how archaeologists investigate human remains to interpret the beliefs and social practices of past cultures.

ANTH 364/ENGL 364 Mythology and Folklore

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291, or 295. A study of one or more forms of folklore, such as folktales, fairy tales, legends, myths, proverbs, riddles, ballads and/or games, with some attention to literary, social or historical significance and contexts. This course may also include approaches to collecting material or to examining later literary forms and texts inspired by folklore.

ANTH 375 Field Archaeology

Semester course; 3 lecture and 8 field and laboratory hours. 6 credits. Introduction to archaeological field and basic laboratory techniques. Archaeological data collection (excavation or survey) forms the core of the course.

ANTH 380 Medical Anthropology

Semester course; 3 lecture hours. 3 credits.

Prerequisite: ANTH 210 or 220. An introduction to the biological and cultural anthropological study of global health and well-being, including healing processes, the biosocial relations of healing management and relationships between biomedicine and pluralistic medical systems.

ANTH 381/INTL 381 Modern Identities: Nation Building

Semester course; 3 lecture hours. 3 credits. Critically explores how nation building and national identities have developed over the past two centuries among peoples across the globe. Class discussions will examine theoretical perceptions of these processes and focus on how they shaped and shape realities in different times and places.

ANTH 389 World Archaeology

Effective Spring 2015

Semester course; 3 lecture hours. 3 credits.

Prerequisite: ANTH 103 or ANTH 105. Examines the diversity and evolution of human cultures through archaeological practices and techniques.

ANTH 390/ENGL 390/LING 390 Introduction to Linguistics

Semester course; 3 lecture hours. 3 credits.

Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291 or 295. An introduction to methods of language analysis, emphasizing the study of sounds and sound patterns, and units of meaning and their arrangements

ANTH 391 Topics in Anthropology

Semester course; 3 lecture hours. 3 credits. Maximum 6 credits per semester; maximum total of 18 credits in departmental topics courses that may be applied to the major. Prerequisite: ANTH/INTL 103. Seminar on current specialized areas of anthropological interest. See the Schedule of Classes for specific topics to be offered each semester.

ANTH 394/HIST 390 Historical Archaeology

Semester course; 3 lecture hours. 3 credits.

Prerequisites: ANTH/INTL 103 or ANTH 105/INTL 104, and any history course. A review of historical archaeology, recognizing its contemporary emphasis on the spread of European cultures across the globe beginning in the 15th century. Methods and findings of archaeological research from the United States, Europe and Africa will be covered with special emphasis on the study of documents and artifacts related to the emergence and present state of the modern world. Students will participate in field research.

ANTH 399 Junior Seminar

Semester course; 1 lecture hour. 1 credit. Prerequisites: ANTH 210, 220 or 230; and junior standing. Focuses on self-assessment, compilation of a portfolio and curriculum vitae, career and graduate school preparation, and lifelong application of skills and knowledge acquired in the program. Students will critically assess their experience in the anthropology program.

ANTH 403/BIOL 403 Primatology

Semester course; 3 lecture hours. 3 credits.

Prerequisite: ANTH 301/BIOL 341. Primatology investigates the taxonomic relationships among primates through comparative anatomy, comparative

behavior and comparative biochemistry. Study of primate evolution, demography, subsistence, reproduction, social organization, communication systems and ecology.

ANTH 415/INTL 415 Economic Anthropology

Semester course; 3 lecture hours. 3 credits. Provides an overview of the anthropological approach to the "economic" in social life. Analyzes the role played by systems of reciprocity and exchange in ethnographic contexts. Concepts employed by anthropologists in the study of traditional subsistence economies are used to examine modern industrialized societies.

ANTH 416/AFAM 416 The Origin and Evolution of the Idea of Race

Semester course; 3 lecture hours. 3 credits.

Prerequisite: ANTH/INTL 103 or AFAM 103 or permission of instructor. This course is an exploration of the origins and social history of the "idea" of race from the Middle Ages to the end of the 20th century. Using both historical and anthropological scholarship, the course presents an analytical framework for race as a sociocultural phenomenon.

ANTH 420/AFAM 420/INTL 420 Women of Africa

Semester course; 3 lecture hours. 3 credits.

Prerequisite: ANTH/INTL 103 or AFAM 103. This course looks at the traditional roles of women in African Societies and examines how women have coped in different environments. It focuses on the institutionalized aspects of similarities and differences in women's lives in pastoral and horticultural societies and those with mixed economies, and will contrast these with women's roles in large state societies of Africa and in the modern urbanized context.

ANTH 425/RELS 425/INTL 425 Religion, Magic and Witchcraft

Semester course; 3 lecture hours. 3 credits.

Prerequisites: ANTH/INTL 103 and UNIV 200 or HONR 200 with a minimum grade of C. A survey of the nature and variety of beliefs outside of the major streams of religious thought. Among topics considered are myth, totemism, taboo and sorcery. Emphasis on understanding supernatural beliefs and practices in relation to culture and society.

ANTH 448/FRLG 448/ENGL 455/LING 455 Language, Culture and Cognition

Semester course; 3 lecture hours. 3 credits.

Prerequisite: three credits in a 200-level literature course (or equivalent). Introduces theoretical and methodological foundations for the study of language from sociocultural perspectives. The perspectives include linguistic, philosophical, psychological, sociological and anthropological contributions to the understanding of verbal and nonverbal communication as a social activity embedded in cultural contexts. No prior training in linguistics is presupposed.

ANTH 450/ENGL 454/INTL 454 Cross-cultural Communication

Semester course; 3 lecture hours. 3 credits.

Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291, or 295. A study of the dynamics of cross-cultural communication that applies linguistic tools to understanding cultural issues and solving communication problems.

ANTH 454 Theory in Cultural Anthropology

Semester course; 3 lecture hours. 3 credits.

Prerequisites: ANTH 220 or ANTH 230, and at least one 3-credit 300-level ANTH course. A study of the connections between theoretical work that addresses understandings of culture and methodological practice centered on creating ethnography.

ANTH 455/INTL 455 Anthropology of Development and Globalization

Semester course; 3 lecture hours. 3 credits.

Prerequisite: INTL 101. May be taken for a maximum of nine credit hours in three different world areas. Consists of a global study of the developing Third World with particular emphasis on rural populations, subsistence farmers, indigenous groups and small entrepreneurs. Focuses on development and globalization while providing insights into the peasantry as a class, women in peasant societies, changes in peasant societies and the peasantry as a player in the policies of the modern state.

ANTH 457/INTL 457 Comparative Perspectives on Cultures and Societies

Semester course; 3 lecture hours. 3 credits.

Prerequisites: ANTH/INTL 103; UNIV 200 or HONR 200. Examination of the theoretical, methodological and ethical problems that arise from anthropological comparisons of cultures.

ANTH 490 Anthropology Senior Capstone

Semester course; 3 lecture hours. 3 credits.

Prerequisites: completion of 15 credits in anthropology at the 300 and 400 level or the equivalent; senior standing. Open only to anthropology majors. Explores current research that transects more than one subfield of anthropology. Research foci will be at the discretion of the instructor, but students will explore how the anthropological subfields influence and speak to each other in new translational research, and will assess the emerging literature and scientific questions with a critical and scientific perspective.

ANTH 492 Independent Study

Semester course; variable hours. Variable credit.

Maximum of 6 credits per semester; maximum total of 12 credits for all independent study and internship courses. Prerequisites: determination of the amount of credit and permission of the instructor and the group coordinator must be procured prior to enrollment in the course; a minimum GPA of 3.0 in the major. Generally open only to students of junior or senior standing who have acquired at least 12 credits in the anthropology program.

ANTH 493 Anthropology Internship

Semester course; variable hours. 1-3 credits (40 clock hours per credit). May be repeated for a maximum of 6 credits for majors and 3 credits for minors.

Prerequisites: completion of 9 credits in anthropology courses at the 300 level or above, and permission of the internship coordinator. Student must be in good academic standing with a minimum major GPA of 2.25. Designed for the advanced student to gain workplace experience in a local, national or international business or agency offering opportunities in anthropological field methods or research.

ANTH 497 Honors in Anthropology

Continuous courses; 3 lecture hours. 3-3 credits.

ANTH 497 is a prerequisite for ANTH 498. Design and completion of a long-term research project in the

major. The thesis project is the culmination of an advanced course of study within the anthropology program. Under the supervision of a faculty mentor, students must demonstrate a thorough understanding and use of anthropological research techniques and analysis, a knowledge of relevant literature, and sophisticated writing and research abilities. Students must apply to program for participation in honors thesis work. See Bulletin for eligibility criteria and application procedure.

ANTH 498 Honors in Anthropology

Continuous courses; 3 lecture hours. 3-3 credits. ANTH 497 is a prerequisite for ANTH 498. Design and completion of a long-term research project in the major. The thesis project is the culmination of an advanced course of study within the anthropology program. Under the supervision of a faculty mentor, students must demonstrate a thorough understanding and use of anthropological research techniques and analysis, a knowledge of relevant literature, and sophisticated writing and research abilities. Students must apply to program for participation in honors thesis work. See Bulletin for eligibility criteria and application procedure.

Anthropology Lab

ANTZ 301/BIOZ 341 Human Evolution Lab

Semester course; 2 laboratory hours. 1 credit. Corequisite: ANTH 301/BIOZ 341. Laboratory exercises correlated with ANTH 301/BIOZ 341. Exercises emphasize comparative primate and fossil anatomy, morphology and behavior, as well as practice in recognizing and applying evolutionary principles in human evolution.

ANTZ 303 Archaeological Methods and Research Design Lab

Semester course; 2 laboratory hours. 1 credit. Corequisite: ANTH 303. Laboratory exercises correlated with ANTH 303. Exercises emphasize practical applications of describing, cataloging and analyzing artifacts and faunal and floral remains from archaeological excavations.

ANTZ 307 Human Osteology Lab

Semester course; 2 laboratory hours. 1 credit. Corequisite: ANTH 307. Laboratory exercises correlated with ANTH 307. Exercises will emphasize practical description and identification of human bones and bony morphology, as well as associated soft tissue structures.

ANTZ 403 Primatology Lab

Semester course; 2 laboratory hours. 1 credit. Corequisite: ANTH 403/BIOZ 403. Laboratory exercises correlated with ANTH 403/BIOZ 403. Exercises will emphasize comparative studies of morphology, behavior and social systems between and among primate groups, as well as the evolution of these characteristics in extant species and populations.

Arabic

Students who wish to complete Arabic through the intermediate level or higher are required to consecutively complete 101, 102 and 201 or the equivalent. Students may then choose either 202 or 205 to complete the intermediate level.

ARBC 101 Elementary Arabic

Continuous courses; 5 lecture/recitation hours. 4-4 credits. Prerequisite: completion of ARBC 101 to enroll in ARBC 102. Elementary grammar, reading, writing and speaking.

ARBC 102 Elementary Arabic

Continuous courses; 5 lecture/recitation hours. 4-4 credits. Prerequisite: completion of ARBC 101 to enroll in ARBC 102. Elementary grammar, reading, writing and speaking.

ARBC 201 Intermediate Arabic I

Semester course; 3 lecture hours. 3 credits. Prerequisite: ARBC 102 or the equivalent. Continuation of the essentials of grammar with emphasis on achieving proficiency in aural comprehension, speaking, reading and writing skills.

ARBC 202 Intermediate Arabic II

Semester course; 3 lecture hours. 3 credits. Prerequisite: ARBC 201 or the equivalent. Continuation of the essentials of grammar with emphasis on achieving proficiency in aural comprehension, speaking, reading and writing skills.

ARBC 205 Intermediate Conversation

Semester course; 3 lecture hours. 3 credits. Prerequisite: ARBC 201. Designed to increase student proficiency in the spoken language through audio-oral exercises, dialogues and conversation.

ARBC 301 Arabic Creative Expression

Semester course; 3 lecture hours. 3 credits. Prerequisite: ARBC 202 or 205. Designed to develop further all language skills: reading, writing, comprehension and speaking. Course is divided into two parts: (a) language skills (grammar, short stories and poetry) and (b) field project (interaction with native speakers). Both parts include lectures, guest speakers and practicing the language with native speakers from the student body and the community at large.

Biology

Courses at the 500 level listed in this bulletin are open to qualified seniors and graduate students only.

BIOL 101 Biological Concepts

Semester course; 3 lecture hours. 3 credits. A topical approach to basic biological principles. Topics include molecular aspects of cells, bioenergetics, photosynthesis, cellular respiration, cellular and organismal reproduction, genetics and evolution, and ecology. Not applicable for credit toward the major in biology.

BIOL 103/ENVS 103 Environmental Science

Hybrid semester course taught mostly online; 3 lecture and 2 laboratory hours. 4 credits. Online presentations, assignments, debates and exams require students to understand situations and ideas that involve scientific, social and economic concepts associated with Earth's environment. Laboratory exercises reinforce major course concepts. Integrates aspects of biology, chemistry, geology, physics and sociology. Topics include ecology, evolution, natural resources, air and water resources, energy and recycling, population biology, and sustainable global societies. Not applicable as a prerequisite for any biology course at

the 200 level or above, nor for credit toward the B.S. in Biology.

BIOL 151 Introduction to Biological Sciences I

Semester course; 3 lecture hours. 3 credits. Pre- or corequisites: MATH 151 and CHEM 101. Introduction to core biological concepts including cell structure, cellular metabolism, cell division, DNA replication, gene expression and genetics. Designed for biology majors.

BIOL 152 Introduction to Biological Sciences II

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 151 and CHEM 101. Focuses on evolutionary principles, the role of natural selection in the evolution of life forms, taxonomy and phylogenies, and biological diversity in the context of form and function of organisms. Designed for biology majors.

BIOL 201 Human Biology

Semester course; 3 lecture hours. 3 credits. Prerequisite: BIOL 101, 151, or 152, or BIOL/ENVS 103. Fundamentals of human biology, including the structure, function and disorders of human body systems, principles of human genetics and inheritance, human evolution, and the interaction of humans with the environment. Not applicable for credit toward the B.S. in Biology.

BIOL 205 Basic Human Anatomy

Semester course; 3 lecture and 2 laboratory hours, plus online component. 4 credits. Prerequisites: BIOL 101 and BIOZ 101, BIOL 151 and BIOZ 151, or BIOL 152 and BIOZ 152, each with a minimum grade of C. Human specimens, models and interactive software are used to study human body structures; emphasis is on the skeletal-muscular aspects. Not applicable for credit toward the B.S. in Biology.

BIOL 209 Medical Microbiology

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 101 and BIOZ 101, BIOL 151 and BIOZ 151, or BIOL 152 and BIOZ 152, each with a minimum grade of C. General principles of microbiology and immunology to provide a thorough understanding of the host-microbe relationship in disease. Not applicable for credit toward the B.S. in Biology.

BIOL 217 Principles of Nutrition

Semester course; 3 lecture hours. 3 credits. Prerequisite: BIOL 101, 151 or 152 with a minimum grade of C, or BIOL/ENVS 103 with a minimum grade of C. An introduction to basic principles of nutrition and their application in promoting growth and maintaining health throughout the life cycle. Not applicable for credit toward the B.S. in Biology.

BIOL 218 Cell Biology

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 151 and 152; BIOZ 151 or LFSC/BNFO 251; BIOZ 152 or LFSC/BNFO 252; and CHEM 101 and CHEZ 101, all with a minimum grade of C. Pre- or corequisites: CHEM 102 and CHEZ 102. A study of the molecular biology of the cell as it relates to gene expression, cell signaling, and cell growth and differentiation.

BIOL 220 Biology Major Workshop

Semester course; 1.25 workshop hours. 1 credit. Prerequisites: BIOL 151 and 152, and BIOZ 151 and 152, with minimum grades of C. Workshop course for

biology majors of sophomore or junior standing that focuses on the requirements for a degree in biology, development of an advising portfolio and increasing awareness of potential career opportunities in biological sciences. Graded as pass/fail.

BIOL 291 Topics in Biology

Semester course; variable hours. Variable credit. Prerequisites: BIOL 151, 152 and BIOZ 151, 152, with minimum grades of C. A study of a selected topic in biology. See the Schedule of Classes for specific topics to be offered each semester and prerequisites.

BIOL 292 Independent Study

Semester course; variable hours. Variable credit. Maximum of 2 credits per semester; maximum total of 6 credits for all independent study courses (BIOL 292 and/or 492). Prerequisites: BIOL 151, 152 and BIOZ 151, 152, with minimum grades of C, and an overall GPA of 3.0. Designed to allow students to accomplish independent readings of biological literature under the supervision of a staff member.

BIOL 301 Comparative Vertebrate Anatomy

Semester course; 3 lecture and 4 laboratory hours. 5 credits. Prerequisite: BIOL 218 with a minimum grade of C. The evolution of vertebrate forms as demonstrated by anatomical studies of selected vertebrate types.

BIOL 302 Animal Embryology

Semester course; 3 lecture and 4 laboratory hours. 5 credits. Prerequisite: BIOL 218 with a minimum grade of C. Basic reproductive and developmental processes during animal embryonic development. Includes programming/packaging in the egg, cell-cell interactions and basic organogenesis. Cellular mechanisms and the role of differential gene activity in developmental processes and experimental work using living invertebrate and vertebrate embryos.

BIOL 303 Microbiology

Semester course; 3 lecture hours. 3 credits. Prerequisite: BIOL 218 with a minimum grade of C. The morphological, biochemical, taxonomic, genetic and evolutionary characteristics of microorganisms with a primary focus on bacteria. Focuses on the structural, mechanical and biochemical adaptations employed by microorganisms in their interactions with host cells and substrates.

BIOL 307 Aquatic Ecology

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 317, CHEM 102 and CHEZ 102, with minimum grades of C. The physical, chemical and especially the biological aspects of freshwater ecosystems.

BIOL 308 Vertebrate Histology

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisite: BIOL 218 with a minimum grade of C. Microanatomy of vertebrate cells, tissues and organs and the relationship of structure to function. Laboratory work involves an in-depth study of vertebrate microanatomy at the light microscope level as well as an introduction to techniques used for the preparation of materials for histological study.

BIOL 309 Entomology

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisites: BIOL 151, 152 and BIOZ 151, 152, with minimum grades of C. A field-based course

that focuses on insect diversification, identification, natural history and basic biology.

BIOL 310 Genetics

Semester course; 3 lecture hours. 3 credits. Prerequisite: BIOL 218 and UNIV 200 or HONR 200 with minimum grades of C. The basic principles of molecular and applied genetics of plants, animals and microorganisms.

BIOL 311 Animal Physiology

Semester course; 3 lecture hours. 3 credits. Prerequisite: BIOL 218 with a minimum grade of C. Physiological principles of animal cells, tissues and organs from the viewpoint of chemical and physical phenomena.

BIOL 312 Invertebrate Zoology

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 151, 152 and BIOZ 151, 152, with minimum grades of C. A survey of the invertebrate animals with emphasis on environmental interactions. A weekend trip to a marine environment is required.

BIOL 313 Vertebrate Natural History

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 151, 152 and BIOZ 151, 152, with minimum grades of C. The natural history of vertebrates with emphasis on the species native to Virginia.

BIOL 314 Animal Reproduction

Semester course; 3 lecture hours. 3 credits. Prerequisite: BIOL 218 with a minimum grade of C. Introduction to basic reproductive anatomy and physiology. Examination of the basic factors that affect reproductive performance and how these factors are used to regulate the reproductive processes of domestic animals and humans.

BIOL 317 Ecology

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 151, 152 and BIOZ 151, 152, and UNIV 200 or HONR 200, with minimum grades of C. An introduction to the basic principles of ecology, including interactions among organisms and influences of the physical environment.

BIOL 320 Biology of the Seed Plant

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisite: BIOL 218 with a minimum grade of C. The physiology, structure and adaptation of seed plants.

BIOL 321 Plant Development

Semester course; 3 lecture hours. 3 credits. Prerequisite: BIOL 218 with a minimum grade of C. A survey of the developmental changes that take place during the life cycle of lower and higher plants. Emphasis is placed on the control factors that are involved in regulating the ordered changes which take place during development.

BIOL 322 Economic Botany

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 151 and 152 and BIOZ 151 and 152, or equivalents, with minimum grades of C. This class focuses on plant morphology, anatomy, phytochemistry, growth and reproduction through an examination of the biology of economically and culturally important plants, including crops used for foods and beverages, medicines and drugs, fibers, and timber.

BIOL 323 Plant Physiology

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 151 and 152, BIOZ 151 and 152, and BIOL 218, or equivalents, with minimum grades of C. An introduction to basic plant physiology, including transport processes, energy production and secondary metabolism with emphasis on adaptations to stress.

BIOL 332/ENVS 330 Environmental Pollution

Semester course; 3 lecture hours. 3 credits. Prerequisites: eight credits in biology. The study of pollution in the environment with emphasis on the procedures for detection and abatement.

BIOL 333 Evolution of the Angiosperms

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 151, 152 and BIOZ 151, 152, all with minimum grade of C. Application of evolutionary concepts to flowering plants. Topics include speciation concepts, evolution of vegetative and sexual characteristics and an overview of angiosperm diversity to the level of family.

BIOL 335 Global Change Biology

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 151, BIOL 152, BIOZ 151 and BIOZ 152, all with minimum grade of C. Examines how humans influence biological systems and explores what can be done to adapt to or to mitigate future global change, emphasizing anthropogenic climate change.

BIOL 341/ANTH 301 Human Evolution

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 200 or HONR 200 with a minimum grade of C. Introduces the range of human diversity as well as a broad understanding of evolution and evolutionary biology, particularly as it applies to hominid evolution. Specific topics include basic genetics, primatology, paleontology, and growth and development.

BIOL 351/BNFO 301 Introduction to Bioinformatics

Semester course; 3 lecture hours. 3 credits. Introduction to the basic concepts, tools and possibilities of bioinformatics, the analysis of large bodies of biological information. The course stresses problem-solving and integrative projects, making extensive use of exercises in class that draw on bioinformatics resources on the Web and on local servers. Graded as pass/fail.

BIOL 361 Biomedical Research

Semester course; 1 lecture hour. 1 credit. Prerequisites: BIOL 151, 152 and BIOZ 151, 152, with minimum grades of C. Pre- or corequisite: BIOL 218. An introduction to biomedical research projects.

BIOL 380/BNFO 380/MATH 380 Introduction to Mathematical Biology

Semester course; 3 lecture and 2 laboratory hours. 4 credits. Prerequisites: MATH 200 and BIOL 151, or permission of instructor. An introduction to mathematical biology. Various mathematical modeling tools will be covered and implemented in a range of biological areas. Additionally, the collaborative research process will be presented and discussed.

BIOL 391 Topics in Biology

Semester course; variable hours. Variable credit. Prerequisites: BIOL 151, 152 and BIOZ 151, 152, with minimum grades of C. A study of a selected topic in biology. See the Schedule of Classes for specific topics to be offered each semester and prerequisites.

BIOL 392 Introduction to Research

Semester course; 2 lecture/demonstration hours. 1 credit. Prerequisites: UNIV 200 or HONR 200; STAT 210; BIOL 310; BIOL 317; one of the following laboratory experiences: BIOZ 310, BIOZ 317 or BIOZ 476; all with minimum grades of C. An introduction to the scientific process, including the mechanics of problem definition, information gathering and experimental design. Experimentation is discussed in context with methods of data collection and analysis; some basic research techniques are demonstrated. Aims are to prepare the student for future research experiences, and to have the student write detailed research proposals.

BIOL 401 Applied and Environmental Microbiology

Semester course; 3 lecture hours. 3 credits. Prerequisite: BIOL 218 with a minimum grade of C. The biology and chemical activities of microorganisms (bacteria, algae, virus and fungi) of industrial, pharmaceutical and agricultural importance.

BIOL 403/ANTH 403 Primatology

Semester course; 3 lecture hours. 3 credits. Prerequisite: ANTH 301/BIOL 341. Primatology investigates the taxonomic relationships among primates through comparative anatomy, comparative behavior and comparative biochemistry. Study of primate evolution, demography, subsistence, reproduction, social organization, communication systems and ecology.

BIOL 413 Parasitology

Semester course; 3 lecture hours. 3 credits. Prerequisite: BIOL 218 with a minimum grade of C. The epidemiology and pathological effects of eukaryotic parasites, including parasite life cycles and host-parasite relationships.

BIOL 416 Ornithology

Semester course; 3 lecture hours. 3 credits. Prerequisite: BIOL 317 with a minimum grade of C. Provides an integrative study of birds, including avian evolution and diversity, general anatomy and physiology, behavior, and ecology.

BIOL 417 Mammalogy

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisites: BIOL 218 and 317 with minimum grades of C. Study of the characteristics, adaptive radiation and distribution of mammals, with emphasis on North American forms.

BIOL 422 Forest Ecology

Semester course; 3 lecture hours and 3 laboratory hours. 4 credits. Prerequisite: BIOL 317 with a minimum grade of C. Covers the fundamentals of forest ecology, with a particular emphasis on Virginia's diverse forest ecosystems. Students gain an understanding of the principal controls on forest structure, growth and distribution and relate these principles to sustainable forest management.

BIOL 425 Field Botany

Semester course; 2 lecture hours and 3 laboratory hours. (60 percent online, 40 percent field/laboratory) 3 credits. Prerequisites: BIOL 310 and BIOL 317, both with minimum grades of C. Online lectures, discussions, reflections and assessments in conjunction with field experience. Explores the effects of environmental conditions on plant morphology and adaptations, with emphasis on plant anatomy, plant physiology and ecology.

BIOL 431 Introduction to Marine Biology

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 317, CHEM 102 and CHEZ 102, with minimum grades of C. An introduction to physical, chemical and geological oceanography and a more detailed treatment of the organisms and ecological processes involved in the pelagic and benthic environments of the world's oceans and estuaries.

BIOL 435 Herpetology

Semester course; 3 lecture hours. 3 credits. Prerequisite: BIOL 317 with a minimum grade of C. The evolution, ecology, structure, taxonomy and behavior of reptiles and amphibians.

BIOL 438/FRSC 438 Forensic Molecular Biology

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 310 or equivalent; CHEM 302 and CHEZ 302. Provides an understanding of molecular biology testing methodologies as applied to analysis of forensic samples. Current topics in forensic DNA analysis will include quality assurance, DNA databanking, contemporary research and population genetics.

BIOL 445 Neurobiology and Behavior

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisite: BIOL 317 with a minimum grade of C. The study of animal behavior stressing ecological, evolutionary and neurobiological approaches.

BIOL 450 Biology of Cancer I and II

Continuous courses; 3 lecture hours for fall semester, 1 lecture and 12 laboratory hours for spring semester. 3-4 credits. Prerequisites: BIOL 218 with a minimum grade of C; completion of BIOL 450 and instructor's permission to enroll in BIOL 451. An examination of the cellular, molecular and clinical aspects of cancer development, progression and treatment.

BIOL 451 Biology of Cancer I and II

Continuous courses; 3 lecture hours for fall semester, 1 lecture and 12 laboratory hours for spring semester. 3-4 credits. Prerequisites: BIOL 218 with a minimum grade of C; completion of BIOL 450 and instructor's permission to enroll in BIOL 451. An examination of the cellular, molecular and clinical aspects of cancer development, progression and treatment.

BIOL 455 Immunology

Semester course; 3 lecture hours. 3 credits. Prerequisite: BIOL 310 with a minimum grade of C. A comprehensive introduction to the immune system of higher animals, emphasizing the molecular and cellular basis for antibody-mediated immunity.

BIOL 475 Biology Capstone Seminar: _____

Semester course; variable hours. Variable credit. Prerequisites: completion of the Biocore with minimum grades of C and 90 hours of undergraduate course work. Students read assigned topical papers before class, prepare critical analyses, discuss and debate selected positions. See Schedule of Classes for specific topics.

BIOL 477 Biology Capstone Experience

Semester course; variable hours. 0 credits. Prerequisites: completion of the Biocore with minimum grades of C and 90 hours of undergraduate course work. The following courses qualify as a capstone experience if taken as a co-requisite with this course: BIOL 492 Independent Study, BIOL 493 Biology Internship, BIOL 495 Research and Thesis, BIOL 497 Ecological Service Learning or other courses, including topics courses, that include the core competencies required for a capstone experience and are approved by the chair of the Department of Biology. Graded as Pass/Fail.

BIOL 489 Communicating Research

Semester course; 1 lecture hour. 1 credit. Prerequisite: Completion of the Biocore with minimum grades of C. Corequisite: BIOL 495, senior standing. An opportunity for students to develop skills necessary for effective communication of their research in writing. Includes a variety of seminar discussions and activities including preparation of figures for publication and the crafting of a research paper with correct usage of the primary literature. Students will use this as an opportunity to aid the writing of their thesis for BIOL 495.

BIOL 490 Presenting Research

Semester course; 1 credit. Prerequisite: Completion of the Biocore with minimum grades of C. Pre- or corequisites: BIOL 492 or 495, and senior standing. Opportunity for students to develop skills necessary for effective oral presentation of their research work. Includes a variety of seminar discussions and activities such as preparation of visual materials and statistical analysis of data. Students will make several oral presentations directly related to their specific BIOL 492 or 495 projects.

BIOL 491 Topics in Biology

Semester course; variable hours. Variable credit. Prerequisite: BIOL 218. A study of a selected topic in biology. See the Schedule of Classes for specific topics to be offered each semester and prerequisites.

BIOL 492 Independent Study

Semester course; variable hours. Variable credit. Maximum of 4 credits per semester; maximum total of 6 credits for all independent study courses (BIOL 292, 492 and/or 495). A minimum of 2 credits is required for the course to count as a laboratory experience. Prerequisite: minimum grade of C in one of the following courses: BIOZ 310, BIOZ 317 or BIOZ 476; and permission of the chair of the Department of Biology. Projects should include data collection and analysis, learning field and/or laboratory techniques, and/or mastering experimental procedures, all under the direct supervision of a faculty member. A minimum of three hours of supervised activity per week per credit hour is required. A final report must be submitted at the completion of the project. Graded as pass/fail.

BIOL 493 Biology Internship

Semester course; variable hours. Variable credit. Maximum of 3 credits per semester; maximum total of 6 credits for all independent study and internship courses. 1 credit awarded for each 100 hours of work experience in professional biology setting. Prerequisites: BIOL 310 or 317 with minimum grades of C; and permission of the chair of the Department of Biology and of the agency, company or organization in which internship will be held. Internship designed to provide laboratory or field experience in an off-campus professional biology setting. A final report must be submitted upon completion of the internship. Graded as pass/fail.

BIOL 495 Research and Thesis

Semester course; variable hours. Variable credit. Maximum of 4 credits per semester; maximum total of 6 credits for all undergraduate research in biology (BIOL 292, 492, 495). A minimum of 2 credits is required for the course to count as a laboratory experience. A minimum of 4 credits is required for honors in biology. Prerequisites: LFSC 301, permission of the supervising faculty member and a research proposal acceptable to the departmental chair. Activities include field and/or laboratory research under the direct supervision of a faculty mentor. A minimum of three hours of supervised activity per week per credit hour is required. Research projects must include experimental design and analysis of data. A written thesis of substantial quality is required upon completion of the research.

BIOL 496 Biology Preceptorship

Semester course; 2 credits. May be repeated with a different course for a maximum of 4 credits. Prerequisites: completion of the relevant course with a minimum grade of B and a minimum cumulative GPA of 3.0. Permission of instructor and departmental chair required prior to registration. Preceptors assist instructors in lecture (BIOL) or laboratory (BIOZ) courses. Responsibilities vary and may include, but are not limited to, attending class, conducting review sessions and preparing course study/review materials. Graded as pass/fail.

BIOL 497 Ecological Service Learning

Semester course; 1 lecture hour. 1 credit. Prerequisite: BIOL 317 with a minimum grade of C. A service-learning course coupled to course content and material taught in BIOL 317. Students will seek out ecologically relevant opportunities with local, state and federal community partners who will provide experiences to enhance academic enrichment and personal growth and will help foster a sense of civic responsibility. Students must complete a minimum of 20 service-learning hours with community partner(s).

Biology Lab**BIOZ 101 Biological Concepts Laboratory**

Semester course; 2 laboratory hours. 1 credit. Pre- or corequisite: BIOL 101, 151 or 152. Laboratory exercise correlated with BIOL 101. Not applicable for credit toward the B.S. in Biology.

BIOZ 151 Introduction to Biological Science Laboratory I

Semester course; 3 laboratory hours. 1 credit. Pre- or corequisites: BIOL 151, MATH 151 and CHEM 101. Laboratory investigation of plant genetics, physiology

and evolution, with an emphasis on formation and testing of hypotheses. Laboratory exercises will elaborate themes discussed in BIOL 151.

BIOZ 152 Introduction to Biological Science Laboratory II

Semester course; 3 laboratory hours. 1 credit. Pre- or corequisites: BIOL 152, MATH 151 and CHEM 101. Laboratory investigation of animal genetics, physiology and evolution, with an emphasis on formation and testing of hypotheses. Laboratory exercises will elaborate themes discussed in BIOL 152.

BIOZ 201 Human Biology Laboratory

Semester course; 2 laboratory hours. 1 credit. Pre- or corequisite: BIOL 201. Laboratory exercises correlated with BIOL 201 Human Biology. Exercises emphasize the structure, function and disorders of human body systems, principles of human genetics and inheritance, and human evolution and ecology. Not applicable for credit toward the B.S. in Biology.

BIOZ 209 Medical Microbiology Laboratory

Semester course; 2 laboratory hours. 1 credit. Pre- or corequisite: BIOL 209. Techniques to culture, isolate and identify microbes with related topics such as water coliform tests, and antibiotics and disinfectant sensitivity testing. Not applicable for credit toward the B.S. in Biology.

BIOZ 303 Microbiology Laboratory

Semester course; 4 laboratory hours. 2 credits. Pre- or corequisite: BIOL 303. Laboratory application of techniques and concepts in microbiology. Emphasis is placed on techniques to isolate, culture and identify bacteria; genetics and molecular biology of bacteria; safety and aseptic protocols; assays for antibiotic and disinfectant susceptibility.

BIOZ 307 Aquatic Ecology Laboratory

Semester course; 3 laboratory hours. 1 credit. Prerequisites: BIOL 317, CHEM 102 and CHEZ 102, with minimum grades of C. Pre- or corequisite: BIOL 307. Laboratory and field studies of the biota of aquatic habitats and their relationship with the environment.

BIOZ 310 Laboratory in Genetics

Semester course; 1 lecture and 3 laboratory hours. 2 credits. Prerequisites: BIOL 218 and UNIV 200 or HONR 200 with minimum grades of C. Prerequisite or corequisite: BIOL 310. Demonstrates the laws and molecular basis of heredity through exercises and experiments that use a variety of organisms.

BIOZ 312 Invertebrate Zoology Laboratory

Semester course; 3 laboratory hours. 1 credit. Prerequisites: BIOL and BIOZ 151 and 152, with minimum grades of C. Pre- or corequisite: BIOL 312. A laboratory survey of the invertebrate animals, with emphasis on environment interactions. A weekend trip to a marine environment is required.

BIOZ 313 Vertebrate Natural History Laboratory

Semester course; 3 laboratory hours. 1 credit. Prerequisites: BIOL and BIOZ 151 and 152, with minimum grades of C. Pre- or corequisite: BIOL 313. Laboratory exercises focusing on the natural history of vertebrates, with emphasis on the species native to Virginia.

BIOZ 317 Ecology Laboratory

Semester course; 4 laboratory hours. 2 credits. Prerequisites: BIOL and BIOZ 151 and 152, and UNIV 200 or HONR 200; all with minimum grades of C. Pre- or corequisite: BIOL 317. A field-oriented course that provides experience in ecological research, including experimental design, instrumentation, data collection and data analysis.

BIOZ 321 Plant Development Laboratory

Semester course; 4 laboratory hours. 2 credits. Prerequisite: BIOL 218 with a minimum grade of C. Pre- or corequisite: BIOL 321. An experimental approach applied to a phylogenetic survey of developmental model systems. Observational and experimental protocols will be used to collect data and gather information. Problem-solving skills will be utilized to analyze and present experimental results.

BIOZ 341/ANTZ 301 Human Evolution Lab

Semester course; 2 laboratory hours. 1 credit. Corequisite: BIOL 341/ANTH 301. Laboratory exercises correlated with BIOL 341/ANTH 301. Exercises emphasize comparative primate and fossil anatomy, morphology and behavior, as well as practice in recognizing and applying evolutionary principles in human evolution.

BIOZ 391 Topics in Biology Laboratory

Semester course; variable hours. Variable credit. Prerequisites: BIOL and BIOZ 151 and 152, with minimum grades of C. Laboratory investigations in a selected topic of biology. See the Schedule of Classes for specific topics to be offered each semester and prerequisites.

BIOZ 416 Ornithology Laboratory

Semester course; 4 laboratory hours. 2 credits. Prerequisite: BIOL 317 with a minimum grade of C. Pre- or corequisite: BIOL 416. A field-oriented course that develops basic skills in bird identification by sight and sound for a variety of regional taxa with emphasis on avian anatomy and adaptations for flight. Students conduct an independent or small-group research project on a question of their choice relating to avian ecology or behavior, including experimental design, data collection and analysis, and a final project presentation.

BIOZ 438/FRSZ 438 Forensic Molecular Biology Laboratory

Semester course; 3 laboratory hours. 1 credit. Pre- or corequisite: BIOL/FRSC 438. Provides comprehensive coverage of the various types of DNA testing currently used in forensic science laboratories. Students will have hands-on experience with the analytical equipment employed in forensic science laboratories and the techniques for human identification in forensic casework. Students also will explore and practice both scientific writing and writing of DNA case reports.

BIOZ 476 Biology Capstone Laboratory

Semester course; 1 lecture and 3 laboratory hours. 2 credits. Prerequisite: BIOL 310 with a minimum grade of C, and 90 credit hours of undergraduate course work. Application of basic methods used in cellular and molecular biology to the investigation of topics of current biological interest. Emphasis on experimental design, data collection and analysis, communication skills, critical thinking, and ethical and social responsibility. Formerly BIOL 300.

BIOZ 491 Topics in Biology Laboratory

Semester course; variable hours. Variable credit. Prerequisites: BIOL and BIOZ 151 and 152, with minimum grades of C. Laboratory investigations in a selected topic of biology. See the Schedule of Classes for specific topics to be offered each semester and prerequisites.

Chemistry

A grade of C or higher is required in each prerequisite course: CHEM 100 (if required through placement test), CHEM 101, CHEM 102, CHEM 301, CHEM 302, and CHEM 309. In chemistry laboratories each student is charged for breakage incurred. Approved safety glasses are required. Failure to check out of laboratory, upon withdrawal or for other reasons, will incur a charge, billed from the Student Accounting Department.

CHEM 100 Introductory Chemistry

Semester course; 3 lecture and 1 problem session hour. 3 credits. Prerequisite: students must be eligible to take MATH 131 or higher. A course in the elementary principles of chemistry for individuals who do not meet the criteria for enrollment in CHEM 101; required for all students without a high school chemistry background who need to take CHEM 101-102. These credits may not be used to satisfy any chemistry course requirements in the College of Humanities and Sciences.

CHEM 101 General Chemistry

Continuous courses; 3 lecture and 1 recitation hour. 3-3 credits. Prerequisite: CHEM 100 with a grade of C or higher, or high school chemistry and a satisfactory combination of Math SAT score and high school GPA. Pre- or corequisite: MATH 151. Prerequisite for CHEM 102: CHEM 101 with a grade of C or higher. Fundamental principles and theories of chemistry, including qualitative analysis.

CHEM 102 General Chemistry

Continuous courses; 3 lecture and 1 recitation hour. 3-3 credits. Prerequisite: CHEM 100 with a grade of C or higher, or high school chemistry and a satisfactory combination of Math SAT score and high school GPA. Pre- or corequisite: MATH 151. Prerequisite for CHEM 102: CHEM 101 with a grade of C or higher. Fundamental principles and theories of chemistry, including qualitative analysis.

CHEM 110 Chemistry and Society

Semester course; 3 lecture hours. 3 credits. The basic principles of chemistry are presented through the use of decision-making activities related to real-world societal issues. Not applicable for credit toward the B.S. in Chemistry.

CHEM 112 Chemistry in the News

Semester course; 3 lecture hours. 3 credits. The basic principles of chemistry are used to interpret newspaper and magazine articles of current interest relating to chemistry in manufacturing, the global environment and medicine. Not applicable for credit toward the B.S. in Chemistry.

CHEM 301 Organic Chemistry

Continuous courses; 3 lecture hours. 3-3 credits. Prerequisite: CHEM 102 with a minimum grade of C. Prerequisite for CHEM 302: CHEM 301 with a minimum grade of C. A comprehensive survey of

aliphatic and aromatic compounds with emphasis on their structure, properties, reactions, reaction mechanisms and stereochemistry.

CHEM 302 Organic Chemistry

Continuous courses; 3 lecture hours. 3-3 credits. Prerequisite: CHEM 102 with a minimum grade of C. Prerequisite for CHEM 302: CHEM 301 with a minimum grade of C. A comprehensive survey of aliphatic and aromatic compounds with emphasis on their structure, properties, reactions, reaction mechanisms and stereochemistry.

CHEM 303 Physical Chemistry

Semester course; 3 lecture hours. 3 credits. Prerequisites: CHEM 309 or CLSE 201 with minimum grades of C, and PHYS 202 or PHYS 208, and MATH 201 or MATH 301 or MATH 307. Ideal and nonideal gases, thermodynamics, free energy and chemical equilibrium.

CHEM 304 Physical Chemistry

Semester course; 3 lecture hours. 3 credits. Prerequisites: CHEM 303 with a minimum grade of C. Kinetics, solution thermodynamics, heterogeneous equilibria, electrochemistry and introductory biophysical chemistry.

CHEM 305 Physical Chemistry for the Life Sciences

Semester course; 3 lecture hours. 3 credits. Prerequisites: CHEM 301-302 and CHEM 309 with minimum grades of C; and MATH 200. Concepts and principles of physical chemistry as related to the life sciences, forensic science and the B.S. in science programs. Major topics include thermodynamics of proteins and nucleic acids, enzyme kinetics and spectroscopic techniques useful in biophysical research such as circular dichroism, nuclear magnetic resonance and magnetic resonance imaging.

CHEM 306/CLSE 306 Industrial Applications of Inorganic Chemistry

Semester course; 3 lecture hours. 3 credits. Prerequisites: CHEM 302 and CHEZ 302. Chemical engineering students: EGRC 201 and EGRC 205. A study and analysis of the most important industrial applications of inorganic chemistry, with emphasis on structure/properties correlation, materials and energy balance, availability and logistics of starting materials, economic impact and environmental effects.

CHEM 309 Quantitative Analysis

Semester course; 3 lecture hours. 3 credits. Prerequisites: CHEM 102 with a minimum grade of C, and MATH 151. Theory and practice of gravimetric, volumetric and instrumental analysis techniques and treatment of multiple equilibria in aqueous solutions.

CHEM 310/MEDC 310 Medicinal Chemistry and Drug Design

Semester course; 3 lecture hours. 3 credits. Prerequisite: CHEM 302. This course is designed to expose undergraduate chemistry, biology and pre-medicine majors to the history, theory and practice of medicinal chemistry. The course will emphasize a combination of fundamentals and applications of drug design. In particular, the molecular aspects of drug action will be discussed. Special emphasis will also be placed on the methods used by medicinal chemists to design new drugs.

CHEM 320 Inorganic Chemistry I

Semester course; 3 lecture hours. 3 credits. Prerequisites: CHEM 101-102 with minimum grades of C. A systematic, unified study of the structures, properties, reactions and practical applications of inorganic compounds.

CHEM 350 Guided Inquiry in Chemistry

Semester course; 1.5 lecture hours. 1.5 credits. Prerequisites: CHEM 101-102 with minimum grades of B. Student facilitators lead recitation sections using guided inquiry, group-based activities. Introduces students to the principles of guided inquiry, active learning and collaborative learning in chemistry through practical, hands-on class work, discussions, readings and a final project.

CHEM 351 Chemistry Preceptorship

Semester course; 1.5 lecture hours. 1.5 credits. Course may be repeated once for a total of 3 credits. Prerequisites: completion of relevant course with minimum grade of C, completion of CHEM 350 with a grade of B and permission of course instructor and departmental chair. Student facilitators lead recitation sections or laboratories in chemistry courses. Responsibilities vary and may include, but are not limited to, attending all classes, holding weekly review sessions or office hours and/or routine grading. A weekly reflection journal and final project are required.

CHEM 391 Topics in Chemistry

Semester course; variable hours. Variable credit. Maximum of 4 credits per semester; maximum total of 6 credits for all chemistry topics courses may be applied to the major. Prerequisites: CHEM 101-102 and CHEZ 101, 102. A study of a selected topic in chemistry. See the Schedule of Classes for specific topics to be offered each semester.

CHEM 392 Directed Study

Semester course; variable hours. 1-4 credits. May be repeated for a maximum total of 8 credits; only 3 credits are applicable to the chemistry major. Prerequisites: CHEM 102 and CHEZ 101 and 102. The independent investigation of chemical problems through readings and experimentation under the supervision of a research adviser. Written interim and final reports are required.

CHEM 398 Professional Practices and Perspectives Seminar

Seminar course; 1 lecture hour. 1 credit. Prerequisites: completion of 18 credits in chemistry. Seminar course for students considering careers in chemistry-related fields covering topics such as scientific professionalism and ethics, and using chemical literature.

CHEM 401 Applications of Instrumental Techniques in Organic and Forensic Chemistry

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisites: CHEM 302 and CHEZ 302. Theory and laboratory practice of instrumental and chemical methods applied to the analysis of organic compounds with emphasis on applications in forensic chemistry.

CHEM 403 Biochemistry I

Semester course; 3 lecture hours. 3 credits. Prerequisites: CHEM 302 with a minimum grade of C.

A presentation of structural biochemistry, enzymology, biophysical techniques, bioenergetics and an introduction to intermediary metabolism.

CHEM 404 Biochemistry II

Semester course; 3 lecture hours. 3 credits.
Prerequisite: CHEM 403 with a minimum grade of C. A presentation of metabolism and its regulation as integrated catabolism and anabolism of molecules that are essential to life.

CHEM 406 Inorganic Chemistry II

Semester course; 3 lecture hours. 3 credits.
Prerequisites: CHEM 304 and 320. An advanced study of inorganic chemistry, including inorganic spectroscopy, organometallic compounds and catalysis, and bioinorganic systems.

CHEM 409 Instrumental Analysis

Semester course; 3 lecture hours. 3 credits.
Prerequisites: CHEM 303 and 309, and CHEZ 309. Theory and practice of modern spectrophotometric, electroanalytical and chromatographic and nuclear magnetic resonance methods.

CHEM 491 Topics in Chemistry

Semester course; variable hours. Variable credit. Maximum of 4 credits per semester; maximum total of 6 credits for all chemistry topics courses may be applied to the major. Prerequisites: CHEM 102 and CHEZ 101 and 102. A study of a selected topic in chemistry. See the Schedule of Classes for specific topics to be offered each semester and prerequisites.

CHEM 492 Independent Study

Semester course; variable hours. 1-4 credits. May be repeated for a maximum total of 8 credits; only 3 credits are applicable to the chemistry major. Prerequisites: CHEM 102 and CHEZ 101 and 102. The independent investigation of chemical problems through readings and experimentation under the supervision of a research adviser. Written interim and final reports required.

CHEM 493 Chemistry Internship

Semester course; variable hours. Variable credit. Maximum of 3 credits; 1 credit will be given for each 150 hours (approximately one month) of part-time or full-time chemical work experience. Prerequisites: CHEM 102 and CHEZ 101 and 102. Acquisition of chemistry laboratory experience through involvement in a professional chemistry setting. Written progress and final reports will be required.

CHEM 498 Honors Thesis

Semester course; 1 credit. Prerequisites: completion of 29 credits in chemistry, including CHEM 398 and at least six credits of CHEM 492. Students submit to the Department of Chemistry a thesis based on their independent study research. Students also present their results to the department as a research seminar.

Chemistry Lab

CHEZ 101 General Chemistry Laboratory I

Semester course; 1 lecture and 2 laboratory hours. 1 credit. Pre- or corequisite: CHEM 101. Experimental work correlated with CHEM 101 with selected forensic science applications. Each student is charged for breakage incurred. Approved safety glasses are required. Failure to check out of laboratory upon

withdrawal or for other reasons will incur a charge billed from the Student Accounting Department.

CHEZ 102 General Chemistry Laboratory II

Semester course; 1 lecture and 2 laboratory hours. 1 credit. Prerequisites: CHEM 101 and CHEZ 101 with minimum grades of C. Pre- or corequisite: CHEM 102. Experimental work includes qualitative analysis with selected forensic science applications. Each student is charged for breakage incurred. Approved safety glasses are required. Failure to check out of laboratory upon withdrawal or for other reasons will incur a charge billed from the Student Accounting Department.

CHEZ 110 Chemistry and Society Laboratory

Semester course; 2 laboratory hours. 1 credit. Pre- or corequisite: CHEM 110. Experimental work correlated with CHEM 110. Not applicable for credit toward the B.S. in Chemistry. Each student is charged for breakage incurred. Approved safety glasses are required. Failure to check out of laboratory upon withdrawal or for other reasons will incur a charge billed from the Student Accounting Department.

CHEZ 301 Organic Chemistry Laboratory I

Semester course; 4 laboratory hours. 2 credits. Prerequisites: CHEM 102 and CHEZ 102 with minimum grades of C. Pre- or corequisite: CHEM 301. Experimental work correlated with CHEM 301. Each student is charged for breakage incurred. Approved safety glasses are required. Failure to check out of laboratory upon withdrawal or for other reasons will incur a charge billed from the Student Accounting Department.

CHEZ 302 Organic Chemistry Laboratory II

Semester course; 4 laboratory hours. 2 credits. Prerequisites: CHEM 301 and CHEZ 301 with minimum grades of C. Pre- or corequisite: CHEM 302. Experimental work correlated with CHEM 302. Each student is charged for breakage incurred. Approved safety glasses are required. Failure to check out of laboratory upon withdrawal or for other reasons will incur a charge billed from the Student Accounting Department.

CHEZ 303 Physical Chemistry Laboratory I

Semester course; 4 laboratory hours. 2 credits. Prerequisites: CHEM 102 and CHEZ 102. Pre- or corequisites: CHEM 303, 309 and CHEZ 309. This course covers experiments in calorimetry, molecular and thermodynamic properties of gases and liquids, surfaces, electrochemistry, equilibria, polymers, phase diagrams, and biophysical chemistry. Extensive report writing, laboratory notebook writing and statistical analysis of data are emphasized. A final project may be required.

CHEZ 304 Physical Chemistry Laboratory II

Semester course; 4 laboratory hours. 2 credits. Prerequisites: CHEM 303, 309 and CHEZ 303, 309. Pre- or corequisite: CHEM 304. This course covers experiments in absorption and emission spectroscopy, infrared and Raman spectroscopy, NMR spectroscopy, kinetics, photochemistry, biophysical chemistry and modeling. Report writing, laboratory notebook writing and statistical analysis of data are emphasized. A final project may be required.

CHEZ 309 Quantitative Analysis Laboratory

Semester course; 1 lecture and 3 laboratory hours. 1 credit. Prerequisites: CHEM 102 and CHEZ 102 with

minimum grades of C. Pre- or corequisite: CHEM 309. Laboratory associated with quantitative analysis. Includes practice in volumetric and instrumental laboratory techniques as applied to measurement sciences.

CHEZ 406 Inorganic Chemistry Laboratory

Semester course; 1 lecture and 3 laboratory hours. 2 credits. Prerequisites: CHEM 320 and CHEZ 102. Pre- or corequisite: CHEM 406. Examination of inorganic nonmetal, transition metal and organometallic compounds using modern inorganic methods of synthesis and characterization. Each student is charged for breakage incurred. Approved safety glasses are required. Failure to check out of laboratory upon withdrawal or for other reasons will incur a charge billed from the Student Accounting Department.

CHEZ 409 Instrumental Analysis Laboratory

Semester course; 4 laboratory hours. 2 credits. Prerequisites: CHEM 302, 304 and 309 with minimum grades of C; CHEZ 303 and 309 with minimum grades of C. Pre- or corequisite: CHEM 409. Practice of electrochemical, spectroscopic and chromatographic methods of analysis.

Chinese

CHIN 101 Elementary Chinese

Continuous courses; 5 lecture/recitation hours. 4-4 credits. Prerequisite: completion of CHIN 101 to enroll in CHIN 102. Elementary grammar, reading and oral drill.

CHIN 102 Elementary Chinese

Continuous courses; 5 lecture/recitation hours. 4-4 credits. Prerequisite: completion of CHIN 101 to enroll in CHIN 102. Elementary grammar, reading and oral drill.

CHIN 110 Intensive Elementary Chinese

Semester course; 10 lecture and 10 laboratory hours. 8 credits. This intensive course combines CHIN 101 and 102 into a single-semester class. Students may receive credit toward graduation for either the CHIN 101-102 series or CHIN 110, but not both.

CHIN 201 Intermediate Chinese

Continuous courses; 3 lecture hours. 3-3 credits. Prerequisite: completion of CHIN 201 to enroll in CHIN 202. Rapid review of the essentials of grammar, conversation and readings from Chinese literature.

CHIN 202 Intermediate Chinese

Continuous courses; 3 lecture hours. 3-3 credits. Prerequisite: completion of CHIN 201 to enroll in CHIN 202. Rapid review of the essentials of grammar, conversation and readings from Chinese literature.

CHIN 210 Intensive Intermediate Chinese

Semester course; 6 lecture hours. 6 credits. This intensive course combines CHIN 201 and 202 into a single-semester class. Students may receive credit toward graduation for either the CHIN 201-202 series or CHIN 210, but not both.

CHIN 300 Chinese Vocabulary and Reading

Semester course; 3 lecture hours. 3 credits. Prerequisite: completion of Chinese courses through the intermediate level or equivalent. Designed to increase written vocabulary and reading skills through

an examination and discussion of literary works by famous Chinese writers. Conducted in Chinese.

CHIN 301 Practical Chinese Writing

Semester course; 3 lecture hours. 3 credits.
Prerequisite: completion of Chinese courses through the intermediate level or equivalent. Designed to develop students' writing techniques and skills in several types of technical writing in Chinese (business, financial and law documents, memos and resumes). Conducted in Chinese.

CHIN 391 Topics in Chinese

Semester course; variable hours. 1-4 credits. May be repeated with different topics for a maximum of 16 credits. Prerequisite: CHIN 202 or 210. An in-depth study of selected topics in Chinese. See the Schedule of Classes for specific topics to be offered each semester.

English

ENGL 201 Western World Literature I

Semester course; 3 lecture hours. 3 credits.
Prerequisite: UNIV 112. An introduction to the literature of Western cultures from the ancient world through the Renaissance, emphasizing connections among representative works.

ENGL 202 Western World Literature II

Semester course; 3 lecture hours. 3 credits.
Prerequisite: UNIV 112. An introduction to the literature of Western cultures from the end of the Renaissance to the present, emphasizing connections among representative works.

ENGL 203 British Literature I

Semester course; 3 lecture hours. 3 credits.
Prerequisite: UNIV 112. An introduction to the literature of the British Isles from the Middle Ages through the 18th century, emphasizing connections among representative works.

ENGL 204 British Literature II

Semester course; 3 lecture hours. 3 credits.
Prerequisite: UNIV 112. An introduction to the literature of the British Isles from the late 18th century to the present, emphasizing connections among representative works.

ENGL 205 American Literature I

Semester course; 3 lecture hours. 3 credits.
Prerequisite: UNIV 112. An introduction to the literature of the United States from its origins through the 1860s, emphasizing connections among representative works.

ENGL 206 American Literature II

Semester course; 3 lecture hours. 3 credits.
Prerequisite: UNIV 112. An introduction to the literature of the United States from the 1860s to the present, emphasizing connections among the representative works.

ENGL 211/INTL 211 Contemporary World Literature

Semester course; 3 lecture hours. 3 credits.
Prerequisite: UNIV 112. A study of selected literature published in the past 25 years and chosen from a number of different nations and cultures.

ENGL 215 Textual Analysis

Semester course; 3 lecture hours. 3 credits. An inquiry into literary texts, emphasizing critical thinking and close reading. Individual sections will focus on a unifying question or problem. Students will study selected texts and their times with an emphasis on developing skills in one or more of the following areas: reading, writing, research and/or oral communication.

ENGL 216 Readings in Narrative

Semester course; 3 lecture hours. 3 credits.
Prerequisite: UNIV 112. An introduction to literature with the focus on the art and structure of the narrative in a variety of forms.

ENGL 236/GSW 236 Women in Literature

Semester course; 3 lecture hours. 3 credits.
Prerequisite: UNIV 112. An introduction to literature by and/or about women.

ENGL 241 Shakespeare's Plays

Semester course; 3 lecture hours. 3 credits.
Prerequisite: UNIV 112. An introduction to literature, with the focus on Shakespeare's plays, including their art and dramatic conventions.

ENGL 291 Topics in Literature

Semester course; 3 lecture hours. 3 credits. Maximum 6 credits in all topics courses at the 200 level.
Prerequisite: UNIV 112. An introduction to literature through the in-depth study of a selected topic or genre. See the Schedule of Classes for specific topics to be offered.

ENGL 295 The Reading and Writing of Fiction and Poetry

Semester course; 3 lecture hours. 3 credits. An introduction to the basic elements of writing poetry and fiction, using published examples of contemporary fiction and verse as guides in the study of literary form and the production of original creative writing. Students will be offered a practitioner's perspective on genre conventions and the process of revision.

ENGL 301 Introduction to the English Major

Semester course; 3 lecture hours. 3 credits.
Prerequisites: UNIV 200 or HONR 200, and ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291 or 295. Study of literature focused on skills helpful in the English major, introducing students to the ways in which language is used in literary texts and to the practice of writing responses to those texts. Texts will represent at least two genres (drama, poetry, prose). This course should be taken at the beginning of the student's major, preferably before completing more than six hours of other upper-level English courses. Majors are required to take ENGL 301; they must achieve a minimum grade of C to complete the requirement.

ENGL 302/CRJS 302 Legal Writing

Semester course; 3 lecture hours. 3 credits.
Prerequisites: UNIV 200 or HONR 200, and ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291, or 295. Intensive practice in writing on subjects related to law or legal problems. Emphasis on organization, development, logical flow and clarity of style. May not be used to satisfy the literature requirement of the College of Humanities and Sciences.

ENGL 303 Writing for Stage and/or Screen

Semester course; 3 workshop hours. 3 credits.
Prerequisites: UNIV 200 or HONR 200, and ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291, or 295. A workshop in playwriting or screenwriting primarily for students who have not yet completed a full-length dramatic work. Students will present a portfolio of work at the end of each course.

ENGL 304 Advanced Writing

Semester course; 3 lecture hours. 3 credits.
Prerequisites: UNIV 200 or HONR 200, and ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291, or 295. An advanced study of informative and persuasive prose techniques, with attention to the relationships among content, form and style. May not be used to satisfy the literature requirement of the College of Humanities and Sciences.

ENGL 305 Writing Poetry

Semester course; 3 workshop hours. 3 credits.
Prerequisites: UNIV 200 or HONR 200, and ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291, or 295. An introduction to the craft of writing poetry. Students will explore the elements of poetic technique and produce a volume of quality work.

ENGL 307 Writing Fiction

Semester course; 3 workshop hours. 3 credits.
Prerequisites: UNIV 200 or HONR 200, and ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291, or 295. A fiction workshop primarily for students who have not produced a portfolio of finished creative work. Students will present a collection of their work at the end of each course.

ENGL 309 Writing Creative Nonfiction

Semester course; 3 workshop hours. 3 credits.
Prerequisites: UNIV 200 or HONR 200, and ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291, or 295. A creative nonfiction workshop primarily for students who have not produced a portfolio of finished creative work. Students will present a collection of their work at the end of each course.

ENGL 310/MGMT 327 Business and Technical Report Writing

Semester course; 3 lecture hours. 3 credits.
Prerequisites: UNIV 200 or HONR 200, and ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291, or 295. Development of critical writing skills used in business, science, technology and government, including instructions, descriptions, process explanations, reports, manuals and proposals. The course will include such topics as communication theory, technical style, illustrations, formats for proposals, reports and manuals.

ENGL 311 Introduction to Literary Theory

Semester course; 3 lecture hours. 3 credits.
Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291 or 295. Introduces students to the variety of critical methods that are sometimes employed "often subconsciously or habitually" in writing about literature. Requires students to think abstractly and theoretically about the nature of the literary text, but it also gives students valuable practice in mastering different critical methods through close engagements with short stories, poems and plays.

ENGL 320 Early Literary Traditions

Semester course; 3 lecture hours. 3 credits.
Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291, or 295. A study of early and medieval literature such as epic, romance, saga or lyric poetry written in England or influencing English literature prior to 1500.

ENGL 321 English Drama From 900 to 1642

Semester course; 3 lecture hours. 3 credits.
Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291, or 295. A study of the origin of the English drama and its development until the closing of the theaters in 1642, exclusive of Shakespeare.

ENGL 322 Medieval Literature: Old English to Middle English

Semester course; 3 lecture hours. 3 credits.
Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291 or 295. A study of texts in Old and Middle English, and the literary and cultural traditions that influence the rise of English literature over 500 years from the early to the High Middle Ages, or from Bede and Beowulf to Chaucer.

ENGL 324 Late Medieval Literature

Semester course; 3 lecture hours. 3 credits.
Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291, or 295. An introduction to the literature of the 15th and 16th centuries. Works surveyed will likely include those of Langland, Julian of Norwich, Kempe, Malory, Henryson, Skelton, More, Tyndale, Foxe, Surrey, Spenser and Sidney.

ENGL 325 Early Modern Literature

Semester course; 3 lecture hours. 3 credits.
Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291, or 295. An introduction to the literature of the 16th and 17th centuries, which may include Sidney, Spenser, Donne, Jonson, Lanyer, Wroth, Phillips, Cavendish, Bradstreet, Hutchinson, Milton and Bunyan.

ENGL 326 Shakespeare in Context

Semester course; 3 lecture hours. 3 credits.
Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291 or 295. Examines selected works of Shakespeare in historical, political, sociocultural, literary and/or other contexts.

ENGL 330 Restoration and 18th-century Drama

Semester course; 3 lecture hours. 3 credits.
Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291, or 295. A study of English drama from 1660-1777, usually including the comedy of manners, sentimental comedy, ballad opera, farce and heroic and bourgeois tragedy.

ENGL 331 Restoration and 18th-century British Literature

Semester course; 3 lecture hours. 3 credits.
Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291, or 295. A survey of representative poetry, drama and prose from the Restoration and 18th century, usually including Behn, Dryden, Pope, Swift, Johnson and Gay.

ENGL 332 18th-century British Novels and Narratives

Semester course; 3 lecture hours. 3 credits.
Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211,

215, 236, 291 or 295. A study of the British narratives in the long 18th century, usually including Defoe, Richardson, Fielding, Burney, Sterne, Austen, Radcliffe and Walpole.

ENGL 335 British Literature of the Romantic Era

Semester course; 3 lecture hours. 3 credits.
Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291 or 295. Exploration of the literature and the cultural phenomenon of Romanticism in Britain during the years 1783-1832, with reading from poets such as Blake, Wordsworth, Byron and Shelley, and from a variety of other writers.

ENGL 336 19th-century British Novels and Narratives

Semester course; 3 lecture hours. 3 credits.
Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291 or 295. A study of British narratives of the 19th century, usually including Austen, Dickens, Thackeray, the Brontes, George Eliot and Hardy.

ENGL 337 Victorian Poetry

Semester course; 3 lecture hours. 3 credits.
Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291 or 295. A survey of the poetry of Victorian Britain, usually including Tennyson, the Brownings, Arnold and the pre-Raphaelites.

ENGL 340 Early 20th-century British Literature

Semester course; 3 lecture hours. 3 credits.
Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291 or 295. Representative British and Irish poetry, fiction and drama of the early 20th century, including such writers as Yeats, Joyce, Shaw, Lawrence, Conrad, Auden, Forster and Woolf.

ENGL 341 British Literature and Culture After 1945

Semester course; 3 lecture hours. 3 credits.
Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291, or 295. A British studies course that surveys writing in Britain and Ireland since the mid-20th century, with emphasis on social, economic and ideological contexts. Includes such authors as William Golding, Doris Lessing, Seamus Heaney, Harold Pinter, Philip Larkin, Iris Murdoch, Kazuo Ishiguro, Salman Rushdie and Carol Ann Duffy.

ENGL 342 The Modern Novel

Semester course; 3 lecture hours. 3 credits.
Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291 or 295. An examination of the novel, chiefly British and European, in the 20th century.

ENGL 343 Modern Poetry

Semester course; 3 lecture hours. 3 credits.
Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291, or 295. A study of British and American poetry in the first half of the 20th century.

ENGL 344 Modern Drama

Semester course; 3 lecture hours. 3 credits.
Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291, or 295. A study of the development of Continental, English and American drama since Ibsen.

ENGL 345 Contemporary Poetry

Semester course; 3 lecture hours. 3 credits.
Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211,

215, 236, 291, or 295. A study of British and American poetry from approximately 1945 to the present for the purpose of determining the aesthetic and thematic concerns of contemporary poets.

ENGL 347 Contemporary Literature

Semester course; 3 lecture hours. 3 credits.
Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291, or 295. A study of internationally prominent texts in various genres produced during the past 30 years. Familiarizes students with distinctive properties of literary expression that have emerged in this period, such as the political, historical, economic and social influences that have shaped literary production.

ENGL 350 Approaches to Literature

Semester course; 3 lecture hours. 3 credits.
Prerequisite: three credits in a 200-level literature course (or equivalent). The study and application of various critical approaches such as historical, sociocultural, psychological, archetypal and formalist, used in analyzing literary works.

ENGL 352/GSW 352 Feminist Literary Theory

Semester course; 3 lecture hours. 3 credits.
Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291 or 295. The study of contemporary feminist thought and feminist approaches to analyzing literature and culture. This course examines the history and development of feminist theory as a methodology in the humanities, explores several of the major theoretical trends of the past 30 years and examines applications of feminist theory to specific works of literature.

ENGL 353/GSW 353 Women Writers

Semester course; 3 lecture hours. 3 credits. May be repeated once when different groups of writers are studied. Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291 or 295. A study of selected literature written by women and about women writers.

ENGL 354/GSW 354 Lesbian Texts/Queer Theories

Semester course; 3 lecture hours. 3 credits.
Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291, or 295. A study of queer literature and theory, focusing on writing about female same-sex desire. Explores the idea of a "lesbian subject" and a "lesbian text" through directed study of literature, film, history and theory. Considers issues of aesthetics, politics, authorship and interpretive communities and examines the intersection of social identities with particular attention to race/ethnicity, sex/gender, class and nationality.

ENGL 361/RELS 361 The Bible as Literature

Semester course; 3 lecture hours. 3 credits. Literary aspects of the Bible will be considered. Also, attention will be given to the history of the English Bible.

ENGL 363/AFAM 363/INTL 366 African Literature

Semester course; 3 lecture hours. 3 credits.
Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291, or 295. A survey of the literature of Africa with particular emphases on fiction and on West Africa. Some attention also will be given to orature.

ENGL 364/ANTH 364 Mythology and Folklore

Semester course; 3 lecture hours. 3 credits.
Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291, or 295. A study of one or more forms of folklore, such as folktales, fairy tales, legends, myths, proverbs, riddles, ballads and/or games, with some attention to literary, social or historical significance and contexts. This course may also include approaches to collecting material or to examining later literary forms and texts inspired by folklore.

ENGL 365/AFAM 365/INTL 367 Caribbean Literature

Semester course; 3 lecture hours. 3 credits.
Prerequisites: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291, or 295. A survey of West Indian writings. Attention will be given to African, European and Amerindian influences, as well as to the emergence of a West Indian literary tradition.

ENGL 366 Writing and Social Change: _____

Semester course; 3 lecture/workshop hours. 3 credits.
May be repeated once for credit with a different topic.
Prerequisite: three credits in a 200-level literature course (or equivalent). A focused study of the literatures of underserved communities such as those of prisoners, recovering addicts, inner-city teens or immigrants. Students will collaborate with one such community on an original writing project.

ENGL 367 Writing Process and Practice

Semester course; 3 lecture/workshop hours. 3 credits.
Prerequisites: UNIV 200 or HONR 200, and ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291, or 295. Joins writing theory to writing practice. Students will explore their own writing practice and expand their knowledge of rhetorical processes and the teaching/learning of writing. Covers readings and investigations into theories about writing and the writing process, as well as the principles of working one-on-one with student writers. In the latter part of the semester students will devote two hours per week to peer consulting in the Writing Center.

ENGL 368/ENVS 368 Nature Writing

Semester course; 3 lecture hours. 3 credits.
Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291 or 295. A study of the literary genre of nature writing in English.

ENGL 369/SCTS 301 Illness Narratives

Semester course; 3 lecture hours. 3 credits. An overview of the history, interpretations and practices of reading and writing illness narratives à " through case studies and theoretical perspectives, in fictionalized and nonfiction accounts, from the viewpoint of various actors (doctors, patients, patient families and their caregivers). Students will further examine the role of narrative knowledge in health care.

ENGL 371 American Literary Beginnings

Semester course; 3 lecture hours. 3 credits.
Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291, or 295. A study of the most important writings from the founding of the first colonies to the establishment of the federal government with attention to such authors as Bradford, Byrd, Bradstreet, Equiano, Cabeza de Vaca and Franklin.

ENGL 372 U.S. Literature: 1820-1865

Semester course; 3 lecture hours. 3 credits.
Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211,

215, 236, 291 or 295. A study of the writings of American authors in the middle decades of the 19th century, with attention to such authors as Poe, Emerson, Thoreau, Stowe, Hawthorne, Melville, Douglass and Whitman.

ENGL 373 U.S. Literature: 1865-1913

Semester course; 3 lecture hours. 3 credits.
Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291 or 295. A study of writings from the end of the Civil War to World War I, with attention to such authors as Dickinson, Clemens, Howell, James, Wharton, Crane, Norris, Dreiser, Chopin and Chesnut.

ENGL 374 U.S. Literature: Modernism

Semester course; 3 lecture hours. 3 credits.
Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291 or 295. A study of the most important writings between World War I and World War II, with attention to such authors as Anderson, Frost, Eliot, Stein, Glasgow, Fitzgerald, Wright, Cather, Hemingway, O'Neill, Hurston, Toomer and Faulkner.

ENGL 375 U.S. Literature After 1945

Semester course; 3 lecture hours. 3 credits.
Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291 or 295. A study of American writings since the end of World War II, with attention to such authors as Albee, Baldwin, Carver, Coover, Ellison, Erdrich, Ginsberg, Lowell, Morrison, Plath, Pynchon, Salinger and Walker.

ENGL 377 19th-century U.S. Novels and Narratives

Semester course; 3 lecture hours. 3 credits.
Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291, or 295. A study of selected novels with some attention to other forms of narrative that reflect the experiences of diverse groups in the United States.

ENGL 378 20th-century U.S. Novels and Narratives

Semester course; 3 lecture hours. 3 credits.
Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291 or 295. A study of selected novels with some attention to other forms of narrative that reflect the experiences of diverse groups of the United States.

ENGL 379/AFAM 379 African-American Literature

Semester course; 3 lecture hours. 3 credits.
Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291 or 295. An examination of the culture and literature of African-Americans from their roots in Africa and the African Diaspora to the present day. Authors may include Wheatley, Jacobs, Wilson, Brown, Dubois, Hurston, Wright, Gaines and Morrison.

ENGL 380 Southern Literature

Semester course; 3 lecture hours. 3 credits.
Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291 or 295. A study of the literature of the South with attention to writers such as Byrd, Poe, Chopin, Faulkner, Welty, Wolfe, O'Connor, Walker and Percy.

ENGL 381 Multiethnic Literature

Semester course; 3 lecture hours. 3 credits.
Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291 or 295. A study of the literature and culture of multiethnic writers in the United States. May

include Native American, Latino/a, African-American, Asian-American and/or Jewish-American authors.

ENGL 385 Fiction into Film

Semester course; 3 lecture hours. 3 credits.
Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291, or 295. A study of the translation of literature into film. Topical approaches vary from semester to semester. Consideration is given to the literature in its original form and to the methods of translating it into film.

ENGL 386/TEDU 386 Children's Literature I

Semester course; 3 lecture hours. 3 credits.
Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291 or 295. Designed to give students an appreciation of children's literature; includes biography, fable, myth, traditional and modern fanciful tales and poetry, as well as a survey of the history of children's literature.

ENGL 387/TEDU 387 Literature for Adolescents

Semester course; 3 lecture hours. 3 credits.
Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291, or 295. Designed to acquaint the prospective middle and secondary school English teacher with the nature, scope and uses of adolescent literature. The student is acquainted with reading materials for meeting the varied needs and interests of adolescents.

ENGL 388 Writing in the Workplace

Semester course; 3 lecture/workshop hours. 3 credits.
Prerequisites: UNIV 200 or HONR 200 and ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291, or 295. Advance study and practice of writing in fields such as technology, science, administration and government, including visual rhetoric in both print and electronic forms.

ENGL 389/TEDU 389 Teaching Writing Skills

Semester course; 3 lecture hours. 3 credits.
Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291 or 295. Studies the theory and methods for teaching writing to students in middle and secondary schools. Teaches strategies for prewriting, composing, peer revision, evaluation and topic construction. Includes extensive journal and essay writing.

ENGL 390/LING 390/ANTH 390 Introduction to Linguistics

Semester course; 3 lecture hours. 3 credits.
Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291 or 295. An introduction to methods of language analysis, emphasizing the study of sounds and sound patterns and units of meaning and their arrangements.

ENGL 391 Topics in Literature

Semester course; 3 lecture hours. 3 credits. Maximum of 12 credits in all topics courses at the upper level.
Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291 or 295. An in-depth study of a literary genre, an aesthetic or cultural theme in literature, or of a major writer in English or American literature. See the Schedule of Classes for specific topics to be offered each semester.

ENGL 401 Shakespeare

Semester course; 3 lecture hours. 3 credits. May be repeated once for credit. Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291 or 295. Advanced study of Shakespeare's works. May focus on a specific genre (tragedies, comedies, romances, histories, lyrics, narrative poems) or period of Shakespeare's career.

ENGL 402 Chaucer

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291 or 295. A study of "The Canterbury Tales," with some attention to the early works.

ENGL 403 Milton

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291 or 295. A study of shorter poems, selected prose, "Paradise Lost" and "Samson Agonistes."

ENGL 407 Medieval Epic and Romance

Semester course; 3 lecture hours. 3 credits. Prerequisite: three credits in a 200-level literature course (or equivalent). A study of the vernacular epic and romance in England and on the continent prior to 1500.

ENGL 410 Medieval Studies: _____

Semester course; 3 lecture hours. 3 credits. May be repeated with a different topic for a maximum of six credits. Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291, or 295. Studies in the English language and literature of the Middle Ages in its cultural context.

ENGL 411 Early Modern Studies: _____

Semester course; 3 lecture hours. 3 credits. May be repeated with a different topic for a maximum of six credits. Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291, or 295. Studies in the language, literature and culture of early modern Britain, ca. 1500 to 1700.

ENGL 412 18th-century Studies: _____

Semester course; 3 lecture hours. 3 credits. May be repeated with different topics for maximum of six credits. Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291, or 295. Studies in the literature, language and culture of the 18th century in Britain and/or the United States.

ENGL 413 19th-century Studies: _____

Semester course; 3 lecture hours. 3 credits. May be repeated with a different topic for a maximum of six credits. Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291, or 295. Studies in the literature, language and culture of the 19th century in Britain and/or the United States.

ENGL 414 20th-century Studies: _____

Semester course; 3 lecture hours. 3 credits. May be repeated with a different topic for a maximum of six credits. Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291, or 295. Studies in the literature, language and culture of the 20th century in Britain, the United States and/or elsewhere in the Anglophone world.

ENGL 433/THEA 426 Advanced Dramatic Writing

Semester course; 3 workshop hours. 3 credits. May be repeated once for credit. Prerequisite: ENGL 303. A practical approach to the creation of original scripts for theatre or film.

ENGL 435 Advanced Poetry Writing

Semester course; 3 workshop hours. 3 credits. May be repeated once for credit. Prerequisite: ENGL 305. Study of the craft of writing, with instruction and guidance toward constructive self-criticism. Workshop members will be expected to produce a substantial volume of quality work and to become proficient in critical analysis in order to evaluate and articulate the strength of their own poetry. May not be used to satisfy the literature requirement of the College of Humanities and Sciences.

ENGL 437 Advanced Fiction Writing

Semester course; 3 workshop hours. 3 credits. May be repeated once for credit. Prerequisite: ENGL 307. Study the craft of fiction writing, with instruction and guidance toward constructive self-criticism. Workshop members will be expected to produce a substantial volume of short stories or portion of a novel and to become proficient in the critical analysis of fiction in order to evaluate and articulate the strength of their own work. May not be used to satisfy the literature requirement of the College of Humanities and Sciences.

ENGL 439 Advanced Creative Nonfiction Writing

Semester course; 3 workshop hours. 3 credits. May be repeated once for credit. Prerequisite: ENGL 309. Advanced study of the craft of creative nonfiction writing, with instruction and guidance toward constructive self-criticism. Workshop members will be expected to produce a substantial volume of writing or a portion of a book-length work of nonfiction, and to become proficient in the critical analysis of literary nonfiction in order to evaluate and articulate the strength of their own work.

ENGL 445 Form and Theory of Poetry

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291, or 295. A study of the poetics, including prosody, with attention to the nature and functioning of language in poetry (especially metaphor), the development of poetic genres and the process by which poems are created and come to have meaning.

ENGL 447 Form and Theory of Fiction

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291, or 295. A study of narration in verbal and other media, with attention to the nature, organization and functioning of language in narrative, the development of narrative genres, and the process by which narratives are created and come to have meaning.

ENGL 449 Form and Theory of Creative Nonfiction

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291 or 295. An examination of one or more types of creative nonfiction. These may include magazine articles, research-based reportage, New Journalism, memoir, biography, autobiography, the

meditative essay, the personal essay and others. May also include creative writing in the genre.

ENGL 450/LING 450 Modern Grammar

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291, or 295. Study of modern English grammar and usage with some attention to linguistic theory. Recommended for teachers at all levels. May not be used to satisfy the literature requirement of the College of Humanities and Sciences. For English majors, these courses (limit of six credits) may be counted as part of graduate or undergraduate degree, but not both.

ENGL 451/LING 451 History of the English Language

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291, or 295. The historical development of the English language; etymology, morphology, orthography and semantics. May not be used to satisfy the literature requirement of the College of Humanities and Sciences.

ENGL 452/LING 452/GSW 452 Language and Gender

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291 or 295. A study of relationships between gender and language by focusing on such issues as differences between the ways women and men use language, relationships between language and power and ways in which language reflects and reinforces cultural attitudes toward gender. May not be used to satisfy the literature requirement of the College of Humanities and Sciences.

ENGL 453/LING 453 Modern Rhetoric

Semester course; 3 lecture hours. 3 credits. Prerequisites: UNIV 200 or HONR 200, and ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291, or 295. A study of a broad range of modern rhetorical theories, emphasizing their possible relationships with linguistics, literary criticism, civic engagement and the process of writing.

ENGL 454/INTL 454/ANTH 450 Cross-cultural Communication

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291, or 295. A study of the dynamics of cross-cultural communication that applies linguistic tools to understanding cultural issues and solving communication problems.

ENGL 455/FRLG 448/ANTH 448/LING 455 Language, Culture and Cognition

Semester course; 3 lecture hours. 3 credits. Prerequisite: three credits in a 200-level literature course (or equivalent). Introduces theoretical and methodological foundations for the study of language from sociocultural perspectives. The perspectives include linguistic, philosophical, psychological, sociological and anthropological contributions to the understanding of verbal and nonverbal communication as a social activity embedded in cultural contexts. No prior training in linguistics is presupposed.

ENGL 480 Authors: _____

Semester course; 3 lecture hours. 3 credits. May be repeated with a different topic for a maximum of six

credits. Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291 or 295. An advanced study of a specific author's texts and contexts. Taught in a seminar format with an emphasis on research.

ENGL 481 Genres: _____

Semester course; 3 lecture hours. 3 credits. May be repeated with a different topic for a maximum of six credits. Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291, or 295. An advanced study of a single genre, either over time or at a particular historical moment. Taught in a seminar format with an emphasis on research.

ENGL 482 Literary Topics: _____

Semester course; 3 lecture hours. 3 credits. May be repeated with a different topic for a maximum of six credits. Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291, or 295. An in-depth study of an aesthetic or cultural theme in literature. Taught in a seminar format with an emphasis on research.

ENGL 483 Literary Texts and Contexts: _____

Semester course; 3 lecture hours. 3 credits. May be repeated with a different topic for a maximum of six credits. Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291 or 295. An advanced study of a select group of literary texts with emphasis on the culture and historical moment in which they were produced. Taught in a seminar format with an emphasis on research.

ENGL 484 Literary Movements: _____

Semester course; 3 lecture hours. 3 credits. May be repeated with a different topic for a maximum of six credits. Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291, or 295. An advanced study of a group of writers whose work shares a common subject matter, writing style or philosophy. These may be defined by members of the movement (e.g., the Beats) or by critics in retrospect (e.g., the Metaphysical Poets). Taught in a seminar format with an emphasis on research.

ENGL 485 Literary Theory and Criticism: _____

Semester course; 3 lecture hours. 3 credits. May be repeated with a different topic for a maximum of six credits. Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291 or 295. An advanced study of a single theoretical and critical methodology, or a small cluster of them, as well as of their application to a variety of literary texts. Taught in a seminar format.

ENGL 491 Topics in Writing

Semester course; 3 lecture hours. 3 credits. Maximum of 12 credits in all topics courses at the upper level. Prerequisites: UNIV 200 or HONR 200, and ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291 or 295. Intensive study and practice of writing in a specific genre or application. See the Schedule of Classes for specific topics to be offered each semester.

ENGL 492 Independent Study

Semester course; variable hours. Variable credit. Maximum of 3 credits per semester. Student may take no more than 9 hours total. Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291, or 295. This course is designed for students who wish to do extensive reading and writing in a subject not duplicated by any English course in this bulletin.

ENGL 493 English Internship

Semester course; 1-3 credits. May be repeated for a maximum total of 6 credits. Prerequisite: three credits in a 200-level literature course (or equivalent). Open to students with demonstrated writing ability; completion of ENGL 302, 304 or 327 is recommended. Permission and determination of credit must be established prior to registration. Students will apply research, writing and/or editing skills in an approved job in areas such as business, government, law or financial services.

ENGL 499 Senior Seminar in English

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 301 with a minimum grade of C. Restricted to seniors in English with at least 85 credit hours taken toward the degree. A study of a specific topic, author, movement or genre in a seminar format. Students will produce an extended, documented essay as a seminar paper. See the Schedule of Classes for specific topics to be offered each semester.

European Cultures

EUCU 307 Aspects of German Culture

Semester course; 3 lecture hours. 3 credits. A broad interdisciplinary approach to an understanding of German culture, language and literature. Lectures in English by guest speakers and/or use of films as required. This course will not satisfy foreign language requirements. No knowledge of German is required. All work is done in English.

EUCU 311 Classical Mythology

Semester course; 3 lecture hours. 3 credits. The basic myths of the Greek and Roman heritage. Their impact in culture then and now; from the origins of Greek myth to the superstitions of the late Roman and early Christian world.

Foreign Languages

FRLG 101 Foreign Languages: _____

Continuous courses; 5 lecture/recitation hours. 4-4 credits. Prerequisite: completion of FRLG 101 to enroll in FRLG 102. Elementary grammar, reading and oral skills. Course may be repeated with different languages.

FRLG 102 Foreign Languages: _____

Continuous courses; 5 lecture/recitation hours. 4-4 credits. Prerequisite: completion of FRLG 101 to enroll in FRLG 102. Elementary grammar, reading and oral skills. Course may be repeated with different languages.

FRLG 201 Foreign Languages: _____

Semester course; 3 lecture hours. 3 credits. Prerequisite: FRLG 102. Continuation of the essentials of grammar with emphasis on achieving proficiency in aural comprehension, speaking, reading and writing skills. Course may be repeated with different languages.

FRLG 202 Foreign Languages: _____

Semester course; 3 lecture hours. 3 credits. Prerequisite: FRLG 201. Designed to increase the student's proficiency through the study of selected cultural and literary texts. Course may be repeated with different languages.

FRLG 204/INTL 204 Language and Groups in the United States

Semester course; 3-4 lecture hours. 3-4 credits. Taught in English. This course introduces students to the sociocultural experience and formation of identity of non-English-speaking peoples in the United States. Students explore the dynamic between English and a specific heritage language and its interaction with artistic, cultural and social issues through fiction and nonfiction texts, films and multimedia pertaining to specific language groups, such as: Latinos, Italian-Americans, German-Americans or Native Americans. See the Schedule of Classes for specific topics to be offered each semester.

FRLG 328/ANTH 328/ENGL 328/LING 328 Language, Culture, and Cognition

Semester course; 3 lecture hours. 3 credits. Prerequisite: ANTH 230. Introduces theoretical and methodological foundations for the study of language from sociocultural perspectives. The perspectives include linguistic, philosophical, psychological, sociological and anthropological contributions to the understanding of verbal and nonverbal communication as a social activity embedded in cultural contexts. No prior training in linguistics is presupposed.

FRLG 345/INTL 345/URSP 350 Great Cities of the World

Semester course; 3 lecture hours. 3 credits. Course may be repeated under different topics for a total of 6 credits. Prerequisite: sophomore standing or permission of instructor. An interdisciplinary course with a focus on the origin, expansion and significance of one or more cities, the specifics of its/their culture and the role of language. Particular emphasis will be placed on relating the physical, social and economic aspects of the city's growth and development to the cultural expression of urbanism.

FRLG 448/ANTH 448/ENGL 455/LING 455 Language, Culture and Cognition

Semester course; 3 lecture hours. 3 credits. Prerequisite: three credits in a 200-level literature course (or equivalent). Introduces theoretical and methodological foundations for the study of language from sociocultural perspectives. The perspectives include linguistic, philosophical, psychological, sociological and anthropological contributions to the understanding of verbal and nonverbal communication as a social activity embedded in cultural contexts. No prior training in linguistics is presupposed.

FRLG 493 World Languages Internship

Semester course; variable hours. 1-3 credits (40 clock hours per credit). May be repeated for a maximum of 6 credits, however only 3 credits can count toward the major concentration. Prerequisites: prior completion of 9 credits in the respective foreign language at the 300 level, with a course in advanced grammar and composition, one in conversation and one in civilization. Designed for the advanced student to gain workplace experience in the target foreign language in internationally oriented public and private organizations and agencies. All course work must be completed in the target language.

Foreign Literature in English Translation

FLET 321 Early German Literature

Semester course; 3 lecture hours. 3 credits. Changing perspectives in German literature from its pagan beginnings, through the Medieval Golden Age, Baroque extremism, the Enlightenment and Storm and Stress up to Classicism and Goethe's Faust. Treatment of *The Nibelungenlied*, the courtly epic, *Simplicissimus*, and selections by Lessing, Schiller and Goethe. This course will not satisfy foreign language requirements. No knowledge of German is required. All work is done in English.

FLET 322 Modern German Literature

Semester course; 3 lecture hours. 3 credits. Growing psychological awareness and alienation of the individual in German literature of the 19th and 20th centuries. Representative works chosen from among writers of the past century and such modern writers as Thomas Mann, Kafka, Hesse, Brecht, Kafka, Hesse, Brecht, Boll and Grass. This course will not satisfy foreign language requirements. No knowledge of German is required. All work is done in English.

FLET 391/INTL 391 Topics in Foreign Literature in English Translation

Semester course; 3 lecture hours. 3 credits. May be repeated with different topics for a maximum of 12 credits. An in-depth study of selected topics in foreign literature. This course will not satisfy foreign language requirements. No knowledge of a foreign language is required. All work is done in English.

FLET 492 Independent Study

Semester course; 1, 2 or 3 credits. Maximum of 3 credits per semester, maximum total of 6 credits for all FLET independent study courses. Open generally to students of only junior or senior standing who have acquired at least 12 hours in any literature course. Determination of course content and permission of the instructor and department chair must be obtained prior to registration of the course. A course designed to give students an opportunity to become involved in independent study in a literary or linguistic area or subject in which they have an interest and for which they have the necessary background.

Forensic Science

FRSC 202 Crime and Science

Semester course; 3 lecture hours. 3 credits. Introduces the scientific theory, concepts and practices used in any physical science by relating them to the analysis of physical evidence performed in forensic laboratories and the fundamentals of crime scene investigation, and their relationship to the criminal justice system and criminal investigations. Not applicable for credit toward B.S. in Forensic Science.

FRSC 300 Survey of Forensic Science

Semester course; 3 lecture hours. 3 credits. Pre- or corequisites: BIOL 152, BIOZ 152, CHEM 301, CHEZ 301 and UNIV 200 or HONR 200. Open only to forensic science majors or by permission of instructor. Introduces the theory, concepts and practices used in the analysis of physical evidence performed in crime laboratories, and the fundamentals of crime scene investigation. Also introduces ethical

and quality assurance issues of crucial importance in modern crime laboratories. Formerly FRSC 350.

FRSC 309 Scientific Crime Scene Investigation

Semester course; 3 lecture/laboratory hours. 3 credits. Prerequisites: CHEM 301 and either FRSC 300 or 350. Open only to forensic science majors or by permission of instructor. Provides scientific theory of crime scene investigation and crime scene reconstruction and basic knowledge of proper crime scene protocol and evidence processing techniques. Includes the processes for documentation, collecting and preserving physical evidence.

FRSC 310/ANTH 310 Forensic Anthropology

Semester course; 3 lecture hours. 3 credits. Prerequisites: ANTH 210 and ANTH 307. A comprehensive overview of forensic anthropology, including its development and the theory and methodology on which it is based.

FRSC 325 Forensic Medicine

Semester course; 3 lecture hours. 3 credits. Prerequisites: FRSC 300, CHEM 301 and CHEZ 301. Open only to forensic science majors or by permission of instructor. An investigation of topics in death scene investigations as well as autopsy findings associated with natural and unnatural deaths.

FRSC 365 Forensic Microscopy

Semester course; 4 lecture/laboratory hours. 4 credits. Prerequisites: CHEM 301 and either FRSC 300 or 350. An in-depth course in the theory and practical application of microscopy to the examination, identification and individualization of physical evidence submitted to forensic laboratories.

FRSC 375 Forensic Evidence, Law and Criminal Procedure

Semester course; 3 lecture hours. 3 credits. Pre- or corequisites: FRSC 300 or 350, and CRJS 181. Open only to forensic science majors or by permission of instructor. The law of criminal procedure and rules of evidence as applied to forensic science. Topics will include scientific versus legal burdens of proof, legal terminology and trial procedure.

FRSC 385 Forensic Serology

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisites: CHEM 301 and either FRSC 300 or 350. Examines the application of basic chemical, biological, immunological and microscopic laboratory techniques to the examination and identification of body-fluid stains, including both presumptive and/or confirmatory identification of blood, semen, saliva, urine and feces. Applies methods that are used in forensic laboratories to identify the species of origin and includes a review of advanced methods for automated serological analysis. Laboratory exercises will supplement lectures to give students practical knowledge of the laboratory procedures.

FRSC 391 Topics in Forensic Science

Semester course; variable lecture hours. 1-3 credits. Maximum total of 6 credits for all forensic science topics courses may be applied to the major. Prerequisites: CHEM 301 and either FRSC 300 or 350. A study in selected topics in forensic science. See the Schedule of Classes for specific topics to be offered each semester and additional prerequisites.

FRSC 400 Forensic Chemistry

Semester course; 3 lecture hours. 3 credits. Prerequisites: FRSC 300 or 350, CHEM 409 and CHEZ 409. Provides an understanding of presumptive and confirmatory chemical analyses used in a forensic laboratory for the characterization and identification of physical evidence, such as accelerants and explosives, paints and polymers, suspected drug substances, and toxicology. Chemical analyses as pertaining to firearms, toolmarks and glass will also be explored.

FRSC 410 Forensic Pattern Evidence

Semester course; 3 lecture/laboratory hours. 3 credits. Pre- or corequisites: CHEM 301, either FRSC 300 or 350, and FRSC 309. Open only to forensic science majors or by permission of instructor. Covers topics in pattern evidence analysis including analysis of latent prints and impression evidence of footwear and tire treadmarks as applied to forensic casework. Covers both the theoretical and practical aspects using lectures and laboratory exercises focusing on the visualization, examination and interpretation of pattern evidence.

FRSC 412 Forensic Analysis of Firearms and Toolmarks

Semester course; 3 lecture/laboratory hours. 3 credits. Prerequisite: FRSC 365. Open only to forensic science majors or by permission of instructor. An investigation of topics in firearms and toolmark examination for forensic applications. The course covers both theoretical and practical aspects using lectures and laboratory exercises.

FRSC 438/BIOL 438 Forensic Molecular Biology

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 310 or equivalent; CHEM 302 and CHEZ 302. Provides an understanding of molecular biology testing methodologies as applied to analysis of forensic samples. Current topics in forensic DNA analysis will include quality assurance, DNA databanking, contemporary research and population genetics.

FRSC 445/PATH 445 Forensic Toxicology

Semester course; 3 lecture hours. 3 credits. Prerequisites: CHEM 301-302 and CHEZ 301. Provides a comprehensive overview of the basic principles of toxicology and the practical aspects of forensic toxicology. Students will learn to define the toxic agents most commonly resulting in legal problems in U.S. society and also the process by which the U.S. judicial system is aided by scientific investigation.

FRSC 490 Professional Practices in Forensic Science

Semester course; 3 lecture hours. 3 credits. Prerequisites: CHEM 301, either FRSC 300 or 350, and one additional forensic science course. Restricted to seniors in forensic science with at least 85 credit hours toward the degree. An examination and evaluation of historical and current issues in the scientific analysis of physical evidence in criminal investigations. Individual and group activities relating to professional practices (ethics, quality control and testimony) of forensic scientists.

FRSC 492 Forensic Science Independent Study

Semester course; variable hours. 1-3 credits. May be repeated for a maximum of 6 credits. Prerequisites: CHEM 301 and either FRSC 300 or 350. Open only to

forensic science majors with junior or senior standing and a minimum GPA of 2.5. A determination of the amount of credit and the written permission of both the instructor and the program director must be procured prior to registration for the course.

FRSC 493 Forensic Science Internship

Semester course; 3 credits. May be taken only once. Prerequisites: 27 forensic science core program credits and at least a 2.75 GPA. Open only to forensic science majors with senior standing. An application is required in advance of admission with permission of the internship coordinator. Through placement in an approved organization, the student will obtain a broader, more practical knowledge of forensic science and its applications. Written progress and final reports are required. Graded as pass/fail.

Forensic Science Lab

FRSZ 391 Topics in Forensic Science

Laboratory

Semester course; variable laboratory hours. 1-3 credits. Maximum total of 6 credits for all forensic science topics courses may be applied to the major. Prerequisite: FRSC 300 or 350. Laboratory investigations in a selected topic in forensic science. See the Schedule of Classes for specific topics to be offered each semester and additional prerequisites.

FRSZ 400 Forensic Chemistry Laboratory

Semester course; 4 laboratory hours. 2 credits. Pre- or corequisite: FRSC 400. Practical laboratory application with instrumentation used in a forensic laboratory for the chemical analysis of various types of physical evidence, including accelerants, explosives, paints, fibers, glass, suspected drug substances and other evidence.

FRSZ 438/BIOZ 438 Forensic Molecular Biology Laboratory

Semester course; 3 laboratory hours. 1 credits. Pre- or corequisite: BIOL/FRSC 438. Provides comprehensive coverage of the various types of DNA testing currently used in forensic science laboratories. Students will have hands-on experience with the analytical equipment employed in forensic science laboratories and the techniques for human identification in forensic casework. Students also will explore and practice both scientific writing and writing of DNA case reports.

French

Non-foreign language majors who wish to take one or two upper-level classes only need to complete FREN 202, 205 or equivalent.

FREN 101 Elementary French

Continuous courses; 5 lecture/recitation hours. 4-4 credits. Prerequisite: completion of FREN 101 to enroll in FREN 102. Elementary grammar, reading and oral drill.

FREN 102 Elementary French

Continuous courses; 5 lecture/recitation hours. 4-4 credits. Prerequisite: completion of FREN 101 to enroll in FREN 102. Elementary grammar, reading and oral drill.

FREN 110 Intensive French I

Semester course; 10 lecture and laboratory hours. 8 credits. This intensive course combines FREN 101 and 102 into a single semester.

FREN 201 Intermediate French

Semester course; 3 lecture hours. 3 credits. Prerequisite: FREN 102. Continuation of the essentials of grammar with emphasis on achieving proficiency in oral comprehension, speaking, reading and writing skills.

FREN 202 Intermediate French Readings

Semester course; 3 lecture hours. 3 credits. Prerequisite: FREN 201. In order to complete French through the intermediate level, a student may select FREN 202 or 205. Designed to increase the student's proficiency through the study of selected cultural and literary texts.

FREN 205 Intermediate Conversation

Semester course; 3 lecture hours. 3 credits. Prerequisite: FREN 201. Designed to increase the student's proficiency in the spoken language through audio-oral exercises, dialogues and free conversation.

FREN 210 Intensive French II

Semester course; 6 lecture and laboratory hours per week. 6 credits. Prerequisites: FREN 101 and 102, or FREN 110. This intensive course combines FREN 201 and 202/205 into a single semester.

FREN 295 Gateway to the French Major/Minor

Semester course; 3 lecture hours. 3 credits. Prerequisite: FREN 201 or permission of instructor. Non-foreign language majors who wish to take one or two upper-level classes only need to complete FREN 202, 205 or equivalent. This course is composed of three different areas: 1) writing and analytical skills: enhancement of grammatical and writing skills and development of analytical techniques using a variety of texts; 2) improving students' oral communication; 3) listening skills: extensive use of recorded material and Language Learning Center resources to improve and enhance listening skills in a variety of authentic contexts.

FREN 300 Advanced Grammar and Writing

Semester courses; 3 lecture hours. 3, 3 credits. Prerequisites: for FREN 300: FREN 202 or 205; for 301, FREN 202, 205 or 300. Conducted in French. A systematic review of French grammar with emphasis on the elements of style and vocabulary building; translation and composition.

FREN 301 Advanced Grammar and Writing

Semester courses; 3 lecture hours. 3, 3 credits. Prerequisites: for FREN 300: FREN 202 or 205; for 301, FREN 202, 205 or 300. Conducted in French. A systematic review of French grammar with emphasis on the elements of style and vocabulary building; translation and composition.

FREN 305 Advanced Conversation

Semester course; 3 lecture hours. 3 credits. Prerequisite: FREN 202 or 205. Conducted in French. Development of advanced oral skills while conversing about topics on current French culture and society. Proficiency in listening comprehension is stressed through regular activities based on a variety of different situations of communication.

FREN 307 French Conversation and Film

Semester course; 3 lecture hours. 3 credits. Prerequisite: FREN 202, 205 or 300. The course is designed to develop the student's conversational skills, oral comprehension ability and knowledge of contemporary culture through discussion of selected French films. Emphasis is also placed on vocabulary development and writing practice.

FREN 320 French Civilization and Culture I

Semester course; 3 lecture hours. 3 credits. Prerequisite: FREN 202, 205 or 300. Conducted in French. A survey of French civilization and culture from its origins to the French Revolution. Introduction to and analysis of the most important aspects of Gallo-Roman society and of the Merovingian, Carolingian and Capetian dynasties which influenced the institutions of the Ancien Regime and still serve as cultural archetypes and icons in contemporary French culture.

FREN 321 French Civilization and Culture II

Semester course; 3 lecture hours. 3 credits. Prerequisite: FREN 202, 205 or 300. Conducted in French. A survey of French civilization and culture from the Napoleonic era to the present. This course retraces important cultural and social traditions found during the first Empire, the Restoration, the Second Republic, the Second Empire, the Commune, the Third and Fourth Republics which influenced and continue to shape contemporary French civilization and culture of the Fifth Republic.

FREN 330 Survey of Literature

Semester courses; 3 lecture hours. 3, 3 credits. Prerequisite: FREN 202, 205 or 300. Conducted in French. First semester: through the 18th century. Second semester: 19th and 20th centuries.

FREN 331 Survey of Literature

Semester courses; 3 lecture hours. 3, 3 credits. Prerequisite: FREN 202, 205 or 300. Conducted in French. First semester: through the 18th century. Second semester: 19th and 20th centuries.

FREN 410 Explication de Textes

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of 6 credits. Prerequisites: FREN 301; FREN 305 or 307; FREN 320 or 321 or 330 or 331. Conducted in French. This course provides an introduction to terms encountered in text analysis: prosody, versification, rhetorical language, narratology and genres. It presents traditional and current schools of literary criticism and applies them to an interdisciplinary selection of texts. See the Schedule of Classes for the specific topic to be offered each semester.

FREN 420 French Regional Culture

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of 6 credits. Prerequisites: FREN 301; FREN 305 or 307; FREN 320 or 321. Conducted in French. Focuses on the culture and civilization specific to each of France's 22 regions. History, culture, architecture as well as sociopolitical, linguistic identities, artisanal trades and folklore are presented for each region. See the Schedule of Classes for the specific topic to be offered each semester.

FREN 421 French Contemporary Culture

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of 6

credits. Prerequisites: FREN 301; FREN 305 or 307; FREN 320 or 321. Conducted in French. Focuses on the contemporary culture found in French society. The individuals and events shaping current French social, political, artistic and cultural life are examined. Each theme is illustrated by current audiovisual materials. See the Schedule of Classes for the specific topic to be offered each semester.

FREN 422 French Cinema

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of 6 credits. Prerequisites: FREN 301; FREN 305 or 307; FREN 320 or 321. Conducted in French. Tracing French cinema from les Freres Lumiere and Georges Melius through the New Wave to new contemporary directors, this course focuses on the thematic selections and stylistic techniques particular to French cinematographic culture. The class is offered concurrently with the annual VCU French Film Festival, thereby permitting students to directly communicate with French actors and directors participating in the festival. See the Schedule of Classes for the specific topic to be offered each semester.

FREN 425 French Media

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of 6 credits. Prerequisites: FREN 301; FREN 305 or 307; FREN 320 or 321 or 330 or 331. Conducted in French. Analysis of the French media: written press, radio and television. Advanced comprehension skills required and stressed through regular exercises pertaining to different journalistic discourses and styles. Proficiency in journalistic writing is developed in class through the creation of an electronic French newspaper on the Internet. See the Schedule of Classes for the specific topic to be offered each semester.

FREN 426 Pop France

Semester course; 1-3 lecture hours. 1-3 credits. Prerequisites: FREN 301; FREN 305 or 307; FREN 321 or 331. Conducted in French. Explores contemporary French popular culture, put in a wider historical context. Discusses mainstream media, new media, commercial cinema, comic strips, pulp fiction and food, while devoting several weeks to music. Investigates the complex sociolinguistics of argot (slang), with a special interest in the banlieues' (suburbs') multicultural subculture and multifaceted codes. Also questions the possibility of a "pop philosophy" in French thought.

FREN 430 Great Poets and Their Times

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of 6 credits. Prerequisites: FREN 301; FREN 305 or 307; FREN 330 or 331. Conducted in French. Poetry of select major poets of a select century or centuries within a context of the historical, artistic and broad cultural setting of the poets' times. See the Schedule of Classes for the specific topic to be offered each semester.

FREN 431 The 16th Century

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of 6 credits. Prerequisites: FREN 301; FREN 305 or 307; FREN 330 or 331. Conducted in French. A contextualization and detailed study of a selection of works representative of literary schools, genres and

major works of the period: Rabelais, the Pleiade, Minting and the Baroque poets. See the Schedule of Classes for the specific topic to be offered each semester.

FREN 432 The 17th Century

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of 6 credits. Prerequisites: FREN 301; FREN 305 or 307; FREN 330 or 331. Conducted in French. A contextualization and detailed study of a selection of texts representative of literary schools, genres and major works of the period: Baroque and Classical readings including prose, poetry and drama of the authors of the reign of Louis XIV; Pascal, La Rochefoucauld, La Bruyere, Corneille, Racine and Moliere. See the Schedule of Classes for the specific topic to be offered each semester.

FREN 433 The 18th Century

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of 6 credits. Prerequisites: FREN 301; FREN 305 or 307; FREN 330 or 331. Conducted in French. A contextualization and detailed study of a selection of texts representative of literary schools, genres and major works of the period: the "philosophes" including Montesquieu, Voltaire, Diderot and Rousseau and readings from Marivaux, Provost and Vauvenargues. See the Schedule of Classes for the specific topic to be offered each semester.

FREN 434 The 19th Century

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of 6 credits. Prerequisites: FREN 301; FREN 305 or 307; FREN 330 or 331. Conducted in French. A contextualization and detailed study of a selection of texts representative of literary schools, genres and major works of the period: Romanticism, Realism, Naturalism and Symbolism. See the Schedule of Classes for the specific topic to be offered each semester.

FREN 435 Contemporary French Literature

Semester course; 1-3 lecture hours. 1-3 credits. Prerequisites: FREN 301; FREN 305 or 307; FREN 330 or 331. Conducted in French. An overview of French literature from 1900 to the present. Discusses texts that have particular resonance in relation to contemporary issues, including literary works that have contributed most saliently to French culture over this time period.

FREN 440 Commercial French

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of 6 credits. Prerequisites: FREN 301; FREN 305 or 307; FREN 320 or 321 or 330 or 331. This course introduces students to the cultural, economic and linguistic dimensions of the Francophone commercial sector. It builds the student's reading, writing, listening and speaking proficiencies through active engagement with business-related materials and activities. See the Schedule of Classes for the specific topic to be offered each semester.

FREN 450/INTL 450 Francophone Literatures and Cultures

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of 6 credits. Prerequisite: FREN 301; FREN 305 or 307;

FREN 320 or 321 or 330 or 331. Conducted in French. Introduces students to the literatures and cultures of the Francophone world. Provides an overview of the Francophone world and an in-depth study of literary works written in French from Africa, the Caribbean, North America, Asia and Europe. Also explores the impact of Colonial history on Francophone literatures and cultures. See the Schedule of Classes for the specific topic to be offered each semester.

FREN 491 Topics in French

Semester course; variable hours. 1-3 credits. May be repeated with different topics for a maximum of 9 credits. Prerequisites: FREN 301; FREN 305 or 307; FREN 320 or 321 or 330 or 331. An in-depth study of selected topics in French. See the Schedule of Classes for specific topics to be offered each semester.

FREN 492 Independent Study

Semester course; variable hours. Variable credit. Maximum of 3 credits per semester; maximum total of 6 credits for all independent study courses in French. Prerequisite: FREN 301; FREN 320 or 321; Senior standing with a minimum of 85 credits earned toward the degree. Determination of course content and permission of the instructor must be obtained prior to registration of the course. A course designed to give students an opportunity to become involved in independent study in a literary or linguistic area or subject in which they have an interest.

Gender, Sexuality and Women's Studies

GSWS 201 Introduction to Gender, Sexuality and Women's Studies

Semester course; 3 lecture hours. 3 credits. An interdisciplinary and cross-cultural introduction to the perspectives and core concerns pertaining to gender, sexuality and women's studies.

GSWS 206/AFAM 206/SOCY 206 African American Family Relationships

Semester course; 3 lecture hours. 3 credits. Focuses on the African-American family from the 1940s to the present. Examines the values and the interpersonal/role relationships that are involved in forming and maintaining African-American families in the contemporary United States. Topics include dating and sexual relationships, marital relationships, parent-child relationships and relationships with members of the extended family.

GSWS 236/ENGL 236 Women in Literature

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 112. An introduction to literature by and/or about women.

GSWS 291 Topics in Women's Studies

Semester course; 3 lecture hours. 3 credits. May be repeated with different topics for a total of 6 credits. An in-depth examination of specialized areas of interest in women's studies. See the Schedule of Classes for specific topics to be offered each semester.

GSWS 301 Feminist Social Theory

Semester course; 3 lecture hours. 3 credits. Pre- or corequisite: UNIV 200 or HONR 200. This course examines the major theoretical traditions and thinkers of feminist theory from the works of early liberal feminists like Wollstonecraft to the present thought of

postmodern and lesbian feminists like Wittig. It examines arguments about human nature, the origins and effects of patriarchy, the conflict between equality and gender difference and feminist critiques of traditional theories of knowledge.

GSWS 304/ANTH 304/SOCY 304 The Family

Semester course; 3 lecture hours. 3 credits.
Prerequisite: SOCY 101 or ANTH/INTL 103. The family in its social and cultural context. Analysis of child rearing, marriage, kinship, family crises and family change in various societies around the world.

GSWS 305/AFAM 305/SOCY 305 African American Family in Social Context

Semester course; 3 lecture hours. 3 credits.
Prerequisite: SOCY 101 or SOCY/AFAM/WMNS 206. A socio-historical examination of the development of the family system of Americans from Africa. Focuses on large-scale (macro level) processes such as changes in the major mode of economic production and in political systems and the corresponding changes in black family structure and functioning. Presents the theoretical material on African-American families and social change that prepares students for further study of the family as a social institution and for the study of family policy. This course is designed to meet the needs of upper division social science majors.

GSWS 309/AFAM 309/ANTH 309/INTL 309 Global Women's Health

Semester course; 3 lecture hours. 3 credits. Explores issues in women's health from a national and international perspective with an emphasis on the experiences of women in the African diaspora. Theories in medical anthropology are employed to examine key themes.

GSWS 316/POLI 316 Women and the Law

Semester course; 3 lecture hours. 3 credits. Introduces students to the history, politics and status of women under the American legal system. Topics to be covered may include equal protection, sexual violence, the particular rights of women of color and lesbians, reproductive rights of women of color and lesbians, reproductive rights, women criminals and women in the legal profession.

GSWS 318/AFAM 318/POLI 318 Politics of Race, Class and Gender

Semester course; 3 lecture hours. 3 credits. A study of the racial, class and gender influences on the history and development of political values, conflicts, processes, structures and public policy in the United States.

GSWS 319/POLI 319 Women and American Politics

Semester course; 3 lecture hours. 3 credits. This course analyzes the participation of women in American politics. Attention is given to both women's historical and contemporary roles in politics, their participation as voters and citizens, and their behavior as candidates and office holders. Additional topics may include workplace, family and education issues and reproductive rights.

GSWS 333/SOCY 333 Sociology of Sex and Gender

Semester course; 3 lecture hours. 3 credits.
Prerequisite: SOCY 101 or permission of instructor. A

cross-cultural and evolutionary exploration of the interdependence between male and female roles in the following social institutions: family, law, economics, politics, religion, education and health.

GSWS 334/SOCY 334 Sociology of Women

Semester course; 3 lecture hours. 3 credits.
Prerequisite: SOCY 101 or consent of instructor. This course will examine the position and status of women across societies and the social forces that maintain existing patterns and arrangements. The integration of family and work in women's lives will be emphasized.

GSWS 335/PSYC 335 Psychology of Women

Semester course; 3 lecture hours. 3 credits.
Prerequisite: PSYC 101. Overview of issues in psychology relevant to women. Topics include: research methods of women's issues; sex-role socialization; women and hormones; psychological androgyny; personality theory and counseling strategies for women; women and language; women and violence; and rape and abuse.

GSWS 336/SOCY 336 Violence Against Women

Semester course; 3 lecture hours. 3 credits. An examination of violence against women from a global and local perspective with a primary focus on violence perpetrated against women in the U.S. Requires a minimum of 20 hours of community service.

GSWS 339/HIST 330 History of Women in Europe I

Semester course; 3 lecture hours. 3 credits. A survey of European women from antiquity to the Enlightenment. A major focus will be primary sources by and about women.

GSWS 340/HIST 331 History of Women in Europe II

Semester course; 3 lecture hours. 3 credits. A survey of European women from the French Revolution to the present. A major focus will be primary sources by and about women.

GSWS 341/HIST 365 American Women's History I

Semester course; 3 lecture hours. 3 credits. Students will analyze historical changes in the social, cultural, political and economic position of women in America from the colonial period through the 1848 Seneca Falls Convention. Methods include reading, lecture and discussion. Topics include differences and similarities of women's experiences across lines of class, race and ethnicity, the struggle for suffrage and social reform, shifting gender roles and changing employment opportunities.

GSWS 352/ENGL 352 Feminist Literary Theory

Semester course; 3 lecture hours. 3 credits.
Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291 or 295. The study of contemporary feminist thought and feminist approaches to analyzing literature and culture. This course examines the history and development of feminist theory as a methodology in the humanities, explores several of the major theoretical trends of the past 30 years and examines applications of feminist theory to specific works of literature.

GSWS 353/ENGL 353 Women Writers

Semester course; 3 lecture hours. 3 credits. May be repeated once when a different group of writers is studied. Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291 or 295. A study of selected literature written by women and about women writers.

GSWS 354/ENGL 354 Lesbian Texts/Queer Theories

Semester course; 3 lecture hours. 3 credits.
Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291, or 295. A study of queer literature and theory, focusing on writing about female same-sex desire. Explores the idea of a "lesbian subject" and a "lesbian text" through directed study of literature, film, history and theory. Considers issues of aesthetics, politics, authorship and interpretive communities and examines the intersection of social identities with particular attention to race/ethnicity, sex/gender, class and nationality.

GSWS 366/POLI 366/INTL 368 Women and Global Politics

Semester course; 3 lecture hours. 3 credits. A study of women and global politics, providing both a feminist re-examination of traditional international-relations theories and a comparative analysis of the political, legal and economic status of the world's women. The impact of women on global political institutions such as the United Nations will be addressed as well as other feminist and grass roots means of taking political action.

GSWS 371/RELS 371 Women in Islam

Semester course; 3 lecture hours. 3 credits.
Prerequisite: UNIV 200 or HONR 200, RELS 108, GSWS 201 or ENGL 215. Critical study of the roles and rights of women in Islam.

GSWS 372/RELS 372/INTL 372 Global Women's Spirituality

Semester course; 3 lecture hours. 3 credits. Explores the spiritual writings of women in various cultures and religious traditions.

GSWS 373/RELS 373 Gender and the Bible

Semester course; 3 lecture hours. 3 credits.
Prerequisites: RELS 108 or GSWS 201 or RELS 301 or RELS 302; and ENGL 215 or UNIV 200 or HONR 200. Studies the Hebrew and Christian scriptures with emphasis on gender. Attention to traditional, feminist, womanist and postcolonial interpretation.

GSWS 380 Lesbian and Bisexual Women

Semester course; 3 lecture hours. 3 credits. This course examines the lives of contemporary lesbian and bisexual women from psychological, sociological, developmental, political and cultural perspectives. The intersection of race, class, ethnicity, religion, age, disability and locale with lesbian/bisexual identity will be explored.

GSWS 382/CRJS 382 Gender, Crime and Justice

Semester course; 3 lecture hours. 3 credits.
Prerequisite: CRJS 181 or permission of instructor. Examines the role of gender as it relates to crime and justice. Special attention will focus on the gendered experiences of practitioners, offenders and victims within the criminal justice system in terms of processing, adjudication and institutional responses.

GSWS 390/AFAM 390/HIST 380 Africa and the Americas: Slavery, Gender and Race

Semester course; 3 lecture hours. 3 credits. Examines various aspects of slavery in Africa and selected parts of the African diaspora, including the United States, Canada and the Caribbean, with special emphasis on the role played by race and gender. Topics will include African conditions of servility, the trans-Atlantic trade in enslaved Africans, and chattel slavery, demography, labor, law, discipline, abuse, resistance and status.

GSWS 391 Topics in Gender, Sexuality and Women's Studies

Semester course; 3 lecture hours. 3 credits. May be repeated with different topics for a maximum of 12 credits. An in-depth examination of specialized areas of interest in gender, sexuality and women's studies. See the Schedule of Classes for specific topics to be offered each semester.

GSWS 392 Women's Health Care Across the Life Span

Semester course; 3 lecture hours. 3 credits. This course is intended for upper-level undergraduate students. Introduces students to the health issues that affect women throughout the life span. The impact of physiological, psychological, cultural and political factors upon women's well-being will be addressed.

GSWS 393 Feminist Research and Methods

Semester course; 3 lecture hours. 3 credits. Completion of STAT 210 (or equivalent) is strongly recommended. Explores the implications of feminist theorizing across disciplinary and cultural contexts for both methodology and epistemology. Examines how knowledge and power intersect, how gender theory and feminist politics influence research, how the knower influences knowledge production and how social location shapes inquiry.

GSWS 401 Topical Senior Seminar

Semester course; 3 lecture hours. 3 credits. Prerequisite: 21 credits in gender, sexuality and women's studies or permission of the instructor. Students are required to produce a senior research project on a topic related to the theme of the seminar.

GSWS 414/PSYC 414 Psychology of Women's Health

Semester course; 3 lecture hours. 3 credits. Overviews the psychological research on women's health. Topics include health behavior change, personality and individual differences, cognitive factors, disease-specific behaviors and interventions.

GSWS 452/ENGL 452/LING 452 Language and Gender

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291 or 295. A study of relationships between gender and language by focusing on such issues as differences between the ways women and men use language, relationships between language and power and ways in which language reflects and reinforces cultural attitudes toward gender. May not be used to satisfy the literature requirement of the College of Humanities and Sciences.

GSWS 453/INTL 453/RELS 453 Western Religions, Women and Social Justice

Semester course; 3 lecture hours. 3 credits. Prerequisites: RELS/INTL 312 or RELS 340/INTL

341; UNIV 200 or HONR 200. This course explores the experience and portrayal of women in the three Abrahamic traditions: Judaism, Islam and Christianity. Study focuses on how these religions and their texts bear upon the social, economic, political and spiritual lives of women. Special attention is given to the impact of globalization and religious fundamentalism on women.

GSWS 457/ARTH 457 Women, Art and Society

Semester course; 3 lecture hours. 3 credits. Prerequisite: ARTH 390 with a minimum grade of C. A re-examination of a variety of issues concerning women, art and society: the position assigned women within the history of art as it relates to historical place and the aesthetic values of the canon, the gendering of style, patronage, audience and gaze. Through a survey of images of and by women, as well as through an analysis of art historical and critical texts, this course addresses the question: "How are the processes of sexual differentiation played out across the representations of art and art history?"

GSWS 491 Topics in Women's Studies

Semester course; 3 lecture hours. 3 credits. May be repeated with different topics for a total of 12 credits. An in-depth examination of specialized areas of interest in women's studies. See the Schedule of Classes for specific topics to be offered each semester.

GSWS 492 Independent Study

Semester course; variable hours. Variable credit. Maximum of 4 credits per semester; maximum total of 4 credits in all independent study courses. Open generally to students of only junior and senior standing who have acquired at least 12 credits in women's studies courses. Determination of the amount of credit and permission of the instructor and coordinator must be obtained prior to registration for the course.

GSWS 493 Internship

Semester course; variable hours. 1, 2 or 3 credits. May be repeated for a maximum total of 6 credits. Prerequisites: internship credit is limited to students with a minimum grade point average of 3.0 and junior or senior status. Directed internship, local or abroad, or other approved study-abroad experience with the objective to provide real-life experience. Determination of the amount of credit (based on hours or effort required) and permission of departmental internship coordinator must be obtained prior to registration for the course. Graded pass/fail.

German

Non-foreign language majors who wish to take one or two upper-level classes only need to complete GRMN 202, 205 or equivalent.

GRMN 101 Elementary German

Continuous courses; 5 lecture/recitation hours. 4-4 credits. Prerequisite: completion of GRMN 101 to enroll in GRMN 102. Elementary grammar, reading and oral drill.

GRMN 102 Elementary German

Continuous courses; 5 lecture/recitation hours. 4-4 credits. Prerequisite: completion of GRMN 101 to enroll in GRMN 102. Elementary grammar, reading and oral drill.

GRMN 110 Intensive Elementary German

Semester course; 10 lecture and 10 laboratory hours. 8 credits. This intensive course combines GRMN 101 and 102 into a single-semester class. Students may receive credit toward graduation for either the GRMN 101-102 series or GRMN 110, but not both.

GRMN 201 Intermediate German

Semester course; 3 lecture hours. 3 credits. Prerequisite: GRMN 102. Continuation of the essentials of grammar with emphasis on achieving proficiency in aural comprehension, speaking, reading and writing skills.

GRMN 202 Intermediate German Readings

Semester course; 3 lecture hours. 3 credits. Prerequisite: GRMN 201. Designed to increase the student's proficiency in German through the study of selected cultural and literary texts.

GRMN 205 Intermediate Conversation

Semester course; 3 lecture hours. 3 credits. Prerequisite: GRMN 201. Designed to increase the student's proficiency in the spoken language through audio-oral exercises, dialogues and free conversation.

GRMN 300 Composition and Conversation

Semester course; 3 lecture hours. 3 credits. Prerequisite: GRMN 202 or 205. Development of written and oral skills through review of selected aspects of German grammar, writing practice and conversational activities based on a variety of situations. Conducted in German.

GRMN 301 Grammar and Writing

Semester course; 3 lecture hours. 3 credits. Pre- or corequisite: GRMN 300. A study of key aspects of advanced German grammar with emphasis on the elements of style and vocabulary building.

GRMN 305 German Conversation

Semester course; 3 lecture hours. 3 credits. Prerequisite: GRMN 202 or 205. Conducted in German. Practice in the spoken language with emphasis on discussions relating to topics of current interest.

GRMN 307 German Conversation and Film

Semester course; 3 lecture hours. 3 credits. Prerequisite: GRMN 202, 205 or 300. The course is designed to develop the student's conversational skills, oral comprehension ability and knowledge of contemporary culture through discussion of selected German films. Emphasis is also placed on vocabulary development and writing practice.

GRMN 311 German through the Media

Semester course; 3 lecture hours. 3 credits. Prerequisite: GRMN 202, 205 or 300. A course designed to develop language proficiency by using material available through the various media: newspapers, magazines, films, slides and radio broadcasts.

GRMN 314 Commercial German

Semester course; 3 lecture hours. 3 credits. Prerequisite: GRMN 301. Designed to develop the student's ability to use German as a means of oral and written communication in the business world. Emphasis on the acquisition of technical tools necessary for business exchanges in specialized fields.

GRMN 320 From the Vandals to Kant: Civilization and Literature I

Semester course; 3 lecture hours. 3 credits.
Prerequisite: GRMN 202 or 205. Conducted in German. A survey of German-speaking culture and literature from its origins to the Enlightenment. Also emphasizes enhancing German-language skills in vocabulary, reading, speaking and writing.

GRMN 321 From Faust to Nazism: Civilization and Literature II

Semester course; 3 lecture hours. 3 credits.
Prerequisites: GRMN 202 or 205. GRMN 320 recommended. Conducted in German. A treatment of German culture and literature from the Age of Goethe to the rise of Nazism. Also emphasizes enhancing German language skills in vocabulary, reading, speaking and writing.

GRMN 322 From Kafka's World to the EU: Civilization and Literature III

Semester course; 3 lecture hours. 3 credits.
Prerequisites: GRMN 202 or 205; and GRMN 300. Conducted in German. A survey of German culture and literature from the 1920s to today. Also emphasizes enhancing German language skills in vocabulary, reading, speaking and writing.

GRMN 420 The Turn of the Century

Semester course; 3 lecture hours. 3 credits.
Prerequisites: GRMN 300; GRMN 305 or 307 or 311; GRMN 301 or 320 or 321 or 322. Conducted in German. A course dealing with the major intellectual, philosophical, artistic and cultural trends from the turn of the century through the Weimar period as reflected in the writings of authors such as Kafka, Mann and Hesse. Includes impressionism, expressionism and neue Sachlichkeit.

GRMN 421 The Postwar German Scene

Semester course; 3 lecture hours. 3 credits.
Prerequisites: GRMN 300; GRMN 305 or 307 or 311; GRMN 301 or 320 or 321 or 322. Conducted in German. A course dealing with the political, social and intellectual developments of the German-speaking countries from the end of World War II to the present as reflected in the literary works of their major authors.

GRMN 422 German Film

Semester course; 1-3 lecture hours. 1-3 credits. May be repeated with different topics for a total of 6 credits.
Prerequisites: GRMN 300; GRMN 305 or 307 or 311; GRMN 301 or 320 or 321 or 322. Study of selected topics in German film from the beginnings to today, particularly as seen in their social, historical and cultural contexts. See the Schedule of Classes for the specific topic to be offered each semester.

GRMN 423 Folk/Popular Culture

Semester course; 1-3 lecture hours. 1-3 credits. May be repeated with different topics for a total of 6 credits.
Prerequisites: GRMN 300; GRMN 305 or 307 or 311; GRMN 301 or 320 or 321 or 322. Study of selected topics related to folk traditions and/or popular culture in German-speaking countries. See the Schedule of Classes for the specific topic to be offered each semester.

GRMN 424 Culture and Society

Semester course; 1-3 lecture hours. 1-3 credits. May be repeated with different topics for a total of 6 credits.
Prerequisites: GRMN 300; GRMN 305 or 307 or 311;

GRMN 301 or 320 or 321 or 322. Study of issues in the culture and society of German-speaking countries today. See the Schedule of Classes for the specific topic to be offered each semester.

GRMN 425 Language in Context: _____

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of 6 credits. Prerequisites: GRMN 300; GRMN 301, 305, 307 or 311; and GRMN 320, 321 or 322. Conducted in German. Study of German language and linguistics. See the Schedule of Classes for the specific topic to be offered each semester.

GRMN 491 Topics in German

Variable hours. 1-3 credits. May be repeated with different topics for a maximum of 9 credits.
Prerequisites: GRMN 300; GRMN 305 or 307 or 311; GRMN 301 or 320 or 321 or 322. An in-depth study of selected topics in German. See the Schedule of Classes for specific topics to be offered each semester.

GRMN 492 Independent Study

Semester course; variable hours. Variable credit. Maximum of 3 credits per semester; maximum total of 6 credits for all independent study courses in German. Prerequisites: GRMN 301; GRMN 320 or 321 or 322; GRMN 420 or 421 or 422 or 423 or 424 or 491; and senior standing with a minimum of 85 credits earned toward the degree. A course designed to give students an opportunity to become involved in independent study in a literary or linguistic area or subject in which they have an interest.

Health, Physical Education and Exercise Science**HPEX 107 Badminton**

1 credit.

HPEX 121 Self Defense: Karate or Judo

1 credit.

HPEX 201 Individual Sports and Lifelong Leisure Activities

Semester course; 3 lecture/laboratory hours. 3 credits. Health, physical education and exercise science majors only. Prepares students to develop educational skills and methodology for instruction of individual sports in the classroom, gymnasium and outdoor field settings; students acquire skills needed to teach individual sports in middle and high school environments.

HPEX 202 Team Sports and Activities

Semester course; 3 lecture/laboratory hours. 3 credits. Open only to general health and physical education majors in the health, physical education and exercise science program. Students develop educational skills and methodology for instruction of team sports and group activities in classroom, gymnasium and outdoor field settings. Students acquire skills needed to teach team sports and activities in middle and high school environments.

HPEX 203 Wilderness Education I

Semester course; 1 lecture hour. 1 credit. Designed to examine the principal philosophical foundations of adventure theory and wilderness leadership. Concepts of judgment, decision-making, leadership and environmentally correct practices are introduced.

HPEX 211 Tumbling and Elementary Rhythmics

Semester course; 2 laboratory hours. 1 credit. Prepares students to work with elementary children 4 to 12 years of age in rhythmic activities; includes elementary tumbling, activities and games designed to help a child's rhythmic ability.

HPEX 216 Lifeguard Training

1-2 credits.

HPEX 217 Water Safety Instruction

1-2 credits.

HPEX 218 Scuba

1 credit.

HPEX 220 Introduction to Athletic Training

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 205 and BIOZ 205L. Corequisite: HPEX 220L. An introduction to the field of athletic training. Includes the prevention and basic care of athletic injuries in the physically active.

HPEX 230 History and Philosophy of Health and Physical Education

Semester course; 3 lecture hours. 3 credits. An overview of the professional aspects of health and physical education. Historical and philosophical concepts, evaluation and research methods, current issues and trends, and career opportunities are discussed. Field experiences allow exposure to various professionals and facilities related to the health and physical education domains.

HPEX 231 Principles of Accident Prevention

Semester course; 3 lecture hours. 3 credits. This course is designed to provide information on the magnitude of the accident problem in the nation. Special attention is given to concepts and theories of accident prevention, particularly as they relate to use of highways.

HPEX 232 Introduction to Driver Education

Semester course; 3 lecture hours. 3 credits. A current automobile operator's permit is required. An introduction to the vehicle operator's task within the highway transportation system: driver task analysis.

HPEX 250 Medical Terminology

Semester course; 1 lecture hour. 1 credit. Self-directed learning experience for students entering a medical or allied health profession. Presents medical terms by their root word, suffix and prefix. Develops skills to build and decode medical terms by their word parts. Develops ability to recognize and use common medical abbreviations.

HPEX 271 Safety, First Aid and CPR

Semester course; 3 lecture hours. 3 credits. This course includes American Red Cross and/or American Heart Association certification in Multimedia Standard First Aid and Basic Life Support (cardiopulmonary resuscitation). In addition, basic principles of accident causation and prevention are presented.

HPEX 291 Special Topic in Health, Physical Education and Exercise Science

Semester course; 1-3 credits. May be repeated for a maximum of 3 credits. Restricted to health, physical education and exercise science majors only. Offers students the opportunity to participate in an approved professional experience related to the students'

knowledge base of general education and professional introduction courses; may include participatory and experimental formats dictated by the faculty supervisor; credits determined by the number of contact hours of the experience.

HPEX 292 Independent Study in Health, Physical Education and Exercise Science

Semester course; 1-3 credits. Health, physical education and exercise science majors only. May be repeated up to a maximum of 3 credits. Enables a student to create an individualized research project or professional experience based on specific professional needs and goals; must have adviser's approval; experiences based on the student's knowledge base of general education and professional core introduction courses; credits determined by the number of contact hours and extensiveness of the project.

HPEX 293 Field Practicum I

Semester course; variable practicum hours. 3-6 credits. Health, physical education and exercise science majors only. Provides observational and small group experiences for the pre-professional student; includes planned observations, tutorials and small group involvement under the supervision of the faculty and field supervisor; summary papers, observational logs, resumes and updated five-year plans are completed in this writing intensive course; minimum of 50 contact hours per credit hour required; consult with adviser to obtain specific course requirements.

HPEX 294 Field Practicum II

Semester course; variable practicum hours. 3-6 credits. Health, physical education and exercise science majors only. Provides observational and small group experiences for the pre-professional student; includes planned observations, tutorials and small group involvement under the supervision of the faculty and field supervisor; minimum of 50 contact hours per credit hour required; consult with adviser to obtain specific course requirements.

HPEX 295 Clinical Practicum I

Semester course; variable practicum hours. 3-6 credits. Health, physical education and exercise science majors only. Provides observational and small group experiences for the pre-professional student; includes planned observations, tutorials and small group involvement under the supervision of the faculty and clinical supervisor; summary papers, observational logs, resumes and updated five-year plans are completed in this writing intensive course; a minimum of 50 contact hours per credit hour required; consult with adviser to obtain specific course requirements.

HPEX 296 Clinical Practicum II

Semester course; variable practicum hours. 3-6 credits. Health, physical education and exercise science majors only. Provides observational and small group experiences for the pre-professional student; includes planned observations, tutorials and small group involvement under the supervision of the faculty and clinical supervisor; a minimum of 50 contact hours per credit hour required; consult with adviser to obtain specific course requirements.

HPEX 300 Health Care Delivery in the U.S.

Semester course; 3 lecture hours. 3 credits. Introduces students to the American health care system and provides an opportunity to analyze the diverse components comprising the system. Major components

of the system are examined, including inpatient and outpatient services, financing, insurance and technology. Provides the student a perspective of the variety of career choices in health care.

HPEX 310 Fitness and Health

Semester course; 3 lecture hours. 3 credits. Enrollment restricted to HPEX majors. Presents the knowledge and pedagogical principles of strength, flexibility, aerobic and anaerobic training programs, as well as the role that exercise and lifestyle play on overall health. Emphasis is on understanding, experiencing and applying conditioning principles for individuals and how they impact health.

HPEX 325 Pathology and Pharmacology in Athletic Training

Semester course; 3 lecture hours. 3 credits. Prerequisites: HPEX 220, HPEZ 220L, PHIS 206 and PHIZ/BIOZ 206L. Acquaints the student with the pathology of athletic injuries and the proper use of pharmacology in the treatment of athletic injuries. Includes the pathomechanics of sports injuries and the use of medication in the treatment of sports injuries.

HPEX 330 Elementary Health and Physical Education

Semester course; 3 lecture hours. 3 credits. Prerequisites: HPEX 230, and either HPEX 201 or HPEX 202. Open only to general health and physical education majors in the health, physical education and exercise science program. Emphasis is given to the role of movement and theory in the education program and its implications for curriculum development and learning. Major consideration is given to the development of movement competency through thematic instruction.

HPEX 331 Methods in Driver Education

Semester course; 3 lecture hours. 3 credits. Prerequisite: HPEX 232. This course is designed to provide driver education instructional principles and methodology.

HPEX 332 Motor Learning and Performance

Semester course; 3 lecture hours. 3 credits. This course is designed to introduce the student to the major concepts of motor control and motor learning and the influencing conditions. It will provide a framework for understanding the structure and function of the nervous system in relation to perception and motor control. Other topics include the general nature of skill acquisition and how learners interact with the environment while performing motor tasks. The theoretical framework underlying learning and memory are related to the acquisition of motor skills.

HPEX 333 Psychosocial Aspects of Sport and Physical Activity

Semester course; 3 lecture hours. 3 credits. The focus of this course is the scientific study of the behavior of individuals and groups within sport and physical activity in terms of the psychological effects and factors of sport participation, and in terms of the social relationships and social settings within which sport participation occurs.

HPEX 334 Measurement and Analysis in Teaching and Exercise Science

Semester course; 3 lecture hours. 3 credits. Corequisite: HPEZ 334. Topics include selecting, administering, scoring and evaluating tests in the areas of general motor performance, health screening,

fitness, sport skills and knowledge. Includes scientific test construction and basic statistical analysis.

HPEX 335 Elementary Physical Education for Physical Education Majors

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Designed to enhance knowledge of elementary physical education through an analysis of the aims, goals, objectives, programs and teaching methods. Construction of year-round curriculum and daily lesson plans. Emphasis also placed upon the acquisition of administrative and organizational knowledge dealing with facilities, equipment, teaching aids, testing, measurement and safety.

HPEX 337 Technology in Teaching Health and Physical Education

Semester course; 3 lecture hours. 3 credits. Emphasis is placed on the application of the latest software and hardware technology used in the field of health and physical education. Students use public school settings and authentic data whenever possible.

HPEX 345 Nutrition for Health and Disease

Semester course; 3 lecture hours. 3 credits. Enrollment restricted to HPEX majors. Overview of basic nutritional knowledge for both healthy individuals and those with increased risk of cardiovascular disease. The course relies on evidence-based research when discussing food and nutrition. Topics include science and politics of dietary guidelines; the science and controversies of carbohydrates, proteins, fats, vitamins and minerals; supplements; obesity and weight loss; digestion and absorption; allergies and intolerances; functional foods, phytochemicals and organic food.

HPEX 350 Nutrition

Semester course; 3 lecture hours. 3 credits. Provides learning opportunities that enable the student to acquire a practical and useful knowledge based on the sound principles of applied human nutrition. Emphasis will be on nutritional needs through the cycles of life providing information that will enhance the student's own lifestyle and provide experience in interpreting nutritional information for the public.

HPEX 351 Issues in Sexuality

Semester course; 3 lecture hours. 3 credits. An overview of content, principles and strategies relating to issues in human sexuality both in the community and school settings. Basic concepts of human sexuality as they develop in today's world are presented. Issues include sexual maturity, reproductive systems, conception, birth, abortion and varieties of sexual behavior and sexual dysfunctions and disorders.

HPEX 352 Substance Abuse

Semester course; 3 lecture hours. 3 credits. A survey of drugs that are used and abused in contemporary society. Multidisciplinary lectures and discussions include the historical and sociological perspectives of drugs in the school and community; the psychological and physiological effects of drug use; and the role of local and regional resources. Designed for students, teachers, counselors, administrators and other interested persons. Rehabilitation methods and prevention programs also will be discussed.

HPEX 353 Disease Trends, Prevention and Control

Semester course; 3 lecture hours. 3 credits. Pre- or corequisite: HPEX 250. Provides students an

opportunity to examine the major categories of diseases, infectious and noninfectious, including significant examples in each category. Students will also research major diseases affecting the U.S. population as well as global populations. Current modalities for the prevention, treatment and control of these diseases will be studied.

HPEX 354 Coping and Adaptation

Semester course; 3 lecture hours. 3 credits. Focuses on common stress factors in life such as death, personal loss, life changes, divorce and emotional problems, such as anger, loneliness and frustration. Strategies for dealing with such stressors are discussed and applied to both personal and professional settings.

HPEX 355 School and Community Health Resources

Semester course; 3 lecture hours. 3 credits. Acquaints the student with current available school and community resources and educational materials for health information. Available services in a community health program will be surveyed.

HPEX 356 Community Health Education and Promotion: Theory and Practice

Semester course; 3 lecture hours. 3 credits.
Prerequisites: HPEX 300 and 353. Pre- or corequisite: HPEX 355. Introduces theories, roles and skills that are the foundation for the professional practice of community health education. Emphasizes the growing significance of health education in preventing and/or treating health problems, health promotion and improving quality of life. Presents the historical evolution and development of the profession and the various settings in which health educators practice. Assists in the preparation of students for certification as health education specialists.

HPEX 357 Personal Health and Behavior Change

Semester course; 3 lecture hours. 3 credits. Designed to provide students with a basic understanding of various contemporary personal and community health issues. Special emphasis placed on increasing awareness of multiple factors that affect individual health-behavior change and, subsequently, influence current and future health status.

HPEX 358 Introduction to Epidemiology

Semester course; 3 lecture hours. 3 credits.
Prerequisite: STAT 210. Enrollment restricted to HPEX majors. Introduction of students to the field of public health epidemiology, emphasizing methods for assessing factors associated with the distribution and etiology of health and disease. Skills include methods for identifying and evaluating sources of health information, calculation of key epidemiologic measures, epidemiological investigation techniques, and evaluation of the strengths and weaknesses of different study designs.

HPEX 370 Coaching Seminar

Semester course; 1 lecture hour. 1 credit. A lecture/discussion course that identifies the practical administrative and organizational responsibilities coaches encounter. Realistic problem-solving is stressed.

HPEX 371 Psychology of Physical Activity

Semester course; 3 lecture hours. 3 credits. Examines psychological issues related to physical activity,

exercise and sport participation. Topics include individual and group motivation theory and techniques, leadership effectiveness, mental health, mental skills training, injury rehabilitation, eating disorders, exercise adherence, addiction, overtraining and use of ergogenic aids. Emphasizes examination of current research and application of psychological principles in a physical activity setting.

HPEX 372 Survey of Kinesiology and Physiology of Exercise

Semester course; 3 lecture hours. 3 credits. Examines the basic concepts of human biomechanics and exercise physiology. Includes basic and applied kinesiology and metabolic, endocrinological, cardiovascular and respiratory responses and adaptations to exercise. Emphasizes the integration of kinesiological and physiological principles.

HPEX 373 Structural Kinesiology

Semester course; 3 lecture hours. 3 credits.
Prerequisite: BIOL 205. Corequisite: HPEZ 373. Presents the anatomical aspects of human motion with particular attention given to application of anatomical structure and terminology in analysis of physical activities; emphasizes structure and function of the human musculoskeletal system and qualitative analysis of motor skills.

HPEX 374 Musculoskeletal Structure and Movement

Semester course; 4 lecture hours. 4 credits.
Prerequisite: BIOL 205. Pre- or corequisite: PHYS 201. Enrollment restricted to HPEX majors. Provides an understanding of the mechanical aspects of human motion with particular attention given to application of anatomical structure, terminology and biomechanics in analysis of physical activities. Students acquire practical knowledge and skills in palpation, biomechanical analysis and instrumentation.

HPEX 375 Physiology of Exercise

Semester course; 3 lecture hours. 3 credits.
Prerequisite: PHIS 206. Corequisite: HPEZ 375. Physiological changes in the human organism resulting from exercise, investigation of recent research in diet, drugs, fatigue, cardiovascular/respiratory fitness, conditioning programs for various age groups and the effects of exercise upon various components of physical fitness and health. Application of specific problems to physical education programs. Laboratory experience in the use of research instruments.

HPEX 380 Resistance Training for Health and Performance

Semester course; 3 lecture hours. 3 credits.
Prerequisites: HPEX 310 and HPEX 375. Enrollment restricted to HPEX majors. Provides students with the knowledge, skills and abilities to design and implement resistance training programs for a variety of populations. Covers the scientific and practical basis for resistance training to reduce injuries, improve health and optimize performance. Students actively participate in and demonstrate knowledge of a range of resistance exercise techniques, as well as preparticipation screening. Helps prepare those students wishing to attempt the National Strength and Conditioning Association's Certified Strength and Conditioning exam.

HPEX 390 Physical Education for the Elementary Teacher

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Methods and curriculum planning in physical education for the elementary school teacher and physical education specialist. Emphasis is placed on using activities and games to foster the growth and development of the child with a focus on the psychomotor and affective domains.

HPEX 391 Special Topic in Health, Physical Education and Exercise Science

Semester course; 1-3 credits. Health, physical education and exercise science majors only. May be repeated up to a maximum of three credits. Offers students the opportunity to participate in an approved professional experience related to the students' knowledge base of general education, professional introduction and some core professional courses; may include participatory experiences in which the student plays an active role in the experience; credits determined by the number of contact hours of the experience.

HPEX 392 Independent Study in Health, Physical Education and Exercise Science

Semester course; 1-3 credits. Health, physical education and exercise science majors only. May be repeated up to a maximum of 3 credits. Enables a student to create an individualized research project or professional experience based on specific professional needs and goals; must have adviser's approval; experiences based on the student's knowledge base of general education and professional introduction and some professional core courses; credits determined by the number of contact hours and extensiveness of the project.

HPEX 393 Field Experience I

Semester course; variable hours. 3-6 credits.
Prerequisites: permission of instructor; acceptance into teacher preparation program; and CPR certification. Health, physical education and exercise science majors only. Precedes the in-depth student teaching experience or the in-depth exercise science field experience; includes planned observations, tutorials, small group involvement under the supervision of the faculty and field supervisor; practices routine, basic and advanced procedures; minimum of 50 contact hours per credit hour required; consult with adviser to obtain specific course requirements.

HPEX 394 Field Experience II

Semester course; variable hours. 3-6 credits. Health, physical education and exercise science majors only. Designed to provide supervised practical experience in the teaching process or delivery of health education/health promotion programs; opportunities to further abilities in physical education and exercise science through practical application of skills in school or agency settings; a minimum of 50 contact hours per credit hour required; consult with adviser to obtain specific course requirements.

HPEX 395 Clinical Experience I

Semester course; variable clinical hours. 3-6 credits.
Prerequisite: HPEX 375. Enrollment restricted to HPEX majors. Addresses required competencies in the exercise science, health science, athletic training, kinesiotherapy or community wellness education programs. Provides experiences in an approved affiliate site under the supervision of faculty and

approved clinical instructors. Students gain practical experience in routine, basic and advanced procedures associated with exercise science, health science, athletic training, kinesiotherapy or community wellness. A minimum of 50 contact hours per credit hour required. Students should consult with an adviser to obtain specific course requirements and clinical competencies addressed.

HPEX 396 Clinical Experience II

Semester course; variable clinical hours. 3-6 credits. Health, physical education and exercise science majors only. Addresses required competencies in the athletic training, kinesiotherapy or community wellness education programs; provides experiences in an approved affiliate site under the supervision of faculty and approved clinical instructors; gains practical experience in routine, basic and advanced procedures associated with athletic training, kinesiotherapy or community wellness; a minimum of 50 contact hours per credit hour required; consult with adviser to obtain specific course requirements and clinical competencies addressed.

HPEX 420 Athletic Training Administration

Semester course; 3 lecture hours. 3 credits. Prerequisites: HPEX 395 and HPEX 396. Acquaints the student with the proper organization and management techniques used in health care administration of athletic training programs. Includes organization, management and administration of health care of the physically active in the athletic setting.

HPEX 430 The Organization, Administration and Supervision of the Intramural Sports Program

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Experiences in the organization and administration of an intramural sports program. Lecture will be devoted to the theory, philosophy, history and plans for the conduct of an intramural sports program. Laboratory experience will be obtained by working in intramural programs.

HPEX 431 Adapted Physical Activity

Semester course; 3 lecture hours. 3 credits. Prepares future teachers and professionals to meet the needs of persons with disabilities in organized health, physical education and rehabilitation programs in the school, community or hospital setting. Provides an overview of those disabilities found most frequently in public school and rehabilitation settings.

HPEX 432 Methods and Curriculum in Physical Education

Semester course; 3 lecture hours. 3 credits. Prepares students to become independent problem-solvers and decision-makers by applying previously acquired knowledge to curriculum design and instruction in multiple settings; students acquire pedagogical skills and gain insight into the development of a physical education curriculum for elementary, middle and high school levels.

HPEX 433 Methods and Curriculum in Health Education

Semester course; 3 lecture hours. 3 credits. Prepares students to become independent problem-solvers and decision-makers by applying previously acquired knowledge to curriculum design and instruction in a classroom setting; students acquire pedagogical skills and gain insight into the development of a health

education curriculum for elementary, middle and high school levels.

HPEX 435 Health Disparities in the U.S.

Semester course; 3 lecture hours. 3 credits. Prerequisites: HPEX 353 and HPEX 358. Enrollment restricted to HPEX majors. Provides an exploration into the magnitude of health disparities in the U.S. and the association with socioeconomic status, race, ethnicity, country of origin, cultural history and access to health services. Students are encouraged to broaden their perspectives and understand how various sociocultural factors impact health and health care delivery as it relates to the patient/consumer as well as the health care practitioner. Targets the values, beliefs, attitudes and customs of multiple segments of the population in relationship to age, gender, disability status, sexual orientation, area of residence, etc. Emphasizes and provides learning experiences to assist in the development of cultural competence.

HPEX 440 Chronic Disease and Exercise Management

Semester course; 3 lecture hours. 3 credits. Prerequisite: HPEX 375 and HPEX 375L. Presents in-depth information of various concepts specifically related to exercise management of persons with chronic disease and/or disability. Provides scientific knowledge of various chronic diseases and disabilities that are commonplace and can be managed with physical activity. General topics include cardiovascular and pulmonary diseases, metabolic diseases, immunological and hematological diseases, orthopaedic diseases and disabilities, neuromuscular disorders, and cognitive, emotional and sensory disorders. Focuses on the understanding of specific physical and physiological characteristics associated with the various diseases and disabilities.

HPEX 441 Assessment and Exercise Intervention in Health and Disease

Semester course; 2 lecture and 1 laboratory hours. 3 credits. Prerequisite: HPEX and HPEZ 375. Provides in-depth information of various concepts specifically related to exercise assessment and prescription for healthy persons and those with chronic disease and/or disability. Examines the various concepts specifically related to measurement of cardiorespiratory fitness, pulmonary function, body composition, flexibility and muscular strength and endurance. Focuses on the development of exercise and physical activity prescriptions for healthy and diseased populations.

HPEX 445 Principles of Health Care Management

Semester course; 3 lecture hours. 3 credits. Prerequisite: HPEX 240 or 300. Exposes the student to basic aspects of administration and management in various health care settings. The traditional areas of administration and management, such as planning, organizing, staffing, directing and controlling will be addressed. Contemporary issues such as cultural competence, quality of care, ethics, and fraud and abuse will be examined. The course will provide a theoretical base that will enhance and facilitate the student's application of sound management principles in various practice settings.

HPEX 450 Program Planning and Evaluation

Semester course; 3 lecture hours. 3 credits. Prerequisite: HPEX 356. Corequisite: HPEZ 450. Presents the foundations of planning, implementation

and evaluation of community health education programs. Exposes students to programming and evaluation in a variety of community health settings, including schools, work sites, hospitals, state and local health departments and nonprofit agencies.

HPEX 451 Professional Conference in Community Health Education

Semester course; 1 lecture hour. 1 credit. Offers the student an opportunity to participate in a professional conference focusing on community health education. This experience includes observing, summarizing and critically evaluating presentations, as well as preparing and delivering presentations and networking.

HPEX 470 Exercise Programming and Leadership

Semester course; 3 lecture hours. 3 credits. Prerequisites: HPEX 310, HPEX 380 and HPEX 441. Provides knowledge and skills necessary for assessing, interpreting and designing health and activity programs for apparently healthy populations. Students develop leadership skills through presentation of ACSM exercise testing procedures and implementation of exercise prescriptions.

HPEX 475 Cardiovascular Pathophysiology and Pharmacology

Semester course; 3 lecture hours. 3 credits. Prerequisites: HPEX 375 and HPEX 440 or equivalents. Enrollment restricted to HPEX majors. Presents theoretical principles of electrocardiography and the effects of pharmacological intervention in the treatment of cardiovascular disease. Specific emphasis placed on myocardial ischemia, myocardial infarction and their treatment through exercise rehabilitation protocols. The impact of pharmacological agents on the ECG and on exercise is explored.

HPEX 480 Professional Certification Seminar

Semester course; 1 lecture hour. 1 credit. Prerequisites: HPEX 380, HPEX 441 and HPEX 470. Enrollment restricted to seniors in HPEX major. Provides structured experiences in the classroom, laboratory and exercise arenas to improve knowledge, skills and abilities in health-related physical fitness assessment and exercise programming. Supplements existing course work by correcting any deficiencies in learning competencies toward being a successful exercise professional. A review of certification materials is also an important component of the course.

HPEX 491 Special Topic in Health, Physical Education and Exercise Science

Semester course; 1-3 credits. Health, physical education and exercise science majors only. May be repeated up to a maximum of 3 credits. Offers students the opportunity to participate in an approved professional experience related to the students' knowledge base of general education, professional introduction and extensive core professional courses; may include research-based projects or more academically rigorous experiences; credits determined by the number of contact hours of the experience.

HPEX 492 Independent Study in Health, Physical Education and Exercise Science

Semester course; 1-3 credits. Health, physical education and exercise science majors only. May be repeated up to a maximum of 3 credits. Enables a student to create an individualized research project or professional experience based on specific professional

needs and goals; must have adviser's approval; experiences based on the student's knowledge base of general education, professional introduction and extensive core courses; credits determined by the number of contact hours and extensiveness of the project.

HPEX 493 Field Experience III

Semester course; variable hours. 3-12 credits. Prerequisites: pass Praxis II; HPEX 393 with a minimum grade of C. Health, physical education and exercise science majors only. An in-depth field experience in a public school, health education/health promotion agency or other approved setting; designed to provide the pre-professional student with greater practical application of skills culminating in full responsibility for planning, implementing and evaluating the classroom, agency or facility activities; a minimum of 50 contact hours per credit hour required; consult with adviser to obtain a course syllabus regarding prerequisites and specific course requirements.

HPEX 494 Field Experience IV

Semester course; variable hours. 3-6 credits. Prerequisites: pass Praxis II; HPEX 393 with a minimum grade of C. Health, physical education and exercise science majors only. An in-depth field experience in a public school, health education/health promotion agency or other approved setting; designed to provide the pre-professional student with greater practical application of skills culminating in full responsibility for planning, implementing and evaluating the classroom, agency or facility activities; a minimum of 50 contact hours per credit hour required; consult with adviser to obtain a course syllabus regarding prerequisites and specific course requirements.

HPEX 495 Clinical Experiences III

Semester course; variable clinical hours. 3-6 credits. Prerequisites: HPEX and HPEZ 375; HPEX 393 or 395. (Exercise science concentration pre- or corequisite: HPEX 440.) Health, physical education and exercise science majors only. Addresses required competencies in the athletic training, kinesiotherapy or community wellness education programs; provides experiences in an approved site under the supervision of faculty and approved clinical instructors; practices routine, basic and advanced procedures associated with athletic training, kinesiotherapy or community wellness; a minimum of 50 contact hours per credit hour required; consult with adviser to obtain a course syllabus regarding prerequisites, specific course requirements and clinical competencies addressed.

HPEX 496 Clinical Experience IV

Semester course; variable clinical hours. 3-6 credits. Pre- or corequisite: HPEX 495. Health, physical education and exercise science majors only. Addresses required competencies in the athletic training, kinesiotherapy or community wellness education programs; provides hands-on experiences in an approved site under the supervision of faculty and approved clinical instructors; practices routine, basic and advanced procedures associated with athletic training, kinesiotherapy or community wellness; consult with adviser to obtain course syllabus regarding prerequisites, specific course requirements and clinical competencies addressed.

Health, Physical Education and Exercise Science Lab

HPEZ 220 Introduction to Athletic Training Laboratory

Semester course; 2 laboratory hours. 1 credit. Corequisite: HPEX 220. Laboratory fee required. A laboratory to introduce the basic skills used by an athletic trainer in the prevention and care of athletic injuries in the physically active.

HPEZ 320 Upper Extremity Assessment of Athletic Injuries Laboratory

Semester course; 2 laboratory hours. 1 credit. Corequisite: HPEX 320. Laboratory fee required. This laboratory course includes practice in the skills of assessment and management of upper extremity athletic injuries in the physically active. Includes head, neck, thoracic, abdominal, shoulder, elbow, forearm, wrist, hand and finger injuries.

HPEZ 321 Lower Extremity Assessment of Athletic Injuries Laboratory

Semester course; 2 laboratory hours. 1 credit. Corequisite: HPEX 321. Laboratory fee required. This laboratory course is designed to acquaint the student with the proper assessment and treatment procedures for lower extremity athletic injuries in the physically active. The lab will include prevention, care and treatment of lower back, hip, thigh, knee, lower leg, ankle and foot athletic injuries.

HPEZ 322 Therapeutic Exercise in Athletic Training Laboratory

Semester course; 2 laboratory hours. 1 credit. Corequisite: HPEX 322. This laboratory course is designed to acquaint the student with the proper use of therapeutic exercise in the treatment and rehabilitation of athletic injuries in the physically active. The lab course will include the skills of the therapeutic exercise used in the treatment of groin, thigh, hip, knee, lower leg, ankle, foot, shoulder, elbow, wrist, hand, finger and back athletic injuries.

HPEZ 324 Therapeutic Modalities in Athletic Training Laboratory

Semester course; 2 laboratory hours. 1 credit. Corequisite: HPEX 324. Laboratory fee required. This laboratory course will allow the student to develop the practical skills required to properly apply therapeutic modalities used to treat athletic injuries in the physically active.

HPEZ 334 Measurement and Analysis in Teaching and Exercise Science Laboratory

Semester course; 2 laboratory hours. 1 credit. Corequisite: HPEX 334. Laboratory experience applying knowledge and skills presented in HPEX 334.

HPEZ 373 Structural Kinesiology Laboratory

Semester course; 2 laboratory hours. 1 credit. Prerequisite: BIOL 205. Corequisite: HPEX 373. Laboratory experience applying knowledge and theory from HPEX 373.

HPEZ 375 Physiology of Exercise Laboratory

Semester course; 2 laboratory hours. 1 credit. Prerequisite: PHIS 206. Corequisite: HPEX 375. Provides practical application of the physiological

principles presented in HPEX 375; assists students in the development of practical application competencies associated with assessment of acute and chronic effects of exercise on the human body.

HPEZ 450 Service-learning in Community Health Education Planning and Evaluation

Semester course; 1 service-learning/laboratory hour. 1 credit. Corequisite: HPEX 450. Provides experience working with community partners to gain firsthand exposure to specific target populations, observing the needs of those populations and current efforts, if any, to address those needs. Community partners include nonprofit agencies, schools, worksites, hospitals and state and local health departments.

History

HIST 101 Survey of European History

Semester courses; 3 lecture hours. 3, 3 credits. A survey of European civilization from the ancient world to the present, emphasizing the events, ideas and institutions that have shaped, influenced and defined Europe's place in the world. First semester: to 16th century. Second semester: 16th century to the present.

HIST 102 Survey of European History

Semester courses; 3 lecture hours. 3, 3 credits. A survey of European civilization from the ancient world to the present, emphasizing the events, ideas and institutions that have shaped, influenced and defined Europe's place in the world. First semester: to 16th century. Second semester: 16th century to the present.

HIST 103 Survey of American History

Semester courses; 3 lecture hours. 3, 3 credits. A survey of American civilization from prehistory to the present, emphasizing the events, ideas and institutions that have shaped, influenced and defined America's place in the world. First semester: to Reconstruction. Second semester: Reconstruction to present.

HIST 104 Survey of American History

Semester courses; 3 lecture hours. 3, 3 credits. A survey of American civilization from prehistory to the present, emphasizing the events, ideas and institutions that have shaped, influenced and defined America's place in the world. First semester: to Reconstruction. Second semester: Reconstruction to present.

HIST 105/AFAM 105 Survey of African History

Semester course; 3 lecture hours. 3 credits. A survey of African civilizations from prehistory to the present, emphasizing the events, ideas and institutions that have shaped, influenced and defined Africa's place in the world. First semester: to 1800. Second semester: 1800 to the present.

HIST 106/AFAM 106 Survey of African History

Semester course; 3 lecture hours. 3 credits. A survey of African civilizations from prehistory to the present, emphasizing the events, ideas and institutions that have shaped, influenced and defined Africa's place in the world. First semester: to 1800. Second semester: 1800 to the present.

HIST 107 Survey of East Asian Civilizations

Semester courses; 3 lecture hours. 3, 3 credits. A survey of East Asian civilizations (China and Japan)

from prehistory to the present, emphasizing the events, ideas and institutions that shaped, influenced and defined East Asia's place in the world. First semester: to the 14th century. Second semester: from the 14th century to the present.

HIST 108 Survey of East Asian Civilizations

Semester courses; 3 lecture hours. 3, 3 credits. A survey of East Asian civilizations (China and Japan) from prehistory to the present, emphasizing the events, ideas and institutions that shaped, influenced and defined East Asia's place in the world. First semester: to the 14th century. Second semester: from the 14th century to the present.

HIST 109 Survey of Latin American History

Semester courses; 3 lecture hours. 3, 3 credits. A survey of Latin American civilization from its early civilizations to the present, emphasizing the events, ideas and institutions that have shaped, influenced and defined Latin America's place in the world. First semester: to 1824. Second semester: 1824 to the present.

HIST 110 Survey of Latin American History

Semester courses; 3 lecture hours. 3, 3 credits. A survey of Latin American civilization from its early civilizations to the present, emphasizing the events, ideas and institutions that have shaped, influenced and defined Latin America's place in the world. First semester: to 1824. Second semester: 1824 to the present.

HIST 191 Topics in History

Semester course; variable hours. 1-3 credits per semester. Maximum total of 6 credits. The study of a selected topic or topics in history. See the Schedule of Classes for specific topics to be offered each semester.

HIST 201 The Art of Historical Detection:

Semester course; 3 lecture hours. 3 credits. Introduces non-history majors to the methods of the discipline by undertaking a series of case studies in historical inquiry. Each case study will consist of a close examination of a single historical question, covering the general background to that question and exploring relevant primary and secondary sources. Students will then use this evidence to propose well-reasoned solutions to the question at hand.

HIST 300 Introduction to Historical Study

Semester course; 3 lecture hours. 3 credits. History majors must complete HIST 300 with at least a grade of C prior to enrolling in more than six credits of 300- or 400-level history courses. This introduction to the historical discipline is required of all history majors. It is designed to enhance basic research, writing and study skills in order to increase student appreciation of, and performance in, the advanced courses within the history major.

HIST 301/RELS 315 The Ancient Near East

Semester course; 3 lecture hours. 3 credits. A study of the ancient Near Eastern civilizations from the preliterary period to the end of Kassite rule in Babylonia (c. 1160 B.C.).

HIST 302 Ancient Egypt

Semester course; 3 lecture hours. 3 credits. A general survey of the history and culture of ancient Egypt from the Predynastic Period through the age of the New Kingdom. In addition to the historical reconstruction,

emphasis is placed on the art, literature and religion of each of the major periods.

HIST 303 Greek Civilization

Semester course; 3 lecture hours. 3 credits. A study of the unique cultural heritage of Greece and the historical patterns that rose from it, from the Heroic Age to the urban worlds after Alexander, 1400 B.C.-146 B.C.

HIST 304 Roman Civilization

Semester course; 3 lecture hours. 3 credits. A study of Roman history as it derived from Roman cultural institutions, from the Etruscan period through the conflict of the pagan and Christian worlds and advent of the barbarians, 753 B.C.-A.D. 454.

HIST 307/RELS 308 The High Middle Ages

Semester course; 3 lecture hours. 3 credits. A detailed historical analysis of the Gregorian Revolution, the Crusades, the 12th-century Renaissance, the Thomistic World and the death of medieval civilization.

HIST 310 The Early Middle Ages

Semester course; 3 lecture hours. 3 credits. A topical, thematic, integrative and problems approach to the emergence of a distinctive European community during the period frequently alluded to as the "Dark Ages."

HIST 311/RELS 308 High and Later Middle Ages

Semester course; 3 lecture hours. 3 credits. A detailed historical overview of developments in Western Europe from the end of the first millennium through the end of the 15th century.

HIST 312 Europe in the Early Modern Period, 1350-1650

Semester course; 3 lecture hours. 3 credits. Describes the political, intellectual, religious and social developments in Europe from the Black Death through the wars of religion, including the Renaissance, the Reformation and the Voyages of Exploration.

HIST 313 Europe in Absolutism and Enlightenment, 1648-1815

Semester course; 3 lecture hours. 3 credits. Examines the political, social and economic orders of Old Regime Europe in the context of their increasing contradictions; introduces the cultural and intellectual forces that helped challenge that regime; culminates in the French Revolution and Napoleon.

HIST 314 The Zenith of European Power, 1815-1914

Semester course; 3 lecture hours. 3 credits. A study of the period in which the nations of Europe reached their height of world power between the reconstruction of Europe after the Napoleonic Wars and the eve of World War I. Topics include the rise of nationalism, liberalism and socialism; the spread of capitalism and industrial society; the beginnings of mass politics; the new imperialism; the diplomatic revolution in the European state system before World War I.

HIST 315 The Age of Total War in Europe, 1914-1945

Semester course; 3 lecture hours. 3 credits. A study of the transformation of European society precipitated by World War I and World War II. Emphasis is placed on the origin, nature and repercussions of total war; the

crisis of democracy and the rise of modern dictatorships; changes in political, economic and social institutions; and the decline of European power.

HIST 316 Postwar Europe, 1945 to the Present

Semester course; 3 lecture hours. 3 credits. An examination of Europe's social, economic and political recovery after World War II and of the transformation of Europe from the center toward the periphery of world power.

HIST 317 History of France I

Semester course; 3 lecture hours. 3 credits. A history of France from Gallo-Roman times through the French Revolution and the Napoleonic era.

HIST 318 History of France II

Semester course; 3 lecture hours. 3 credits. A history of France from 1815 to the present.

HIST 319 History of Germany I

Semester course; 3 lecture hours. 3 credits. Covers major developments in Germany from the 30 Years War and rise of Prussia through the unification of the German nation-state in 1871.

HIST 320 History of Germany II

Semester course; 3 lecture hours. 3 credits. Covers major developments in Germany from 1871 through World War I, Weimar, Third Reich, World War II and reunification in 1990.

HIST 321 The Holocaust

Semester course; 3 lecture hours. 3 credits. A multidisciplinary examination of the events leading to and culminating in the Nazi extermination of six million Jews; the historical settings of European Jewry and of German fascism; the role of traditional anti-Semitism; the psychology of aggressor and victim; the Holocaust in art and literature and the moral implications for today.

HIST 322 Nazi Germany

Semester course; 3 lecture hours. 3 credits. The origin and nature of Hitler's Third Reich. A study of the failure of the Weimar Republic; genesis of the Nazi racial ideology and party structure; the Nazi political, social and cultural order after the seizure of power; Nazi foreign policy leading to war and genocide; and an analysis of the personality of Hitler.

HIST 323 History of Spain and Portugal

Semester course; 3 lecture hours. 3 credits. A survey of the history of the Iberian peninsula from ancient times to the present, with an emphasis on the distinctive culture and attitude toward life that developed south of the Pyrenees.

HIST 324 History of Early Modern Britain

Semester course; 3 lecture hours. 3 credits. Explores the development of British politics, society and culture from the Tudor Revolution in government and through the Reformation, English civil wars and Restoration.

HIST 325 History of Modern Britain

Semester course; 3 lecture hours. 3 credits. Explores the development of British politics and society from the Restoration to the mid-20th century, including such topics as the Whig oligarchy, the Industrial Revolution, Victorianism, the impact of the world wars and the problems of Empire.

HIST 326 The British Empire

Semester course; 3 lecture hours. 3 credits. Examines the origin, development and decline of British overseas expansion from the late 16th century through the mid-20th century, including colonial settlements in Ireland, North America, the Caribbean, Australia and South Africa; dependencies and protectorates in Africa and the Middle East; and the empire of India. Focuses on the political and legal structures that enabled the administration and subordination of such a large and fragmented area and assesses the extent to which empire shaped and complicated gender, class and racial relations both at home and throughout the British imperial world.

HIST 327 History of Russia I

Semester course; 3 lecture hours. 3 credits. Russian history to 1855, emphasizing the development of political and social institutions and Russia's unique position between Europe and Asia.

HIST 328 History of Russia II

Semester course; 3 lecture hours. 3 credits. Russian history from 1855 to the present, emphasizing the development of political and social institutions and Russia's unique position between Europe and Asia.

HIST 329 History of Spain and Portugal

Semester course; 3 lecture hours. 3 credits. A survey of the history of the Iberian peninsula from ancient times to the present, with an emphasis on the distinctive culture and attitude toward life that developed south of the Pyrenees.

HIST 330/GSWS 339 History of Women in Europe I

Semester course; 3 lecture hours. 3 credits. A survey of European women from antiquity to the Enlightenment. A major focus will be primary sources by and about women.

HIST 331/GSWS 340 History of Women in Europe II

Semester course; 3 lecture hours. 3 credits. A survey of European women from the French Revolution to the present. A major focus will be primary sources by and about women.

HIST 332 History in Film

Semester course; 3 lecture hours. 3 credits. May be repeated for a maximum of 6 credits with different topics. An examination of the uses and misuses of historical events and personalities in film. Lectures and readings are used to critically analyze films dealing with biographies, events and propaganda.

HIST 333/RELS 318 History of the Jewish People I

Semester course; 3 lecture hours. 3 credits. A study of the Jewish people from the biblical period to the early modern period, including the Israelite conquest of Canaan, Judea in Hellenistic and Roman times, the Diaspora in Islam and in Europe, social and cultural trends, and Jewish settlement in the Ottoman Empire.

HIST 334/RELS 319 History of the Jewish People II

Semester course; 3 lecture hours. 3 credits. A study of the Jewish people from the early modern to the present, including the impact of the Emancipation, the rise of the American Jewish community, the impact of modernism and growth of Reform, the beginnings and

growth of Zionism, restoration in Palestine, the Holocaust, the creation of Israel, and the relations of Israel and world Jewry.

HIST 335/RELS 327 History of Christianity I

Semester course; 3 lecture hours. 3 credits. A historical and theological examination of Christianity from its origin to the early modern period, or the age of the Reformations. Emphasis is placed upon an understanding of leading events, ideas, movements and persons in their historical settings.

HIST 336 History of Christianity II

Semester course; 3 lecture hours. 3 credits. A historical and theological examination of Christianity from ca. 1500 to the present. Emphasis is placed upon an understanding of leading events, ideas, movements and persons in their historical settings.

HIST 339/GSWS 339 History of Women in Europe

Semester courses; 3 lecture hours. 3, 3 credits. A history of European women from the Greeks to the contemporary world. A major focus of both courses will be primary sources by and about women. Semester covers antiquity to the Enlightenment.

HIST 340 The Middle East, 600-1600

Semester course; 3 lecture hours. 3 credits. Explores two transformative historical events that took place in the Middle East between the sixth and 16th centuries: 1) the emergence of Islam and the development of the Islamic Empire and its social, cultural and political legacy in the Middle East (seventh to 10th centuries) and 2) the influx of outsiders to the region, such as the Turkish-speaking tribes, the crusaders and the Mongols, and the role these newcomers played in shaping the Middle East starting in the 10th century.

HIST 341 Modern Middle East

Semester course; 3 lecture hours. 3 credits. Analysis of the history, problems and prospects of the nations and peoples of the Middle East with emphasis on developments since the Balfour Declaration of 1917.

HIST 342 Early Modern Ottoman Empire

Semester course; 3 lecture hours. 3 credits. Explores the history of the Ottoman Empire from around mid-15th century until roughly the late-18th century. Examines the Ottoman Empire as a Euro-Mediterranean polity, exploring its social, cultural, economic and political history from a global perspective.

HIST 343 Modern Ottoman Empire

Semester course; 3 lecture hours. 3 credits. Explores the transformations of the late-Ottoman state and society by organizing the material around several historical processes and frameworks, such as the phenomenon of the gunpowder empires, integration of the empire to the global market, the decline paradigm, impact of colonialism and imperialism, Tanzimat reforms, the shift from subjecthood to citizenship, modernity, transformation of religious identities, state and nation formation, nationalism, secularism, gender and war mobilization.

HIST 344 American Military History to 1900

Semester course; 3 lecture hours. 3 credits. Investigates the emergence and evolution of the American military from 1600 to 1900, with a focus on nation building and nationalism, the relationship between the civil and military spheres,

professionalization, the experiences of the armed forces, strategic and tactical evolution, and the relationships among war, technology and nature.

HIST 345 American Colonies, 1450-1776

Semester course; 3 lecture hours. 3 credits. An examination of the development of the 13 original colonies; the establishment and growth of society, politics and the economy; and modification in the relationship between the provinces and Great Britain.

HIST 346 The American Revolutionary Era, 1763-1800

Semester course; 3 lecture hours. 3 credits. An examination of the late-18th-century revolutions which molded the American political system -- the revolution of colonial Englishmen against Great Britain and the revolution of the nationalists against the government established by the American Revolution, which produced and firmly established the United States Constitution.

HIST 347 Antebellum America, 1800-1860

Semester course; 3 lecture hours. 3 credits. Federalist era to 1860. A study of the events, forces and personalities that shaped Antebellum America and led to Southern secession and Civil War.

HIST 348 The American Civil War and Reconstruction

Semester course; 3 lecture hours. 3 credits. A study of the major events, forces, personalities and significance of the Civil War and Reconstruction eras.

HIST 349 The Emergence of Modern America, 1877-1914

Semester course; 3 lecture hours. 3 credits. An examination of the major political, legal, social and economic trends in the United States at this time, focusing on the industrialization of the nation and the resulting effects it had on such diverse matters as urbanization, immigration, economic distribution and cultural affairs, culminating in the Progressive reform movement.

HIST 350 U.S. History, 1900-1945

Semester course; 3 lecture hours. 3 credits. A study of the political, social, economic and cultural history of the United States from 1900 to 1945, with emphasis on how the American people have responded to reform, war, prosperity, depression, international status and changing relationships within government and society.

HIST 351 U.S. History Since 1945

Semester course; 3 lecture hours. 3 credits. A study of the political, social, economic and cultural history of the United States in the 20th century, with emphasis on how the American people have responded to reform, war, prosperity, depression, international status and changing relationships within government and society.

HIST 352 History of the South I

Semester course; 3 lecture hours. 3 credits. A regional history of the Old South from the colonial period to 1861, placing particular emphasis upon the distinctive culture and problems of the South and its significance in the history of the United States.

HIST 353 History of the South II

Semester course; 3 lecture hours. 3 credits. A regional history of the New South from 1865 to the present, placing particular emphasis upon the distinctive

culture and problems of the South and its significance in the history of the United States.

HIST 354 History of Native Americans in the South

Semester course; 3 lecture hours. 3 credits. Examines the history of Native Americans in the American South and how colonial encounters with Europeans impacted life in indigenous towns, villages and farmsteads.

HIST 355 Native Americans in Modern America

Semester course; 3 lecture hours. 3 credits. Examines some of the key historical and cultural issues in American Indian history during the 20th century.

HIST 356 History of Virginia I

Semester course; 3 lecture hours. 3 credits. Focuses on the central themes, events and personalities of the state's history from the pre-colonial period to 1865.

HIST 357 History of Virginia II

Semester course; 3 lecture hours. 3 credits. Focuses on the central themes, events and personalities of the state's history from 1865 to the present.

HIST 358 History of the American Frontier

Semester course; 3 lecture hours. 3 credits. A survey of the western movement in the United States from the time the first outposts were established to the end of the frontier in the 19th century. Particular attention to the influence of the frontier upon the American mind and ideals.

HIST 360 The Long Civil Rights Movement

Semester course; 3 lecture hours. 3 credits. Examines race relations and changes to race relations, focusing on African-Americans in the United States' South but including related struggles for civil rights and equality from the late-1800s to the present.

HIST 361/AFAM 361 Americans from Africa

Semester course; 3 lecture hours. 3 credits. A study of the history and culture of blacks in the United States, designed to analyze some of the most important aspects of black life and the attitudes of the dominant society within which blacks lived. The second semester emphasizes the changing status, expectations and ideologies of black Americans in the 20th century. First semester: to 1877. Second semester: since 1877.

HIST 362/AFAM 362 Americans from Africa

Semester course; 3 lecture hours. 3 credits. A study of the history and culture of blacks in the United States, designed to analyze some of the most important aspects of black life and the attitudes of the dominant society within which blacks lived. The second semester emphasizes the changing status, expectations and ideologies of black Americans in the 20th century. First semester: to 1877. Second semester: since 1877.

HIST 363 American Religious History I

Semester course; 3 lecture hours. 3 credits. A survey of religious movements, events and ideas in America from indigenous and colonial traditions to the Civil War, with attention to the diversity of religious expression and the relationship between church and state.

HIST 364 American Religious History II

Semester course; 3 lecture hours. 3 credits. A survey of religious movements, events and ideas in America from the Civil War to the present, with attention to the

diversity of religious expression and the relationship between church and state.

HIST 365/GSWS 341 American Women's History I

Semester course; 3 lecture hours. 3 credits. Students will analyze historical changes in the social, cultural, political and economic position of women in America from the colonial period through the 1848 Seneca Falls Convention. Methods include reading, lecture and discussion. Topics include differences and similarities of women's experiences across lines of class, race and ethnicity, the struggle for suffrage and social reform, shifting gender roles and changing employment opportunities.

HIST 366 American Women's History II

Semester course; 3 lecture hours. 3 credits. Through reading, lecture and discussion, students will analyze historical changes in the social, cultural, political and economic position of women in America from 1848 to the present. Topics include differences and similarities of women's experiences across lines of class, race and ethnicity; the struggle for suffrage and social reform; shifting gender roles; and changing employment opportunities.

HIST 370 History of Central America

Semester course; 3 lecture hours. 3 credits. An exploration of the history of the region beginning with pre-Columbian civilizations and continuing to the present. Topics include the Spanish conquest, the liberal-conservative struggle, U.S. gunboat diplomacy, the Sandinista Revolution, civil wars in El Salvador and Guatemala and current challenges to democracy in the region.

HIST 371 History of Mexico

Semester course; 3 lecture hours. 3 credits. A survey of Mexican history, including topics such as the pre-Columbian civilizations, the Spanish conquest and the colonial order, as well as independence, the struggle for reform, revolution and the development of the modern state.

HIST 372 History of Brazil

Semester course; 3 lecture hours. 3 credits. A survey of Brazilian history including topics such as the pre-Columbian civilizations, Portuguese colonialism, the independent empire and the republic, and populism and the modern state.

HIST 373 History of the Andes to 1800

Semester course; 3 lecture hours. 3 credits. A critical view of the historical process of the Andean region from the pre-Columbian period to independence from Spain. Focuses mainly on the core of the region, which currently comprises the territories of Bolivia, Ecuador and Peru. Special attention to the indigenous population of the Andes -- also known as "Indians," "Andeans" or "Amerindians" -- and their interactions with other ethnic groups (Europeans, Criollos, Mestizos, as well as Africans and their descendants) in the political, economic, social and cultural realms.

HIST 374 History of the Andes From 1800

Semester course; 3 lecture hours. 3 credits. A critical view of the historical process of the Andean region from independence from Spain to the present. Focuses mainly on the core of the region, which currently comprises the territories of Bolivia, Ecuador and Peru. Special attention to the indigenous population of the Andes -- also known as "Indians," "Andeans" or

"Amerindians" -- and their interactions with other ethnic groups (Europeans, Criollos, Mestizos, as well as Africans and their descendants) in the political, economic, social and cultural realms.

HIST 376/AFAM 392 Caribbean History to 1838

Semester course; 3 lecture hours. 3 credits. An exploration of changes in the structure of Caribbean society from the late 15th century to 1838, with emphasis on the development of plantation slavery, social stratification, race, slave resistance, the Haitian Revolution, African cultural patterns and abolition.

HIST 377 Caribbean History Since 1838

Semester course; 3 lecture hours. 3 credits. Covers major developments in the history of the Caribbean in the period after the British abolition of slavery in 1834, with a major focus on the social and economic aspects of change.

HIST 378 Atlantic Slavery

Semester course; 3 lecture hours. 3 credits. Examines social and economic aspects of slavery in the Atlantic world, principally Africa, the Caribbean, the United States and Canada.

HIST 379 The History of Modern Japan

Semester course; 3 lecture hours. 3 credits. This course will offer a detailed examination of Japan's modern history, from the rise of Tokugawa rule in 1600 to the end of World War II. A general overview of Japan's traditional society will give way to a historical analysis of the major social, cultural, political and intellectual changes that occurred in Japan throughout this time period.

HIST 380/AFAM 390/GSWS 390 Africa and the Americas: Slavery, Gender and Race

Semester course; 3 lecture hours. 3 credits. Examines various aspects of slavery in Africa and selected parts of the African diaspora, including the United States, Canada and the Caribbean, with special emphasis on the role played by race and gender. Topics will include African conditions of servility, the trans-Atlantic trade in enslaved Africans, and chattel slavery, demography, labor, law, discipline, abuse, resistance and status.

HIST 381/AFAM 387 History of West Africa to 1800

Semester course; 3 lecture hours. 3 credits. A study of the transformation of West African societies from early times to 1800, with emphasis on the rise of states and empires, the introduction, spread and impact of Islam, the Atlantic slave trade and its effects, and colonialism.

HIST 383/AFAM 389 History of Southern Africa

Semester course; 3 lecture hours. 3 credits. A study of the history and culture of the peoples of southern Africa. Deals with the areas that presently are the Republic of South Africa, Lesotho, Swaziland, Botswana, Namibia and Zimbabwe. Emphasizes the interaction among the various communities and ethnolinguistic groups in southern Africa.

HIST 384/AFAM 388 Africa: Social, Cultural and Economic History

Semester course; 3 lecture hours. 3 credits. A study of economic, social and cultural developments in Africa from the beginning of the 19th century to the present,

with emphasis on agricultural and industrial development, trade, Africa's involvement in the world economy, changes in labor systems, racial dominance, African initiatives and resistance, religion and social evolution, and Africa in world affairs.

HIST 385 The History of Modern Japan

Semester course; 3 lecture hours. 3 credits. This course will offer a detailed examination of Japan's modern history, from the rise of Tokugawa rule in 1600 to the end of World War II. A general overview of Japan's traditional society will give way to a historical analysis of the major social, cultural, political and intellectual changes that occurred in Japan throughout this time period.

HIST 386 History of Late Imperial China, 900-1800

Semester course; 3 lecture hours. 3 credits. Examines the history of China from 900 to 1800 CE. A general overview of China's political economy is followed by a historical analysis of the major social, cultural, political, intellectual and economic changes that occurred in China between 900 and 1800 CE. In addition, students will be introduced to such concepts and issues as empire building, conquest dynasties, steppe and sedentary societies, sociocultural history and Western and Chinese historiography.

HIST 387 The History of Modern China, 1800 to the Present

Semester course; 3 lecture hours. 3 credits. Examines China's modern history beginning at the height of the Qing Dynasty (1644-1912) in 1800. A general overview of China's traditional political economy is followed by a historical analysis of the major social, cultural, political, intellectual and economic changes that occurred in China from 1800 to the present. This course is divided into three sections: the first examines the factors leading to the collapse of China's last dynasty in 1912; the second focuses on the revolutionary changes taking place in China during the first half of the 20th century (from 1912 to 1949); and the final section looks at Communist China since 1949.

HIST 388/AFAM 388 Africa: Social, Cultural and Economic History

Semester course; 3 lecture hours. 3 credits. A study of economic, social and cultural developments in Africa from the beginning of the 19th century to the present, with emphasis on agricultural and industrial development, trade, Africa's involvement in the world economy, changes in labor systems, racial dominance, African initiatives and resistance, religion and social evolution and Africa in world affairs.

HIST 389 History in Film: _____

Semester course; 3 lecture hours. 3 credits. May be repeated for a maximum of 6 credits with different topics. An examination of the uses and misuses of historical events and personalities in film. Lectures and readings are used to critically analyze films dealing with biographies, events and propaganda.

HIST 390/ANTH 394 Historical Archaeology

Semester course; 3 lecture hours. 3 credits. Prerequisites: ANTH/INTL 103 or ANTH 105/INTL 104, and any history course. A review of historical archaeology, recognizing its contemporary emphasis on the spread of European cultures across the globe beginning in the 15th century. Methods and findings of archaeological research from the United States, Europe

and Africa will be covered with special emphasis on the study of documents and artifacts related to the emergence and present state of the modern world. Students will participate in field research.

HIST 391 Topics in History

Semester course; 1, 2 or 3 lecture hours. Variable credit. May be repeated with different topics for a maximum of 9 credits. An in-depth study of a selected topic in history. See the Schedule of Classes for specific topics to be offered each semester.

HIST 392/SCTS 392 Revolutions in Science I

Semester course; 3 lecture hours. 3 credits. A survey of the history of science from the ancient Greeks to 1800, focusing on the development of scientific ideas, practices and institutions in Western society.

HIST 393/SCTS 393 Revolutions in Science II

Semester course; 3 lecture hours. 3 credits. A survey of the history of science from 1800 to the present, focusing on the development of scientific ideas, practices and institutions in Western society.

HIST 394/ANTH 394 Historical Archaeology

Semester course; 3 lecture hours. 3 credits. Prerequisites: ANTH/INTL 103 or ANTH 105/INTL 104, and any history course. A review of historical archaeology, recognizing its contemporary emphasis on the spread of European cultures across the globe beginning in the 15th century. Methods and findings of archaeological research from the United States, Europe and Africa will be covered with special emphasis on the study of documents and artifacts related to the emergence and present state of the modern world. Students will participate in field research.

HIST 397/SCTS 397 Genetics and Society: 1865 to the Present

Semester course; 3 lecture hours. 3 credits. An investigation of the science and technology of heredity in its historical, cultural and political contexts, emphasizing the ways in which genetic theories have been applied in attempting to solve social and biological problems.

HIST 398/SCTS 398 History of Medicine and Public Health: _____

Semester course; 3 lecture hours. 3 credits. May be repeated with different thematic content for a maximum of six credits. Studies in selected topics in the history of medicine, medical science or public health. Includes introduction to the interdisciplinary approaches practiced in the history of medicine as well as the historical content and relevant analytical skills needed to examine the specific course theme.

HIST 399/GVPA 399/SCTS 300 Introduction to Science and Technology Studies

Semester course; 3 lecture hours. 3 credits. An introduction to the study of science, technology and medicine from political, sociological and historical perspectives, focusing on case studies that illustrate the methods and theories used to examine the structure and behavior of the scientific community and the role of scientific knowledge in shaping public culture.

HIST 401 Studies in Ancient History: _____

Semester course; 3 lecture hours. 3 credits. May be repeated once, with a different topic, for credit. Prerequisite: 3 credits of HIST at the 300-level or permission of instructor. Courses taught under this

heading provide advanced study and analysis of the theory and field of ancient history.

HIST 402 Studies in Medieval History: _____

Semester course; 3 lecture hours. 3 credits. May be repeated once, with a different topic, for credit. Prerequisite: 3 credits of HIST at the 300-level or permission of instructor. Courses taught under this heading provide advanced study and analysis of the theory and field of medieval history.

HIST 403 Studies in Early Modern European History: _____

Semester course; 3 lecture hours. 3 credits. Repeatable once, with a different topic, for credit. Prerequisite: 3 credits of HIST at the 300-level or permission of instructor. Courses taught under this heading provide advanced study and analysis of the theory and field of early modern European history.

HIST 404 Studies in Modern European History: _____

Semester course; 3 lecture hours. 3 credits. Repeatable once, with a different topic, for credit. Prerequisite: 3 credits of HIST at the 300-level or permission of instructor. Courses taught under this heading provide advanced study and analysis of the theory and field of modern European history.

HIST 406 Studies in Middle Eastern History: _____

Semester course; 3 lecture hours. 3 credits. May be repeated once, with a different topic, for credit. Prerequisite: 3 credits of HIST at the 300-level or permission of instructor. Courses taught under this heading provide advanced study and analysis of the theory and field of Middle Eastern history.

HIST 407 Studies in Early American History: _____

Semester course; 3 lecture hours. 3 credits. May be repeated once, with a different topic, for credit. Prerequisite: 3 credits of HIST at the 300-level or permission of instructor. Courses taught under this heading provide advanced study and analysis of the theory and field of early American history.

HIST 408 Studies in Modern American History: _____

Semester course; 3 lecture hours. 3 credits. May be repeated once, with a different topic, for credit. Prerequisite: 3 credits of HIST at the 300-level or permission of instructor. Courses taught under this heading provide advanced study and analysis of the theory and field of modern American history.

HIST 409 Studies in Latin American History: _____

Semester course; 3 lecture hours. 3 credits. May be repeated once, with a different topic, for credit. Prerequisite: 3 credits of HIST at the 300-level or permission of instructor. Courses taught under this heading provide advanced study and analysis of the theory and field of Latin American history.

HIST 410 Studies in African History: _____

Semester course; 3 lecture hours, 3 credits. May be repeated once, with a different topic, for credit. Prerequisite: 3 credits of HIST at the 300-level or permission of instructor. Courses taught under this heading provide advanced study and analysis of the theory and field of African history.

HIST 411 Studies in the African Diaspora:

Semester course; 3 lecture hours. 3 credits. May be repeated once, with a different topic, for credit. Prerequisite: 3 credits of HIST at the 300-level or permission of instructor. Courses taught under this heading provide advanced study and analysis of the theory and field of the African diaspora.

HIST 412 Studies in Asian History:

Semester course; 3 lecture hours. 3 credits. May be repeated once, with a different topic, for credit. Prerequisite: 3 credits of HIST at the 300-level or permission of instructor. Courses taught under this heading provide advanced study and analysis of the theory and field of Asian history.

HIST 413 Studies in Atlantic History:

Semester course; 3 lecture hours. 3 credits. May be repeated once, with a different topic, for credit. Prerequisite: 3 credits of HIST at the 300-level or permission of instructor. Courses taught under this heading provide advanced study and analysis of the theory and field of Atlantic history.

HIST 414 Studies in Indigenous History:

Semester course; 3 lecture hours. 3 credits. May be repeated once, with a different topic, for credit. Prerequisite: 3 credits of HIST at the 300-level or permission of instructor. Courses taught under this heading provide advanced study and analysis of the theory and field of indigenous history.

HIST 415 Studies in the History of Religion:

Semester course; 3 lecture hours. 3 credits. May be repeated once, with a different topic, for credit. Prerequisite: 3 credits of HIST at the 300-level or permission of instructor. Courses taught under this heading provide advanced study and analysis of the theory and field of religious history.

HIST 416 Studies in the History of Women, Gender and Sexuality:

Semester course; 3 lecture hours. 3 credits. Prerequisite: 3 credits of 300-level HIST or permission of instructor. Repeatable once, with a different topic, for credit. Courses taught under this heading provide advanced study and analysis of the theory and field of the history of women, gender and sexuality.

HIST 417 Studies in African American History:

Semester course; 3 lecture hours. 3 credits. May be repeated once, with a different topic, for credit. Prerequisite: 3 credits of HIST at the 300-level or permission of instructor. Courses taught under this heading provide advanced study and analysis of the theory and field of African American history.

HIST 420 Studies in Historical Method:

Semester course; 3 lecture hours. 3 credits. May be repeated once, with a different topic, for credit. Prerequisite: any 300-level HIST course. Focuses on a particular methodology used by historians as they investigate the past.

HIST 421 Studies in Comparative History:

Semester course; 3 lecture hours. 3 credits. May be repeated once, with a different topic, for credit. Prerequisite: any 300-level HIST course. Undertakes a

topic that cuts across regions and cultures, making comparative judgments about human events.

HIST 485 Seminar in Historiography

Semester course; 3 lecture hours. 3 credits. May be repeated for maximum of 6 credits with different topics. Introduction to questions in historiography, meaning, methodology and interpretation in the teaching and writing of history.

HIST 490 Seminar in History

Semester course; 3 lecture hours. 3 credits. May be repeated for a maximum of 9 credits. Prerequisite: HIST 300. Research and analysis of a selected historical topic in a seminar setting. See the Schedule of Classes for each semester's offerings.

HIST 492 Independent Study

Semester course; variable hours. 2-4 credits per semester. Maximum total of 6 credits. Open generally to students of only junior and senior standing who have acquired 12 credits in the departmental disciplines. Determination of the amount of credit and permission of instructor and department chair must be procured prior to registration of the course.

HIST 493 Internship

Semester course; variable hours; 2-4 credits per semester. May be repeated for a maximum total of 6 credits. Prerequisite: HIST 300. Open generally to students of senior standing. Students receive credit for work on historical projects with approved agencies. Determination of the amount of credit and permission of departmental internship coordinator must be procured prior to registration for the course.

Humanities and Sciences**HUMS 100 Intensified Problem Solving in Chemistry 100**

Semester course; 4 workshop hours. 2 credits. Prerequisite: Students must be eligible to take MATH 131 or higher. Corequisite: CHEM 100. Problem-solving sessions will engage students in cooperative learning in open discussions of the elementary principles of chemistry. Students work on chemistry problems in small groups in which each student participates in the presentation of problem solutions to the class. Students receive mock quizzes and exams and will be given assistance on homework problems assigned in their chemistry lecture. This course is for students who do not meet the criteria for enrollment in CHEM 101. These credits may not be used to satisfy any chemistry course requirements in the College of Humanities and Sciences.

HUMS 101 Intensified Problem Solving in Chemistry 101

Semester course; 4 workshop hours. 2 credits. Prerequisite: CHEM 100 with a grade of C or higher or a satisfactory score on the Chemistry Placement Test. Students must be eligible to take MATH 151 or higher. Corequisite: CHEM 101. Problem-solving sessions will encompass the fundamental principles and theories of chemistry. Students will form and work in small study groups and must participate in open discussions of the concepts of chemistry. Each student participates in the presentation of problem solutions to the class. Students will receive mock quizzes and exams and will be given assistance on homework problems assigned in the general chemistry lecture.

These credits may not be used to satisfy any chemistry course requirements in the College of Humanities and Sciences.

HUMS 102 Intensified Problem Solving in Chemistry 102

Semester course; 3 workshop hours. 2 credits. Prerequisite: CHEM 101 with a grade of C or higher, MATH 151 or higher. Corequisite: CHEM 102. Problem-solving sessions will encompass the fundamental principles and theories of chemistry. Students will form and work in small study groups where they engage in cooperative learning and must participate in open discussions of the concepts of chemistry. Each student participates in the presentation of problem solutions to the class. Students will receive mock quizzes and exams and will be given assistance on homework problems assigned in the general chemistry lecture. These credits may not be used to satisfy any chemistry course requirements in the College of Humanities and Sciences.

HUMS 202 Choices in a Consumer Society

Semester course. 1 credit. Corequisite: UNIV 112. Provides a framework for understanding the nature of choices made in a consumer society, with an emphasis on the financial consequences of those choices. Students will gain the practical knowledge needed to make informed personal financial decisions as they address immediate, short-term and long-term consumer choices. Administered primarily as a self-paced, computer-aided instructional course.

HUMS 250 Reading Film

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 111 or equivalent. Develops students' visual literacy by exploring and analyzing the various elements of film (cinematography, lighting, editing, art direction, acting and sound, among others). Examples will be drawn from both U.S. and world cinema and from all eras of filmmaking.

HUMS 291 Special Topics in the Humanities and Sciences

Semester course; 1-4 credits. May be repeated with different content. Specialized topics in the liberal arts and sciences designed to provide an overview of a topic not provided by an existing course or program. May be multidisciplinary. Graded as pass/fail or normal letter grading at the option of the instructor.

HUMS 300 Great Questions of the Social Sciences

Semester course; 3 lecture hours. 3 credits. The social sciences explore human aspects of the world in fields of study that include anthropology, criminology, economics, education, geography, law, political science, psychology and sociology. This course explores fundamental questions of social science and examines their historical and contemporary relevance.

HUMS 391 Special Topics in the Humanities and Sciences

Semester course; variable hours. 1-4 credits. May be repeated with different content. Specialized topics in the liberal arts and sciences designed to provide an overview of a topic not provided by an existing course or program. May be multidisciplinary. Graded as pass/fail or normal letter grading at the option of the instructor.

Humanities and Sciences Interdisciplinary

HUSI 190 College Seminar

1 lecture hour. 1 credit. May be repeated once for credit. Open only to students who participate in these programs. A seminar designed for first-year programs coordinated through the office of the dean of the College of Humanities and Sciences. Designed to help students integrate general education courses.

HUSI 491 College Topics

Semester course; 3 lecture hours. 3 credits. May be repeated with different topics for maximum of 6 credits. Open primarily to seniors; others with permission of instructor. A discussion of complex issues that are of enduring value or of critical interest to society. The goals of the course are to (1) bring general principles from disciplinary or a variety of disciplinary contexts to bear on specific problems; (2) exercise critical thinking; (3) understand and integrate diverse perspectives; and (4) explore models of decision-making, underlying assumptions and implications. See the Schedule of Classes for specific topics to be offered each semester.

Interdisciplinary Science

INSC 201 Energy!

Semester course; 3 lecture hours. 3 credits. Prerequisite: MATH 131, 141, 151, 200, or higher; or MGMT 171, 212, or 301; or STAT 208, 210, 212, or higher; or satisfactory score on the VCU Mathematics Placement Test within the one-year period immediately preceding the beginning of the course. A study of global energy demands, how they are being met, environmental consequences and alternative energy sources.

INSC 300 Experiencing Science

Semester course; 5 studio hours. 3 credits. Prerequisites: 4 credits in biology, 3 credits in physical science, 3 credits in mathematics, and STAT 208, 210, 212, or 312. Study of the methods and processes used by scientists in investigations. Guided, active replication of great discoveries in major scientific disciplines in physical science, life science and earth science.

INSC 301 Investigatory Mathematics and Science

Semester course; 3 lecture hours. 3 credits. Prerequisites: 4 credits in biology, 4 credits in physical science, 3 credits in mathematics and STAT 208 or STAT 210. Students investigate real-world science problems, formulate model solutions to the problems, produce project reports and present their solutions to class. Problems selected from areas including water quality, epidemics and spread of diseases, heat loss and gain, genetics and drugs in the body.

INSC 310 Content of Elementary Science

Semester course; 4 lecture/laboratory hours. 3 credits. Prerequisite: 11 credits of science courses. Designed for preservice elementary school teachers. Develops mastery of select topics in the physical, earth and life science strands appropriate to the K-6 level. Topics will be presented in the context of hands-on activities designed for the classroom, using techniques such as guided inquiry and the learning cycle.

INSC 490 Capstone Research Experience in Interdisciplinary Science

Semester course; 1 credit. Prerequisite: UNIV 200 or HONR 200. Restricted to seniors in the science major with at least 85 credit hours taken toward the degree. Intensive study of a contemporary scientific problem engaging more than one scientific discipline. Emphasis on understanding scientific research and science writing. Course taught online.

International Studies

INTL 101 Human Societies and Globalization

Semester course; 3 lecture hours. 3 credits. An interdisciplinary inquiry into how societies around the world are organized and how they are interrelated on social, economic, political and cultural dimensions. The course is organized around themes that are important to prominent globalization processes -- topics such as human rights, global inequalities, cultural globalization, global crime, globalization and religion, the global mass media, and environmental issues. Students also explore the implications of rapid social change for international issues and interpersonal interaction.

INTL 102/ECON 101 Introduction to Political Economy

Semester course; 3 lecture hours. 3 credits. Seminar on the development of critical thought and economic analysis of policy issues. Focus is on how policy choices affect society and the individual, the economic methodology that guides policy choices, and the institutional and political environments within which policy is derived. Issues cover a broad range of topics including environmental issues, tax policy, inflation expectations, unemployment, foreign trade and the effectiveness of fiscal and monetary policies.

INTL 103/ANTH 103 Introduction to Anthropology

Semester course; 3 lecture hours. 3 credits. A general survey of anthropology with emphasis on learning about and from global cultures, and on the four fields of anthropology.

INTL 104/ANTH 105 Introduction to Archaeology

Semester course; 3 lecture hours. 3 credits. A survey of archaeological sites, methods and theories from around the world, from the earliest human cultures, to the rise and spread of civilizations, to the modern era.

INTL 105/POLI 105 International Relations

Semester course; 3 lecture hours. 3 credits. An introductory analysis of interstate relations and world affairs. Attention focuses on theories of international politics, military capabilities and their application, international organizations, global economic trends, domestic sources of state behavior and other selected issues as appropriate.

INTL 151/MASC 151 Global Communications

Semester course; 3 lecture hours. 3 credits. Explores how communication media and globalization drive each other and how they both impact the nation-state as well as international institutions. Examines how technology, the global economy and international media corporations influence culture, politics, business, law and other institutions in countries around the world. Explores the relationship between media

systems and governments and how both are affected by technology and globalization.

INTL 200/AFAM 200/ANTH 200 Introduction to African Societies

Semester course; 3 lecture hours. 3 credits. This course introduces the student to the African continent, its peoples and cultures. It covers such general characteristics as the physical and geographical features, climate, topography, traditional economies, languages, religions, social systems and other cultural features that are traditional to its people.

INTL 201 Introduction to the Middle East and North Africa

Semester course; 3 lecture hours. 3 credits. An interdisciplinary introduction to the region of the Middle East and North Africa, its peoples and cultures. Covers the geography, climate, economy, language, religious and social systems, as well as other social systems and cultural features that are traditional to the peoples of the region.

INTL 202 Identities in a Global Community

Semester course; 3 lecture hours. 3 credits. An introduction to intercultural communication. Designed to help students develop an understanding of cultures, to appreciate the opportunities and challenges that each culture presents to people and to learn how individuals have dealt with those opportunities and challenges.

INTL 203/WRLD 203 Cultural Texts and Contexts:

Semester course; 3 lecture hours. 3 credits. Through the analysis and interpretation of literary, cinematic and other cultural texts, this course explores the ways cultural and national identities have been shaped, imagined and contested in various regions of the world. While responding to the readings and films as artistic manifestations or social documents, students will also become familiar with the aesthetic, political and social contexts in which the works were and are produced. See the Schedule of Classes for specific topics to be offered each semester.

INTL 204/FRLG 204 Language and Groups in the United States

Semester course; 3-4 lecture hours. 3-4 credits. Taught in English. This course introduces students to the sociocultural experience and formation of identity of non-English-speaking peoples in the United States. Students explore the dynamic between English and a specific heritage language and its interaction with artistic, cultural and social issues through fiction and nonfiction texts, films and multimedia pertaining to specific language groups, such as: Latinos, Italian-Americans, German-Americans or Native Americans. See the Schedule of Classes for specific topics to be offered each semester.

INTL 211/ENGL 211 Contemporary World Literature

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 112. A study of selected literature published in the past 25 years and chosen from a number of different nations and cultures.

INTL 303/GEOG 303, 304 World Regions

Semester courses; 3 lecture hours. 3, 3 credits. An examination of the various regions of the earth, including land forms, climate, resources, peoples, agriculture and urban conditions. First semester:

Anglo-America, Latin America, Western Europe, Eastern Europe, the former USSR. Second semester: Middle East and North Africa, Africa (south of the Sahara), Indian subcontinent, China, Japan, Southeast Asia, Oceania.

INTL 304/GEOG 303, 304 World Regions

Semester courses; 3 lecture hours. 3, 3 credits. An examination of the various regions of the earth, including land forms, climate, resources, peoples, agriculture and urban conditions. First semester: Anglo-America, Latin America, Western Europe, Eastern Europe, the former USSR. Second semester: Middle East and North Africa, Africa (south of the Sahara), Indian subcontinent, China, Japan, Southeast Asia, Oceania.

INTL 306/RELS 306 Introduction to Judaism

Semester course; 3 lecture hours. 3 credits. A general survey of the dynamics and characteristic patterns of Jewish civilization encompassing history, practices and beliefs.

INTL 307/AFAM 307/RELS 307 Black Religion

Semester course; 3 lecture hours. 3 credits. An analysis of the role of religion in the lives of blacks with an emphasis on African religions and philosophies, the black church in America, and the roles of the various faiths, sects and cults.

INTL 309/AFAM 309/ANTH 309/GSWS 309 Global Women's Health

Semester course; 3 lecture hours. 3 credits. Explores issues in women's health from a national and international perspective with an emphasis on the experiences of women in the African diaspora. Theories in medical anthropology are employed to examine key themes.

INTL 311/RELS 311, 312 Religions of the World

Semester course; 3 lecture hours. 3, 3 credits. An investigation of the historical, cultural and theological foundations and development of major world religions. First semester: Hinduism, Buddhism, Confucianism, Taoism and Shinto. Second semester: Zoroastrianism, Judaism, Christianity and Islam.

INTL 312/RELS 311, 312 Religions of the World

Semester course; 3 lecture hours. 3, 3 credits. An investigation of the historical, cultural and theological foundations and development of major world religions. First semester: Hinduism, Buddhism, Confucianism, Taoism and Shinto. Second semester: Zoroastrianism, Judaism, Christianity and Islam.

INTL 314/ENVS 314 Man and Environment

Semester course. 3 lecture hours. 3 credits. A comparative study of the ecology and natural history of human populations, including the environments as determining factors in the evolution of human institutions and technology, resources management, and population crises; cultural traditions as mechanisms of population control; basic theory of population biology.

INTL 315/AFAM 315/ECON 315 Economic Development

Semester course; 3 lecture hours. 3 credits. Prerequisite: ECON 203 with a minimum grade of B

and ECON 211; or ECON 210 and ECON 211. Introduction to the process of economic development. Surveys development theory and experiences of underdeveloped countries of Africa, Asia, Latin America and the Caribbean and of developed countries. Explores obstacles to development and policies and tools for stimulating economic development.

INTL 317/RELS 317 Islam

Semester course; 3 lecture hours. 3 credits. A study of the emergence of Islam in Arabia in the seventh century and its subsequent developments, including a look at the Qur'an (the holy book), the Prophetic traditions, the concept of God, as well as mysticism (sufism) and law (shari'ah) and an overview of ritual practices, fundamental beliefs, theological principles and current issues in Islam and international relationship.

INTL 320/MKTG 320 International Marketing

Semester course; 3 lecture hours. 3 credits. Prerequisite: MKTG 301. This course is restricted to students who have completed at least 54 credit hours (junior standing). Designed to help students develop an understanding of international marketing policies and the differences among foreign marketing environments. Students compare and contrast domestic and international marketing and examine recent changes in the international marketing environment. Formerly MKTG 378/INTL 378.

INTL 327/MGMT 329 Introduction to Intercultural Communication

Semester course; 3 lecture hours. 3 credits. An introduction to the basic concepts, principles and skills for improving verbal and nonverbal communication with persons from different cultures. Using a cultural general approach, topics discussed include the concept of culture, barriers to intercultural communication, verbal communication process and nonverbal communication aspects. Appropriate for business and non-business majors.

INTL 328/SOCY 328 Russian Society in Transition

Semester course; 3 lecture hours. 3 credits. Prerequisite: SOCY 101 or permission of the instructor. An analysis of Russian culture and social institutions as they are today and in historical perspective. Throughout the course interrelationships among politics, the economy and social life are examined, with particular emphasis on the ideological implications of Russian/Soviet architecture, art and mass media; on environmental issues and health; on social problems and the legal systems; and on gender, the work world and family interaction.

INTL 329/ECON 329 International Economics

3 lecture hours. 3 credits. Prerequisites: ECON 203 with a minimum grade of B and ECON 211; or ECON 210 and ECON 211. An analysis of economic and political influences on exports and imports, balance of payments, foreign investment, exchange rates and international monetary systems.

INTL 330/SOCY 330 Global Societies: Trends and Issues

Semester course; 3 lecture hours. 3 credits. Prerequisite: INTL/POLI 105 or POLI 201 or SOCY 101. An analysis of factors that are promoting the globalization of social, economic and political

relations, and an inquiry into implications of these developments for individuals, localities, nations and the world community. The course will highlight the impact of culture and ethnicity, historical and emerging patterns of international business activity and their societal significance, divergent strategies for economic and social development in the world's regions, and the effects of population growth and environmental problems on public life within and among nations.

INTL 331/SPAN 331 Survey of Latin American Literature

Semester course; 3 lecture hours. 3 credits. Prerequisite: SPAN 300; SPAN 305 or 307 or 311; corequisite: SPAN 301. Conducted in Spanish. An introduction to major authors and trends up to the present.

INTL 333/AFAM 333/GEOG 333 Geography of Africa

Semester course; 3 lecture hours. 3 credits. A study of the land forms, climate, peoples, livelihoods, settlement patterns and cultural groupings of sub-Saharan Africa.

INTL 334/GEOG 334 Regional Geography of

Semester course; 3 lecture hours. 3 credits. A study of the land forms, climate, resources, peoples, agricultural and urban conditions in a specific region such as North America, Europe, Latin America, the Middle East and India, the USSR and Eastern Europe. See the Schedule of Classes for specific region to be studied each semester.

INTL 340/GEOG 340/URSP 340 World Cities Outside of North America

Semester course; 3 lecture hours. 3 credits. An examination of urban habitats in a variety of geographical regions with emphasis on their differences and their common experiences.

INTL 341/RELS 340 Global Ethics and the World's Religions

Semester course; 3 lecture hours. 3 credits. Pre- or corequisites: RELS/INTL 311 and 312. A critical survey of ethical concepts and issues in the thought and practice of major religious traditions. Comparison of ethical perspectives on selected themes and attention to cooperative efforts toward a global ethic.

INTL 345/FRLG 345/URSP 350 Great Cities of the World

Semester course; 3 lecture hours. 3 credits. This course may be repeated under different topics for a total of 6 credits. Prerequisite: sophomore standing or permission of instructor. An interdisciplinary course with a focus on the origin, expansion and significance of one or more cities, the specifics of its/their culture and the role of language. Particular emphasis will be placed on relating the physical, social and economic aspects of the city's growth and development to the cultural expression of urbanism.

INTL 348/ANTH 348 South American Ethnography

Semester course; 3 lecture hours. 3 credits. Prerequisites: ANTH/INTL 103 and UNIV 200 or HONR 200 with a minimum grade of C. General ethnographic survey of both highland and lowland indigenous cultures of South America and cultural changes as a result of European contact.

INTL 349/ANTH 349 Rethinking a Continent: Latin America

Semester course; 3 lecture hours. 3 credits.
Prerequisites: ANTH/INTL 103 and UNIV 200 or HONR 200 with a minimum grade of C. This course surveys contemporary cultures of Latin America. It addresses historical sociocultural developments from an anthropological perspective and introduces concepts from social justice studies, development anthropology and applied anthropology.

INTL 350/ANTH 350 Rethinking a Continent: Europe

Semester course; 3 lecture hours. 3 credits.
Prerequisites: ANTH/INTL 103 and UNIV 200 or HONR 200 with a minimum grade of C. A survey of historical sociocultural developments from an anthropological perspective with an emphasis on integrative and disintegrative forces that have shaped cultures and identities in Europe. Introduces concepts from sociocultural anthropology, social justice studies and applied anthropology.

INTL 351/POLI 351 Governments and Politics of the Middle East

Semester course; 3 lecture hours. 3 credits. A comparative analysis of political systems in the Middle East including the study of contemporary aspects in the Middle Eastern states. The course will explore the primary bases of cleavage and conflict and the political forces that shape the policies and political dynamics of the region.

INTL 352/POLI 352 European Governments and Politics

Semester course; 3 lecture hours. 3 credits. A comparative study of the political systems of selected western and eastern European countries.

INTL 353/POLI 353 Latin American Governments and Politics

Semester course; 3 lecture hours. 3 credits. A survey of politics characteristic of Latin American systems, including democratic reformism, military authoritarianism and revolutionary socialism. The course also examines the contemporary problems of fledgling democracies as they cope with economic and debt crises and various opposition challenges.

INTL 354/POLI 354 Russian and Post-Soviet Politics

Semester course; 3 lecture hours. 3 credits. A study of the origins, institutions, processes and disintegration of the Soviet political system, and of the ongoing reform efforts during the post-Soviet period. Special emphasis is placed on the politics of the transition to a democratic political system and a market economy. Other topics include nationality issues, social problems and foreign policy.

INTL 355/POLI 355 Asian Government and Politics

Semester course; 3 lecture hours. 3 credits. A comparative analysis of the politics and governments of major Asian states, with a focus on Japan, China and India.

INTL 356/POLI 356/AFAM 356 Government and Politics of Africa

Semester course; 3 lecture hours. 3 credits. This course will introduce the student to the basic outlines of government and politics in Africa. The course will

consider such topics as colonialism, elitism and nationalism and modernization strategies. Using the comparative approach, the course will primarily focus on West, East and Central Africa.

INTL 357/POLI 357/AFAM 357 Politics of Southern Africa

Semester course; 3 lecture hours. 3 credits. An examination of racial and political developments in the southern tip of Africa. While South Africa will be the primary focus of analysis, other countries in the region such as Zimbabwe, Angola and Mozambique will be studied.

INTL 358/POLI 358 Concepts of Comparative Government

Semester course; 3 lecture hours. 3 credits. Comparative study of politics and governments. Introduces concepts and theories used in the study of political systems. Topics include democratization and democratic governance, the role of the state, one-party and military regimes, revolution, and economic and political development.

INTL 360/RELS 350 World Classics of Spirituality

Semester course; 3 lecture hours. 3 credits. A critical reading of selected works from among the spiritual classics of Judaism, Christianity, Islam, Hinduism, Taoism and other religious traditions.

INTL 361/POLI 361 Issues in World Politics

Semester course; 3 lecture hours. 3 credits. An exploration of several significant issues in world politics. Topics may include peacekeeping and collectiveness, global environmental politics as well as selected others. Topics will vary with current events and trends in the international arena.

INTL 362/POLI 362 International Organizations and Institutions

Semester course; 3 lecture hours. 3 credits. A study of the background development structure and operations of organizations and institutions such as the United Nations, the European Community and the Organization of American States.

INTL 363/POLI 363 U.S. Foreign Policy

Semester course; 3 lecture hours. 3 credits. An analytical survey of processes and practices in the formulation of U.S. foreign policy, including an introduction to the goals, problems of implementation and current challenges faced by policy makers.

INTL 364/POLI 364 Vietnam

Semester course; 3 lecture hours. 3 credits. An analysis of the complete record of the conflict in Vietnam. The primary focus will be on the period of U.S. involvement. The course will examine closely how and why the United States became involved in Vietnam and what impact the Vietnam War has had on political institutions and behavior. In particular, the course will examine what impact the period of U.S. involvement has had upon U.S. foreign policy. The course also will consider additional topics including: public opinion and the war, the relationship between the president and Congress in light of the war and contemporary U.S. politics as a backlash against the political movements of the 1960s.

INTL 365/POLI 365 International Political Economy

Semester course; 3 lecture hours. 3 credits. A survey of both theoretical and current policy issues in international political economy. Theories to be covered include liberalism, mercantilism, Marxism, regionalism, world systems theory and others. Policy issues include differing styles of capitalism in the industrialized world, the political economy of development, the politics of international corporate alliances and others.

INTL 366/AFAM 363/ENGL 363 African Literature

Semester course; 3 lecture hours. 3 credits.
Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291, or 295. A survey of the literature of Africa with particular emphases on fiction and on West Africa. Some attention also will be given to orature.

INTL 367/AFAM 365/ENGL 365 Caribbean Literature

Semester course; 3 lecture hours. 3 credits.
Prerequisites: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291, or 295. A survey of West Indian writings. Attention will be given to African, European and Amerindian influences, as well as to the emergence of a West Indian literary tradition.

INTL 368/GSWs 366/POLI 366 Women and Global Politics

Semester course; 3 lecture hours. 3 credits. A study of women and global politics, providing both a feminist re-examination of traditional international-relations theories and a comparative analysis of the political, legal and economic status of the world's women. The impact of women on global political institutions such as the United Nations will be addressed as well as other feminist and grass roots means of taking political action.

INTL 370/AFAM 350/MHIS 350 Studies in the Music of the African Continent and Diaspora

Semester course; 3 lecture hours. 3 credits. May be repeated for a maximum of 6 credits. Prerequisite: MHIS 243 or MHIS/AFAM 250. An in-depth examination of selected topics and issues in African-derived musical and cultural traditions. See the Schedule of Classes for specific topics to be offered each semester.

INTL 372/GSWs 372/RELS 372 Global Women's Spirituality

Semester course; 3 lecture hours. 3 credits. Explores the spiritual writings of women in various cultures and religious traditions.

INTL 381/ANTH 381 Modern Identities: Nation Building

Semester course; 3 lecture hours. 3 credits. Critically explores how nation building and national identities have developed over the past two centuries among peoples across the globe. Class discussions will examine theoretical perceptions of these processes and focus on how they shaped and shape realities in different times and places.

INTL 390/FASH 390 Historic and Ethnic Textiles

Semester course; 3 lecture hours. 3 credits.
Prerequisite: FASH 290 or IDES 446 or permission of

instructor. An examination of the history of textile design and production around the world.

INTL 391/FLET 391 Topics in Foreign Literature in English Translation

Semester course; 3 lecture hours. 3 credits. May be repeated with different topics for a maximum of 12 credits. An in-depth study of selected topics in foreign literature. This course will not satisfy foreign language requirements. No knowledge of a foreign language is required. All work is done in English.

INTL 398 Directed Study Abroad

Semester course; variable hours. 0-8 credits per semester. May be repeated for a maximum of 8 credits with approval of student's major department. Permission of academic adviser required. A course involving travel and/or residence in a foreign country as features of the student's work on a pre-arranged project. Intended primarily for students participating in student exchange programs.

INTL 409/RELS 409 Modern Islamic Thought and Global Trends

Semester course; 3 lecture hours. 3 credits. Prerequisite: INTL/RELS 312 or INTL/RELS 317; UNIV 200 or HONR 200. Introduces students to the integral relationship of Islam to major events of global concern and contextualizes these events into the wider modern and postmodern developments of Islamic thought and its intellectual and ideological self-interrogation. This course will provide students with the opportunity to study both the background of modern Islamic thought and selected contemporary events.

INTL 410/PHIL 410/RELS 410 The Chinese Tradition in Philosophy

Semester course; 3 lecture hours. 3 credits. A study of the development of Confucianism, of alternative ways of thought prior to the fall of the Han Dynasty and of neo-Confucianism. The systems of thought are examined in the light of their social, political and religious impact on China, Korea and Japan.

INTL 412/PHIL 412/RELS 412 Zen Buddhism

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 200 or HONR 200. A study of Zen Buddhism, including backgrounds in Indian philosophy and practice, development in China and Korea, and present-day Zen theory and practice in Japan and in Western countries.

INTL 413/FIRE 413 Comparative Financial Systems

Semester course; 3 lecture hours. 3 credits. Prerequisite: FIRE 311. This course is restricted to students who have completed at least 54 credit hours (junior standing). An analysis of the structure and functioning of financial systems in different parts of the world. Emphasis is on the evolution of such systems in relation to the U.S. financial system. Different regions of the world may be studied in different semesters.

INTL 415/ANTH 415 Economic Anthropology

Semester course; 3 lecture hours. 3 credits. Provides an overview of the anthropological approach to the "economic" in social life. Analyzes the role played by systems of reciprocity and exchange in ethnographic contexts. Concepts employed by anthropologists in the

study of traditional subsistence economies are used to examine modern industrialized societies.

INTL 416/FIRE 316 International Financial Management

Semester course; 3 lecture hours. 3 credits. Prerequisite: FIRE 311. This course is restricted to students who have completed at least 54 credit hours (junior standing). Financial management of business in an international environment. Emphasis on tools and techniques to prepare financial managers of multinational firms to effectively respond to the challenges of the international environment.

INTL 418/MGMT 418 International Management

3 lecture hours. 3 credits. Prerequisite: junior standing. The study of the environment of international business, ethics and social responsibility in international settings, culture and its effect on behavior and management practice, and the strategies and management practices of firms engaged in international activities. Aims to provide students with the knowledge, skills and sensitivities needed to be effective managers in the international business environment.

INTL 419/MGMT 419 Doing Business in Europe

Semester course; 3 lecture hours. 3 credits. Prerequisite: junior standing and permission of instructor. Designed primarily as a core integrative course for students enrolled in the Certificate in International Management Studies, but other students are welcome. The course has three goals: a) integration of foreign languages, European studies and international management; b) infusion of other business areas relevant to doing business in Europe (such as international marketing, finance law and economics); and c) the development of cultural sensitivity and social responsibility. The course will be organized as a series of seminars with faculty and other speakers from the above disciplines.

INTL 420/AFAM 420/ANTH 420 Women of Africa

Semester course; 3 lecture hours. 3 credits. Prerequisite: ANTH/INTL 103 or AFAM 103. This course looks at the traditional roles of women in African societies and examines how women have coped in different environments. It focuses on the institutionalized aspects of similarities and differences in women's lives in pastoral and horticultural societies and those with mixed economies, and will contrast these with women's roles in large state societies of Africa and in the modern urbanized context.

INTL 421/SPAN 421 Civilization of Latin America II

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to 6 credits. Prerequisites: completion of 9 credits of Spanish at the 300 level including SPAN 300 or 301. This course explores the cultural diversity of Latin America and the social and political forces behind cultural change. Topics will focus on a specific interdisciplinary theme, such as urban life, the politics of identity and on a specific area of Latin America. See the Schedule of Classes for the specific topic to be offered each semester.

INTL 425/RELS 425/ANTH 425 Religion, Magic and Witchcraft

Semester course; 3 lecture hours. 3 credits. Prerequisites: ANTH/INTL 103 and UNIV 200 or HONR 200 with a minimum grade of C. A survey of the nature and variety of beliefs outside of the major streams of religious thought. Among topics considered are myth, totemism, taboo and sorcery. Emphasis on understanding supernatural beliefs and practices in relation to culture and society.

INTL 441/RELS 441 Islamic Mysticism: the Sufis

Semester course; 3 lecture hours. 3 credits. Prerequisite: INTL/RELS 312 or INTL/RELS 317; UNIV 200 or HONR 200. Introduces students to the major Sufi masters and their works. It covers ideological and practical development of Islamic mysticism as compared to the developments within Islam itself.

INTL 446/MGMT 446 International Human Resource Management

Semester course; 3 lecture hours. 3 credits. Prerequisite: MGMT 331, INTL/MGMT 418 or ECON/INTL 329. Covers the application of human resource management activities in an international environment. Similarities and differences in domestic methods are highlighted to aid understanding. Contemporary practices in the selection, development, compensation and maintenance of expatriates, impatriates, repatriates, host country nationals and third-country nationals are studied. Regulatory and cultural dimensions of countries are examined.

INTL 448/MKTG 448 Digital Marketing

Semester course; 3 lecture hours. 3 credits. Prerequisites: MKTG 301 and MKTG 330. This course is restricted to students who have completed at least 54 credit hours (junior standing). Examines Internet marketing as a necessary ingredient to successful worldwide marketing strategy. Students analyze markets using Web-based techniques for market evaluation, competitive analysis, market comparison and selection. Discussion includes comparison of e-business versus traditional business perspectives on marketing strategies and tactics.

INTL 449/RELS 450 Religion, Globalization and Social Justice

Semester course; 3 lecture hours. 3 credits. Prerequisites: RELS 340/INTL 341, WLRD 210 or WRLD 220; UNIV 200 or HONR 200. Explores the role religions are playing in the work of building a socially just and environmentally sustainable world community.

INTL 450/FREN 450 Francophone Literatures and Cultures

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of 6 credits. Prerequisite: FREN 301; FREN 305 or 307; FREN 320 or 321 or 330 or 331. Conducted in French. Introduces students to the literatures and cultures of the Francophone world. Provides an overview of the Francophone world and an in-depth study of literary works written in French from Africa, the Caribbean, North America, Asia and Europe. Also explores the impact of Colonial history on Francophone literatures and cultures. See the Schedule of Classes for the specific topic to be offered each semester.

INTL 451/RELS 451/AFAM 451 Religion, Racism and Social Justice

Semester course; 3 lecture hours. 3 credits.
Prerequisites: RELS 340/INTL 341, WLRD 210 or WRLD 220; UNIV 200 or HONR 200. Explores the complex history and contemporary relationships between religion, racism and social justice.

INTL 452/POLI 452 Seminar in the Politics of Developing Areas

Semester course; 3 lecture hours. 3 credits. Analysis of the processes of political and economic development. Includes a study of various challenges facing developing countries, such as economic inequalities, environmental degradation, mass political participation, military coups, revolution and civil war.

INTL 453/RELS 453/GSWs 453 Western Religions, Women and Social Justice

Semester course; 3 lecture hours. 3 credits.
Prerequisites: RELS/INTL 312 or RELS 340/INTL 341; UNIV 200 or HONR 200. This course explores the experience and portrayal of women in the three Abrahamic traditions: Judaism, Islam and Christianity. Study focuses on how these religions and their texts bear upon the social, economic, political and spiritual lives of women. Special attention is given to the impact of globalization and religious fundamentalism on women.

INTL 454/ENGL 454/ANTH 450 Cross-cultural Communication

Semester course; 3 lecture hours. 3 credits.
Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291, or 295. A study of the dynamics of cross-cultural communication which applies linguistic tools to understanding cultural issues and solving communication problems.

INTL 455/ANTH 455 Anthropology of Development and Globalization

Semester course; 3 lecture hours. 3 credits.
Prerequisite: INTL 101. May be taken for a maximum of nine credit hours in three different world areas. Consists of a global study of the developing Third World with particular emphasis on rural populations, subsistence farmers, indigenous groups and small entrepreneurs. Focuses on development and globalization while providing insights into the peasantry as a class, women in peasant societies, changes in peasant societies and the peasantry as a player in the policies of the modern state.

INTL 456/RELS 455 Catholic Ethics and Social Justice

Semester course; 3 lecture hours. 3 credits.
Prerequisites: RELS 280 or 380, or RELS/INTL 312, or RELS 340/INTL 341; UNIV 200 or HONR 200. An exploration of the Catholic church's major theological, ethical, constitutional and strategic concerns, and an analysis of Catholic social teaching and its relation to current social issues such as abortion, peace and conflict, poverty, and human rights.

INTL 457/ANTH 457 Comparative Perspectives on Cultures and Societies

Semester course; 3 lecture hours. 3 credits.
Prerequisite: ANTH/INTL 103; UNIV 200 or HONR 200. Examination of the theoretical, methodological and ethical problems that arise from anthropological comparisons of cultures.

INTL 468/POLI 468 Seminar on Comparative Foreign Policy

Semester course; 3 lecture hours. 3 credits. A study of theories, models and hypotheses of foreign policy behavior in various types of political systems with emphasis on empirical research and analysis of differences and similarities.

INTL 480/POLI 480 China in Transition

Semester course; 3 lecture hours. 3 credits. Traces how China is making the transition from a planned to market economy, and what implications this transition has on the political, social and urban landscape. Class discussions are grounded on a basic understanding of China's modern history and regional geography.

INTL 490 Seminar in International Issues

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of 6 credits. Prerequisite: senior standing in international studies major with a minimum of 85 credits earned toward the degree. An individualized research project focusing on international issues and undertaken in a seminar setting.

INTL 491 Topics in International Studies

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of 6 credits. An in-depth study of a particular topic in international studies. See the Schedule of Classes for specific topics to be offered each semester.

INTL 492 Independent Study

Semester course; variable hours. 1-3 credits. Maximum total of 4 credits in all independent study courses. Generally open to students of junior and senior standing who have acquired at least 12 credits in international studies courses. Determination of amount of credit and permission of instructor and director must be obtained before registration of the course.

INTL 493 International Studies Internship

Semester course; 50 clock hours in a local, national or international internship placement per credit. Variable credit. 1-6 credits with a maximum of 6 credits. Prerequisites: junior or senior standing, and approval of selection committee or program director. The internship is designed to present opportunities for qualified students to acquire exposure to internationally oriented public and private organizations and agencies. The course includes a rigorous evaluation of the internship experience based on learning objectives stipulated in a contract between the student, faculty adviser and a field supervisor.

INTL 499 Senior Seminar

Semester course; 1 lecture hour. 1 credit. Prerequisites: completion of 18 INTL credits at the 300- or 400-level; senior standing. Pre- or corequisite: INTL 490, 492, or 493. Focuses on self-assessment, compilation of a portfolio and curriculum vitae, career and graduate school preparation and on the lifelong application of skills and knowledge acquired in the program. Students will critically assess their experience in the international and area studies program.

Italian

Students who wish to complete Italian through the intermediate level or higher are required to consecutively complete 101, 102 and 201 or the

equivalent. Students may then choose either 202 or 205 to complete the intermediate level.

ITAL 101 Elementary Italian

Continuous courses; 5 lecture/recitation hours. 4-4 credits. Prerequisite: completion of ITAL 101 to enroll in ITAL 102. Elementary grammar, reading and oral drill.

ITAL 102 Elementary Italian

Continuous courses; 5 lecture/recitation hours. 4-4 credits. Prerequisite: completion of ITAL 101 to enroll in ITAL 102. Elementary grammar, reading and oral drill.

ITAL 201 Intermediate Italian

Semester course; 3 lecture hours. 3 credits.
Prerequisite: ITAL 102. Continuation of the essentials of grammar with emphasis on achieving proficiency in aural comprehension, speaking, reading and writing skills.

ITAL 202 Intermediate Italian Readings

Semester course; 3 lecture hours. 3 credits.
Prerequisite: ITAL 201. Designed to increase the student's proficiency in Italian through the study of selected cultural and literary texts.

ITAL 205 Intermediate Conversation

Semester course; 3 lecture hours. 3 credits.
Prerequisite: ITAL 201. Designed to increase the student's proficiency in the spoken language through audio-oral exercises, dialogues and free conversation.

ITAL 300 Advanced Composition and Conversation

Semester course; 3 lecture hours. 3 credits.
Prerequisite: ITAL 202 or 205. Development of advanced written and oral skills through both systematic review of Italian grammar with emphasis on the elements of style and vocabulary building, and conversational activities based on a variety of situations. Conducted in Italian.

ITAL 320 Italian Cinema:

Semester course; 3 lecture hours. 3 credits. May be repeated with different topics for maximum of 6 credits. Prerequisite: ITAL 300. Conducted in Italian. Traces Italian cinema from Neorealism to contemporary cinema, exploring genres such as comedy and Westerns as well as landmark works by the most important directors. See the Schedule of Classes for specific topic to be offered each semester.

ITAL 330 Themes in Italian Literature:

Semester course; 3 lecture hours. 3 credits. May be repeated with different topics for maximum of 6 credits. Prerequisite: ITAL 300. Conducted in Italian. An in-depth study of selected topics in Italian texts. See the Schedule of Classes for specific topic to be offered each semester.

ITAL 391 Topics in Italian

Semester course; variable hours. 1-3 credits. May be repeated with different topics for a maximum of 6 credits. Pre- or corequisite: ITAL 320 or ITAL 330. Conducted in Italian. An in-depth study of selected topics in Italian. See the Schedule of Classes for specific topics to be offered each semester.

Language and Cultural Competence

LGCC 101 Introduction to Language and Culture for Professionals I: _____

Semester course; 1-3 lecture hours. 1-3 credits. May be repeated for credit with a different language. Designed for anyone concerned about the effectiveness of communicating with diverse linguistic communities. The communication focus includes an introduction to basic structures and target terminology used in the professions. This course cannot be used to fulfill requirements of general education in the college or the foreign language major or minor.

LGCC 102 Introduction to Language and Culture for Professionals II: _____

Semester course; 1-3 lecture hours. 1-3 credits. May be repeated for credit with a different language. Prerequisite: LGCC 101 or the equivalent. Designed for anyone concerned about the effectiveness of communicating with diverse linguistic communities. The communication focus includes continued practice with basic structures and target terminology used in the professions. This course cannot be used to fulfill requirements of general education in the college or the foreign language major or minor.

LGCC 197 Basic Cultural Competence Training

Semester course; 1-3 hours. 1-3 credits. Designed for anyone concerned about the effectiveness of people working and living in multicultural societies. Bridges theory and practice through a series of hands-on exercises, simulations, stories and real-world examples to optimize the learners' skill development necessary for effective intercultural communication. Graded as pass/fail.

LGCC 201 Intermediate Language and Culture for Professionals I: _____

Semester course; 1-3 lecture hours. 1-3 credits. Prerequisite: LGCC 102 or the equivalent. Designed for anyone concerned about the effectiveness of communicating at an intermediate level with diverse linguistic communities. Delves further into grammatical structures, cultural concepts and target terminology used in the professions. This course cannot be used to fulfill requirements of general education in the college or the foreign language major or minor.

LGCC 202 Intermediate Language and Culture for Professionals II: _____

Semester course; 1-3 lecture hours. 1-3 credits. Prerequisite: LGCC 201 or the equivalent. Designed for students concerned about the effectiveness of communicating at an advanced intermediate level with diverse linguistic communities. Offers continued instruction in cultural concepts, basic structures and target terminology used in the professions. This course cannot be used to fulfill requirements of general education in the college or the foreign language major or minor.

LGCC 297 Cultural Competence for Health Care Professionals

Semester course; 1-3 hours. 1-3 credits. Designed for health care, social work, public health and related providers who work with the growing number of

immigrants, refugees and minorities in the U.S. Focus is on the basics of intercultural-communication competence for health care settings to help health care providers build deeper knowledge and understanding of patients/clients' cultural values and beliefs and how they may influence clients' attitudes and behaviors. Graded as pass/fail.

LGCC 405 Spanish Language and Culture for Health Care Providers

Continuous courses; 2 lecture hours. 2-2-2 credits. Prerequisite: permission of instructor. Completion of LGCC 405 to enroll in LGCC 406. Completion of LGCC 406 to enroll in LGCC 407. Open only to students enrolled in health care programs such as nursing, medicine, allied health, pharmacy, dentistry, or health care practitioners. A survey of the changing demographics of patients in health care and the language and cultural skills required to provide adequate health care services. The communication focus includes basic structures and medical terminology used during assessments and phrases commonly used during physical examinations. These courses cannot be used to fulfill requirements for the Spanish major or minor, nor can they fulfill the general education language requirement. Formerly SPAN 405-406.

LGCC 406 Spanish Language and Culture for Health Care Providers

Continuous courses; 2 lecture hours. 2-2-2 credits. Prerequisite: permission of instructor. Completion of LGCC 405 to enroll in LGCC 406. Completion of LGCC 406 to enroll in LGCC 407. Open only to students enrolled in health care programs such as nursing, medicine, allied health, pharmacy, dentistry, or health care practitioners. A survey of the changing demographics of patients in health care and the language and cultural skills required to provide adequate health care services. The communication focus includes basic structures and medical terminology used during assessments and phrases commonly used during physical examinations. These courses cannot be used to fulfill requirements for the Spanish major or minor, nor can they fulfill the general education language requirement. Formerly SPAN 405-406.

LGCC 407 Spanish Language and Culture for Health Care Providers

Continuous courses; 2 lecture hours. 2-2-2 credits. Prerequisite: permission of instructor. Completion of LGCC 405 to enroll in LGCC 406. Completion of LGCC 406 to enroll in LGCC 407. Open only to students enrolled in health care programs such as nursing, medicine, allied health, pharmacy, dentistry, or health care practitioners. A survey of the changing demographics of patients in health care and the language and cultural skills required to provide adequate health care services. The communication focus includes basic structures and medical terminology used during assessments and phrases commonly used during physical examinations. These courses cannot be used to fulfill requirements for the Spanish major or minor, nor can they fulfill the general education language requirement. Formerly SPAN 405-406.

Language Skills

LASK 103/LING 103 Introduction to Languages

Semester course; 3 lecture hours. 3 credits. A course designed to help students understand how languages function through a survey and contrastive analysis of language systems, with attention to the sociocultural, psychological and historical aspects of languages. Completion of this course does not qualify a student to take the 200 level of a language without passing a language placement test.

LASK 203 Classical Elements in the English Language

Semester course; 3 lecture hours. 3 credits. Development of English vocabulary through a study of Greek and Latin elements in English: derivatives, roots and loan words. Some emphasis on the special vocabularies of the sciences.

Latin

LATN 101 Elementary Latin

Continuous courses; 4 lecture hours. 4-4 credits. Prerequisite: completion of LATN 101 to enroll in LATN 102. First semester: a study of the Latin language with emphasis on the Latin elements found in English. Latin vocabulary. Second semester: introduction to Latin authors and related aspects of Roman civilization.

LATN 102 Elementary Latin

Continuous courses; 4 lecture hours. 4-4 credits. Prerequisite: completion of LATN 101 to enroll in LATN 102. First semester: a study of the Latin language with emphasis on the Latin elements found in English. Latin vocabulary. Second semester: introduction to Latin authors and related aspects of Roman civilization.

LATN 201 Readings in Latin Literature

Continuous courses; 3 lecture hours. 3-3 credits. Prerequisites: LATN 102. Completion of LATN 201 to enroll in LATN 202. Brief grammar review with a parallel study of political and literary trends and developments as found in several of the major Latin writers. First semester: prose, with emphasis on Cicero, Pliny the Younger and Sallust. Second semester: poetry, with selected readings from Catullus, Tibullus, Ovid and Vergil.

LATN 202 Readings in Latin Literature

Continuous courses; 3 lecture hours. 3-3 credits. Prerequisites: LATN 102. Completion of LATN 201 to enroll in LATN 202. Brief grammar review with a parallel study of political and literary trends and developments as found in several of the major Latin writers. First semester: prose, with emphasis on Cicero, Pliny the Younger and Sallust. Second semester: poetry, with selected readings from Catullus, Tibullus, Ovid and Vergil.

LATN 330 Themes in Latin Literature:

Semester course; 3 lecture hours. 3 credits. May be repeated with different topics for maximum of 6 credits. Prerequisites: LATN 202. An in-depth study of selected topics such as science and medicine, law, or satire in works by authors such as Caesar, Cicero,

Horace, Catullus, Ovid, Virgil, Marcus Aurelius and Lucretius. See the Schedule of Classes for specific topic to be offered each semester. Texts are in the original language.

LATN 331 Representative Authors in Latin Literature: _____

Semester course; 3 lecture hours. 3 credits. May be repeated with different topics for maximum of 6 credits. Prerequisites: LATN 202. Selected readings by authors from the Archaic Period, the Classical Age, Silver Age and Patristic Latin with a focus on their impact on the political and social agendas of the day and on us today. See the Schedule of Classes for specific topic to be offered each semester. Texts are in the original language.

Linguistics

LING 103/LASK 103 Introduction to Languages

Semester course; 3 lecture hours. 3 credits. A course designed to help students understand how languages function through a survey and contrastive analysis of language systems, with attention to the sociocultural, psychological and historical aspects of languages. Completion of this course does not qualify a student to take the 200 level of a language without passing a language placement test.

LING 390/ENGL 390/ANTH 390 Introduction to Linguistics

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291 or 295. An introduction to methods of language analysis, emphasizing the study of sounds and sound patterns and units of meaning and their arrangements.

LING 401/SPAN 401 Comparative Structures

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of 6 credits. Prerequisites: SPAN 301; SPAN 305 or 307 or 311; SPAN 320 or 321 or 330 or 331. Conducted in Spanish. A comparison of English and Spanish, with emphasis on pronunciation and problems encountered in the teaching of Spanish. See the Schedule of Classes for the specific topic to be offered each semester.

LING 402/SPAN 402 Language Issues in the Spanish-speaking World

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of 6 credits. Prerequisites: SPAN 301; SPAN 305 or 307 or 311; SPAN 320 or 321 or 330 or 331. Conducted in Spanish. Through a variety of topics this course explores the links between language and human behavior as exemplified by language phenomena in the Spanish-speaking world. Topics will be drawn mainly from sociolinguistics, language and culture, and education and applied linguistics. See the Schedule of Classes for the specific topic to be offered each semester.

LING 450/ENGL 450 Modern Grammar

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291, or 295. Study of modern English grammar and usage with some attention to linguistic theory. Recommended for teachers at all levels. May not be used to satisfy the literature requirement of the

College of Humanities and Sciences. For English majors, these courses (limit of six credits) may be counted as part of graduate or undergraduate degree, but not both.

LING 451/ENGL 451 History of the English Language

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291, or 295. The historical development of the English language; etymology, morphology, orthography and semantics. May not be used to satisfy the literature requirement of the College of Humanities and Sciences. For English majors, these courses (limit of six credits) may be counted as part of graduate or undergraduate degree, but not both.

LING 452/GSWS 452/ENGL 452 Language and Gender

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291 or 295. A study of relationships between gender and language by focusing on such issues as differences between the ways women and men use language, relationships between language and power and ways in which language reflects and reinforces cultural attitudes toward gender. May not be used to satisfy the literature requirement of the College of Humanities and Sciences.

LING 453/ENGL 453 Modern Rhetoric

Semester course; 3 lecture hours. 3 credits. Prerequisites: UNIV 200 or HONR 200, and ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291, or 295. A study of a broad range of modern rhetorical theories, emphasizing their possible relationships with linguistics, literary criticism, civic engagement and the process of writing.

LING 455/ANTH 448/ENGL 455/FRLG 448 Language, Culture and Cognition

Semester course; 3 lecture hours. 3 credits. Prerequisite: three credits in a 200-level literature course (or equivalent). Introduces theoretical and methodological foundations for the study of language from socio-cultural perspectives. The perspectives include linguistic, philosophical, psychological, sociological and anthropological contributions to the understanding of verbal and nonverbal communication as a social activity embedded in cultural contexts. No prior training in linguistics is presupposed.

Mass Communications

MASC 101 Mass Communications

Semester course; 3 lecture hours. 3 credits. Open only to mass communications majors or media studies minors, or by permission of School of Mass Communications. A comprehensive overview of mass media which examines its history and evolution. Emphasis is given to the ways in which communications technologies have shaped and are shaped by society. Considers how digital and earlier technologies have led to increasing integration of world cultures and economies. Includes discussion of mass media law and ethics, including the origins and evolution of a free press and the legal framework of contemporary mass media practice.

MASC 151/INTL 151 Global Communications

Semester course; 3 lecture hours. 3 credits. Explores how communication media and globalization drive each other and how they both impact the nation-state as well as international institutions. Examines how technology, the global economy and international media corporations influence culture, politics, business, law and other institutions in countries around the world. Explores the relationship between media systems and governments and how both are affected by technology and globalization.

MASC 201 Curiousness

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Study and practice of the first attribute for success in creativity: curiousness. Students engage in practical applications, readings, lectures, demonstrations and in-class exercises that build curiosity and help students identify and trust their natural curious nature. Provides advertising and non-advertising majors with rigorous and provocative challenges to stimulate further interest in creating for media.

MASC 203 Journalism Writing

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisites: MASC 101 minimum grade of C, UNIV 112 minimum grade of C and minimum cumulative GPA of 2.5. Study and practice in fact gathering and development of basic writing skills for print, broadcast and online journalism. Focuses on journalistic storytelling, grammar, Associated Press style and knowledge of current affairs.

MASC 204 Story

Semester course; 1 lecture and 4 laboratory hours. 3 credits. Prerequisites: MASC 101 minimum grade of C and 201 minimum grade of C, UNIV 112 minimum grade of C and minimum cumulative GPA of 2.5. Focuses on writing for advertising and consumer communications (the best advertising tells stories to which consumers can relate). Students study the parts of a story, what makes a story interesting and how to find those things. Practice includes looking for, finding and constructing a story. A survey of many different ways storytelling is involved in making advertising. Practice in applying storytelling skills to several advertising and communication projects.

MASC 210 Public Relations

Semester course; 3 lecture hours. 3 credits. Introduction to public relations principles and practices, including analysis of tools, media, ethical responsibilities and emerging technologies. Special attention to the theory and research literature on rational and ethical persuasion.

MASC 290 Ethical Problems in Mass Media

Semester course; 3 lecture hours. 3 credits. Prerequisite: MASC 101 minimum grade of C. Examination and analysis of contemporary issues and problems in conventional and new media. The philosophical foundation and principles of ethical decision-making are explored. Critical and unresolved issues are discussed within the legal and ethical framework of modern mass media practice. Students are required to design and justify resolutions to the issues and present defenses for the resolution proposals.

MASC 291 Topics in Communications

Semester course; variable hours. 1-3 credits. May be repeated once with different content. A study of a specialized topic in mass communications. See the Schedule of Classes for specific topics to be offered.

MASC 300 Technical Prowess

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisite: MASC 204 minimum grade of C. For advertising students only. Examines the functions of visual and graphic communication in the print and electronic media. Focuses on mastery of graphics software and basic design principles used in advertising. Students gain hands-on experience with state-of-the-art computer graphics and layout programs. (May not be taken if student has taken MASC 301 or 334.)

MASC 301 Graphics for Journalism

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisite: MASC 203 with a minimum grade of C. For journalism students only. Examines the functions of visual and graphic communication in the print and electronic media. Focuses on creative typographic and layout design principles and integrates practice in editing, graphic creation, digital-image manipulation and professional publishing. Students gain hands-on experience with state-of-the-art computer graphics and layout programs used in newspaper and magazine journalism. (May not be taken if student has taken MASC 300 or 334.)

MASC 303 Reporting for Print and Web

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisites: MASC 203 minimum grade of C and UNIV 200 minimum grade of C or HONR 200 minimum grade of C. Detailed study in reporting and writing news stories for print publications and websites. Focus on interviewing, writing news and features and preparing for entry-level reporting assignments. Students also will learn online presentation skills, including photos, audio, video and interactive elements.

MASC 305 Copy Editing

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisite: MASC 301 minimum grade of C. Instruction and practice in basic newspaper and online editing with a focus on practical experience in editing local and news service copy for publication. Includes emphasis on headline writing, development of news judgment, accuracy and fairness, and potential legal problems for copy editors. Attention also will be paid to layout and design for newspapers and online.

MASC 333 Public Relations Writing and Media Relations

Semester course; 3 lecture hours. 3 credits. Prerequisites: MASC 203 and 210, each with a minimum grade of C. Enrollment restricted to public relations students only. An intensive writing course focusing on researching and writing materials in support of the public relations function. Practice in preparing various collateral including news releases and advisories, story pitches, special events background materials, media kits, employee newsletters, community relations materials and formal public speaking scripts. Explains the role and function of the news media and the unwritten rules that govern interaction with the news media. Students will learn how to construct an effective media relations strategy, how to be interviewed with skill and assurance and

how to evaluate media relations within the organization's public relations plan.

MASC 334 Public Relations Graphics and Production I

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisite: MASC 210 with a minimum grade of C. Enrollment restricted to public relations students or media studies minors only. Study of the functions of visual and graphic communication for public relations practice. Focuses on basic design principles and skills in editing, graphic creation, digital-image manipulation, Web and interactive content. Students gain hands-on experience with state-of-the-art computer graphics and layout programs. (May not be taken if student has completed MASC 300 or 301.)

MASC 335 Public Relations Graphics and Production II

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisite: MASC 334 with a minimum grade of C. Enrollment restricted to public relations students only. Continues development of visual and graphic communication skills acquired in MASC 334. Introduces development of additional multimedia skills to include photography, electronic newsletters and video storytelling. (May not be taken if student has completed MASC 300 or 301.)

MASC 336 Social Media in Public Relations

Semester course; 3 lecture hours. 3 credits. Prerequisite: MASC 210 with a minimum grade of C. Enrollment restricted to public relations students only. Covers development, trends and application of social media. Focuses on social media as a strategic tool for public relations professionals. Identifies and analyzes functionality and best practices, including audience engagement, benchmarking and appropriate metrics for social media monitoring, measurement and evaluation.

MASC 337 Public Relations Management and Case Studies

Semester course; 3 lecture hours. 3 credits. Prerequisite: MASC 210 with a minimum grade of C. For public relations students only. Through intensive review, study and discussion of public relations case studies, students will use and further develop their critical-thinking abilities to analyze how the public relations function was managed to serve organizational goals. Students will critique existing case studies as well as develop their own individual case studies.

MASC 338 Professionalism in Public Relations

Semester course; 3 lecture hours. 3 credits. Prerequisite: MASC 210 with a minimum grade of C. Enrollment restricted to public relations students only. Study of public relations careers, including in-depth examination of types of practice and industry choices for professionals. Includes development of job-seeking skills such as networking, resume and cover letter writing, interviewing, as well as professional skills such as impromptu and extemporaneous speaking, presentation development and effective meeting management. Focus on ethical practice and understanding of effective long-term professional development activities such as the Accredited in Public Relations and Accredited Business Communicator credentials.

MASC 341 Feature and Article Writing

Semester course; 3 lecture hours. 3 credits. Prerequisite: MASC 303 minimum grade of C or 363 minimum grade of C. Practice in preparing articles and features for newspapers and magazines. Emphasis is on creative journalistic writing and development of writing skills.

MASC 359/WRLD 359 International Media Coverage: The Middle East

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisite: MASC 101 with a minimum grade of C or 151 with a minimum grade of C. This interdisciplinary course explores the media's role in covering cultural, political, religious and other issues in the Middle East. Students will examine the role and impact of the media in both the United States and Middle East in shaping global and regional public opinion. Using webcam and online technology, VCU students will discuss cross-cultural perspectives with students from the other U.S. universities and universities in the Middle East.

MASC 361 History and Development of Journalism

Semester course; 3 lecture hours. 3 credits. Prerequisite: MASC 203 or 204 with a minimum grade of C. An examination of the regulatory, technical, economic and creative foundations of print, broadcast and Web-based journalism. Historical, contemporary and ethical issues are also addressed.

MASC 363 Introduction to Broadcast Writing

Semester course; 3 lecture hours. 3 credits. Prerequisite: MASC 203 with a minimum grade of C. Corequisite: MASC 367. Students will concentrate on developing news writing and reporting skills for television and radio. Course work will include weekly writing assignments and the production of broadcast-quality radio and television stories. Knowledge of current events is essential.

MASC 367 Audio and Video Journalism

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisite: MASC 203 with a minimum grade of C. Corequisite: MASC 363. Open to mass communications majors only. Focuses on the purpose, function and execution of basic techniques of audio and video field and studio production operations, especially as they relate to news. Emphasizes the production of broadcast-quality media content. Fieldwork production, remote production and live production, along with audio and video recording and editing, are covered.

MASC 380 History of Advertising

Semester course; 3 lecture hours. 3 credits. Prerequisite: MASC 203 or 204 with a minimum grade of C. A foundation survey, from prehistoric to present day. What is advertising? How did it get to be that way and what might it become? Advertising's place in society through several eras, with emphasis on U.S. advertising history, but attention also paid to the role of advertising in other countries. An overview of the creation of the ad agency, a summary of its parts, an explanation of its workings and its place in society. Understanding advertising as practiced from various viewpoints including the agency, public, clients and social and political groups.

MASC 381 Great Advertising

Semester course; 3 lecture hours. 3 credits.
Prerequisite: MASC 380 minimum grade of C.
Explores the practitioner-oriented approach to the creation, preparation and evaluation of advertising, branding and communications. Views great advertising from the perspective of integrated marketing communication and utilizes case studies of advertising and branding campaigns for some of the world's best-known brands.

MASC 382 Acumen

Semester course; 3 lecture hours. 3 credits.
Prerequisite: MASC 380 minimum grade of C.
Focuses on excelling in the business aspects of advertising, branding and communications. To understand an advertising client's business needs, one must understand how the client does business. Students will learn about advertising from within the context of marketing, business and commerce.

MASC 392 Perspicuousness

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisites: MASC 204 with a minimum grade of C and UNIV 200 or HONR 200 with a minimum grade of C. Intensive practice in choosing the right word for the right occasion. Study of the different types of advertising copy used by both local and national advertisers. Focuses on creative thinking and inspired writing for advertising, branding and communications.

MASC 393 Creativity for Television

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisite: MASC 380 minimum grade of C. For mass communications majors only. Learn the process of developing professional-level television advertising with a concentration in creative thinking and solutions. Students create TV commercials with attention to scripts, storyboards, talent, visual composition, editing, music, sound effects and direction.

MASC 394 Imagination

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisite: MASC 300 with a minimum grade of C. Study of art direction: practice in visualizing and utilizing media space aesthetically. Students complete assignments each week, ranging from traditional advertising to alternative media venues. Results are presented in front of the class for critique by faculty and fellow students.

MASC 397 Ubiquity

Semester course; 3 lecture hours. 3 credits.
Prerequisite: MASC 204 minimum grade of C. Using media to help achieve the client's ad objective. An intensive problem-based course on using mass, personal and social media to engage the consumer, to help communicate the brand's message and to add impact to a communications campaign. Students will study media planning and buying of all types of media (TV, radio, newspapers, magazines, outdoor, online and nontraditional).

MASC 398 Awareness

Semester course; 3 lecture hours. 3 credits.
Prerequisite: MASC 204 with a minimum grade of C. Understanding what advertisers can look for in their research and how they use research to connect with consumers. Through this intensive research practicum focused on account planning, students will learn to

research consumers, competition and brands. Students will use quantitative (such as online surveys) and qualitative (such as focus groups, panel studies, one-on-one interviews) methods to research consumers and target audiences. Students will conduct competitive market research on brands.

MASC 399 Empathy

Semester course; 3 lecture hours. 3 credits.
Prerequisite: MASC 204 with a minimum grade of C. Focuses on managing client accounts, team management, group dynamics, negotiating and presentation skills. Students learn how to persuade through understanding of others, including how to make smarter decisions, spark innovation and solve problems more quickly, and how to create a culture of candor, trust, resilience and accountability in clients and in coworkers.

MASC 403 Advanced Reporting

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisite: MASC 303 minimum grade of C. For mass communications majors only. Capstone course for print journalism students. Intensive study of the techniques of reporting meetings and news of public affairs. Attention will be paid to covering governmental agencies at all levels. Instruction in newspaper editing included. Quality of writing will be a paramount and continual consideration. Emphasis on fast-paced deadlines. This course may not be taken simultaneously with MASC 404, MASC 475 or MASC 496 without permission from the instructor.

MASC 404 Specialized Project Reporting

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisite: MASC 303 with a minimum grade of C. For mass communications majors only. Capstone course for print journalism students. Provides news beat experience for students reporting on complex issues facing the public in the urban community. Emphasis also on editing, team reporting, in-depth research and interviewing techniques, and use of public records. This course may not be taken simultaneously with MASC 403, MASC 475 or MASC 496 without permission from the instructor.

MASC 408 Communications Ethics and Law

Semester course; 3 lecture hours. 3 credits.
Prerequisite: MASC 203 or 204 with a minimum grade of C. Study of ethical and legal issues affecting the practice of journalism and public relations. Examination and analysis of contemporary issues and problems in conventional and new media. The philosophical foundation and principles of ethical decision-making are explored. Critical and unresolved issues are discussed within the legal and ethical framework of modern mass media practice.

MASC 409 Truth and Honor

Semester course; 3 lecture hours. 3 credits.
Prerequisites: MASC 204 minimum grade of C and 380 minimum grade of C. For mass communications majors only. A survey of laws pertaining to the creation of advertising, such as trademark and copyright, and to the effects of advertising in the culture. A discussion of ethical questions pertaining to persuasion, communication and the effects of advertising in the culture.

MASC 415 Advanced Video Journalism

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisites: MASC 363 and 367, both with minimum grades of C. Corequisite: MASC 460.

Students learn advanced field shooting and editing techniques as well as the inner workings of the television studio, including studio camera operation, advanced audio and video editing, visual storytelling, and advanced camera techniques.

MASC 423 Tourism and Hospitality Public Relations

Semester course; 3 lecture hours. 3 credits.
Prerequisite: MASC 210 with a minimum grade of C. Enrollment restricted to public relations students only. Examines the role and practice of public relations in the tourism and hospitality industries. Students will learn how to use public relations strategies and tactics to stimulate interest among travelers in destinations and specific activities. Emphasis on media relations, special events, sponsorships/partnerships and social media.

MASC 424 Sports and Entertainment Public Relations

Semester course; 3 lecture hours. 3 credits.
Prerequisite: MASC 210 with a minimum grade of C. Enrollment restricted to public relations students only. Examines the role and practice of public relations in the sports and entertainment industries. Students will learn the role of public relations in managing relationships with the news media, fans and fan groups, and other key audiences. Focus on media relations, social media, sponsorships/partnerships, promotions and community relations.

MASC 425 Public Relations Research

Semester course; 3 lecture hours. 3 credits.
Prerequisite: MASC 323 with a minimum grade of C. For mass communications majors only. An introduction to the role of research in public relations, with primary emphasis on content analysis, focus group, survey and communication audit methods and the evaluation of quantitative research data.

MASC 433 Special Events

Semester course; 3 lecture hours. 3 credits.
Prerequisite: MASC 210 with a minimum grade of C. For Enrollment restricted to public relations students only. Students learn the theory and organizational strategies of special events as a function of public relations. Topics include client consulting, objective setting, budgeting, sponsorships, vendor negotiations and follow-up procedures.

MASC 435 Crisis Communication

Semester course; 3 lecture hours. 3 credits.
Prerequisite: MASC 210 with a minimum grade of C. Enrollment restricted to public relations students only. Students learn techniques for dealing with sudden and unexpected situations that have a negative impact on organizations and their images to key constituencies. Through case studies and crisis simulation exercises, students develop strategic solutions for crisis situations. Students are provided with the insights, confidence and practical expertise needed to manage the consequences of a wide range of possible crises in ways that maintain, or even enhance, their employer's reputation.

MASC 438 Organizational Communications

Semester course; 3 lecture hours. 3 credits.
Prerequisite: MASC 425 with a minimum grade of C. Enrollment restricted to public relations students only. Focuses on the tools to communicate with employees, volunteers and special organizational internal publics,

and how those internal messages are used to achieve the goals and objectives of organizations. Students learn the theories of organizational communication and the techniques used to conduct an internal audit of the communication climate in an organization.

MASC 439 Public Relations Campaigns

Semester course; 3 lecture hours. 3 credits.
Prerequisites: MASC 333, 335, 336, 337 and 425, each with a minimum grade of C. For Enrollment restricted to public relations students only. Application of public relations theory and methods in the preparation of a plan for a public relations campaign. Special attention to the planning process including issues analysis, and application of public relations and research methods.

MASC 450 Style

Semester course; 3 lecture hours. 3-3 credits.
Prerequisites: MASC 392 and 394, both with a minimum grade of C. For mass communications majors only. An advanced, intensive study of advertising style, forming one's own sense of style and the creative process. Emphasizing strategic and creative development of advertising campaigns. Students will conceptualize advertising campaigns, execute digitally produced, comprehensive advertisements and campaign materials, and assemble a final portfolio. Culminates in a formal portfolio review with professionals from the advertising industry.

MASC 451 Invention

Semester course; 3 lecture hours. 3 credits.
Prerequisite: MASC 450 with a minimum grade of C. For mass communications majors only. An advanced, intensive study of inventiveness in the creative process. Emphasis on strategic and creative development of advertising campaigns that builds on what students learned about advertising style in MASC 450. Prepares students for post-graduate work or study. Students will conceptualize and produce advertising campaigns and assemble a final portfolio. Culminates in a formal portfolio review with professionals from the advertising industry.

MASC 459 Judgment

Semester course; 3 lecture hours. 3 credits.
Prerequisites: MASC 398 and 399 and 6 additional credits of MASC electives, all with minimum grades of C. For mass communications majors only. Application and demonstration of inspiration, innovation, advertising knowledge and skills. Designed to help students in the strategic concentration compile a strong, comprehensive body of work used in brand communications. Students will develop competence in evaluating communication concepts, market situations and client and agency concerns.

MASC 460 Advanced Television Newsgathering

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisites: MASC 363 and 367, both with minimum grade of C. Corequisite: MASC 415. Television news practicum. Using the university and the city of Richmond as their classroom, students will report, write and produce television and multimedia news stories. Electronic newsgathering and editing equipment will be utilized to create professional-caliber projects.

MASC 461 The Documentary

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisites: MASC 303, 415 and 460, each with minimum grade of C. An examination of documentary concepts through analysis of radio, television and film documentaries. The course will center on the development, writing and production of a documentary in the medium (audio or video) of the student's choice.

MASC 462 Photojournalism

Semester course; 3 lecture hours. 3 credits.
Prerequisites: MASC 363 minimum grade of C and 367 minimum grade of C. Examination of theoretical, technical and practical use of photography in communications and reporting, along with theories and legal guidelines of photojournalism. Training in news photography (both still and video) and its application in converged media. Students must have their own manually operable 35 mm film or digital (minimum 3.2 megapixels) single lens reflex cameras with at least a 50 mm lens or a zoom lens capable of 50 mm shooting. Students will use departmental video cameras.

MASC 463 Advanced Radio Newsgathering

Semester course; 3 lecture hours. 3 credits.
Prerequisites: MASC 363 minimum grade of C and 367 minimum grade of C. Radio practicum. Using the university and city of Richmond as their classroom, students will report, write and produce radio news stories. Studio and remote equipment will be utilized to create professional-caliber projects.

MASC 465 Newscasting

Semester course; 1 lecture and 4 laboratory hours. 3 credits. May be repeated once for a total of 6 credits. Prerequisites: MASC 303, 415 and 460, each with minimum grade of C. Concentrates on developing on-air skills in radio and television studio and field situations. Emphasizes journalistic principles in delivery of news, public affairs, editorial and interviews. Stresses grammar, diction and broadcast writing.

MASC 466 Television Studio Production

Semester course; 2 laboratory hours. 1 credit. May be repeated for up to 3 credits. Prerequisite: MASC 203 or 204 with minimum grade of C. Instruction and practice in basic television or studio production. Supports the production of the television broadcast journalism programming created by students within the broadcast journalism concentration.

MASC 467 Nonprofit Project Development

Semester course; 3 lecture hours. 3 credits.
Prerequisite: MASC 210 with a minimum grade of C or MASC 380 with a minimum grade of C. Students will be selected to work with area nonprofit clients to create and produce a wide variety of advertising and promotional materials. Students will develop strategy, write creative briefs, recruit teams to work with them during CreateAthon onCampus (a 24-hour creative event held during Spring Break), present work to clients and follow any deliverables through production. Strong emphasis on leadership and a commitment to working with nonprofits.

MASC 474 Diversity in the Media

Semester course; 3 lecture hours. 3 credits.
Prerequisite: MASC 101 with a minimum grade of C. Enrollment restricted to mass communications majors

and media studies minors only. Examines historical and contemporary issues associated with the presence and portrayal of selected groups in/by the media in the United States. Examines groups based on race, ethnicity, national origin, gender, sexual orientation, disability, religion and other characteristics. Issues related to diversity and diversity awareness in advertising, journalism and public relations are also explored.

MASC 475 Capital News Service

Semester course; 3 lecture hours. 3 credits.
Prerequisite: MASC 303 minimum grade of C. For mass communications majors only. Capstone course for print journalism students. Advanced journalism students cover state government and politics, including the Virginia General Assembly, the governor, regulatory agencies and elections. Students produce content for publication in statewide community newspapers and other media. Strong emphasis on fast-paced deadlines. This course may not be taken simultaneously with MASC 403, MASC 404 or MASC 496 without permission from the instructor.

MASC 480 Touch

Semester course; 3 lecture hours. 3 credits.
Prerequisites: MASC 398 minimum grade of C and 399 minimum grade of C. For mass communications majors only. Designing advertising strategies that touch the target audience and engage them in the brand. Students learn to understand the research, the consumer, the competition and the client's brand so that they can develop a strong communication strategy. This is an advanced study of the strategic side of advertising.

MASC 481 Completeness

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisites: creative advertising concentration: MASC 392 and 394, both with minimum grade of C; strategic advertising concentration: MASC 398 and 399, both with minimum grade of C. For mass communications majors only. Intensive study in the planning and preparation of advertising campaigns. Students develop complete advertising plans including research, media and creative strategies, sales promotion plans and merchandising plans.

MASC 485 Web Site Design

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisite: MASC 300, 301 or 334 with a minimum grade of C. Students will receive an introduction to the processes, principles and tools of website design, development and production. The course will focus on the development of strong interactive interfaces, animation, graphic images, text, and functional site design and organization. In this hands-on, computer-based course, students will design and develop a comprehensive site and launch it to the Internet. Increasing the students' knowledge of design principles and technical skills with Web development tools will be emphasized.

MASC 488 Strategic Communication of Health and Medical Issues

Semester course; 3 lecture hours. 3 credits.
Prerequisite: MASC 425 with a minimum grade of C. Enrollment restricted to public relations students only. Students will discuss the role of media and strategic communication in public's information-seeking behaviors and formation of attitudes, beliefs and

behaviors about health and medical issues. Closes the gap of health information disparity and enhances the communication practice of health-related organizations. Topics examined include thorough case analyses, primary and secondary research and strategic health communication design projects. The principles of strategic communication are applied to areas such as health care public relations, health audience segmentation and messaging tailored for different media forms.

MASC 491 Topics in Communications

Semester course; variable hours. 1, 2 or 3 credits per semester. May be repeated with different topics for a maximum of 9 credits. Prerequisite: MASC 203 or 204, either with a minimum grade of C. An intensive study of a specialized field of mass communications.

MASC 492 Independent Study

Semester course; variable hours. Variable credit. Maximum of 3 credits per semester; maximum total of 6 credits for all independent study courses. Prerequisite: MASC 203 or 204 with a minimum grade of C. The course is designed for students who wish to study subject matter not offered elsewhere in the mass communications' curriculum.

MASC 493 Fieldwork/Internship

Semester course; variable hours. 1, 2 or 3 credits per semester. May be repeated with different topics; maximum total of 6 credits may be applied toward graduation. Prerequisites: MASC 203 or 204, either with a minimum grade of C, and permission of internship coordinator. Selected students will receive on-the-job training under the supervision of an instructor and the employer. Internships are available in newspapers, magazines, public relations, advertising, radio and television.

MASC 496 Mobile and Social Media Journalism

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisites: MASC 303, 363 and 367, each with minimum grade of C. Capstone course for print-online journalism students. Integrates journalism skills and concepts from previous writing and reporting classes and adapts them to mobile and social media. Students work in a newsroom environment to utilize mobile devices and social media platforms to identify compelling story ideas, effectively break news and report on important news events and issues while applying theories and concepts of online social networking to journalism. Students develop their own professional social media portfolios and build online communities. This course may not be taken simultaneously with MASC 403, MASC 404 or MASC 475 without permission from the instructor.

Mathematics and Applied Mathematics

MATH 001 Elementary Algebra

Semester course; 3 lecture or 3 laboratory/tutorial hours. No credit. Prerequisite: permission of the department chair. The purpose of this course is to provide laboratory and tutorial instruction for those seeking remediation or review of high school algebra. Topics include basic properties of real numbers, operations with algebraic expressions, solution of equations and inequalities, exponents and radicals, introduction to functions and graphing.

MATH 121 Perspective Geometry

Short course (5 weeks); 3 lecture hours. 1 credit. Students will examine ways in which Renaissance artists who developed linear perspective in geometry in order to paint scenes realistically influenced the development of mathematics and geometry. Topics covered will include the foundations of projective geometry. Pascal's mystic hexagram, Brianchon's Theorem and duality. A need for higher mathematics will also be introduced and explained. MATH 121-122-123 fulfills the math requirement for art students. The sequence can be taken in any order.

MATH 122 Tessellations

Short course (5 weeks); 3 lecture hours. 1 credit. Students will examine ways in which mathematics is rooted in both natural philosophy and art by examining tiling theory. Course topics include Penrose tilings, symmetries and various other tessellations. MATH 121-122-123 fulfills the math requirement for art students. The sequence can be taken in any order.

MATH 123 Visualization

Short course (5 weeks); 3 lecture hours. 1 credit. Students will examine ways in which mathematics has been visualized artistically and will develop their own way to express a mathematical idea. Topics covered will include fractals, knots, minimal surfaces, non-Euclidean geometry and the fourth dimension. MATH 121-122-123 fulfills the math requirement for art students. The sequence can be taken in any order.

MATH 131 Introduction to Contemporary Mathematics

Semester course; 3 lecture hours. 3 credits. Prerequisite: satisfactory score on the VCU Mathematics Placement Test within the one-year period immediately preceding the beginning of the course. An exception to this policy is made in the case where the stated alternative prerequisite course has been completed at VCU. Topics include optimization problems, data handling, growth and symmetry, and mathematics with applications in areas of social choice. Major emphasis is on the process of taking a real-world situation, converting the situation to an abstract modeling problem, solving the problem and applying what is learned to the original situation. Does not serve as a prerequisite for MATH 151 or other advanced mathematical sciences courses.

MATH 141 Algebra with Applications

Semester course; 3 lecture hours. 3 credits. Prerequisites: one year of high school algebra and satisfactory score on the VCU Mathematics Placement Test within the one-year period immediately preceding the beginning of the course. An exception to this policy is made in the case where the stated alternative prerequisite course has been completed at VCU. Topics include sets, functions, exponents, logarithms, matrix algebra, systems of linear equations, inequalities, binomial theorems, sequences, series, complex numbers and linear programming.

MATH 151 Precalculus Mathematics

Semester course; 3 lecture and 1 mathematics laboratory/recitation hours. 4 credits. Prerequisite: MATH 141 or satisfactory score on the VCU Mathematics Placement Test within the one-year period immediately preceding the beginning of the course. An exception to this policy is made in the case where the stated alternative prerequisite course has been completed at VCU. Concepts and applications of

algebra and trigonometry. Topics include graphics, transformations and inverses of functions; linear, exponential, logarithmic, power, polynomial, rational and trigonometric functions.

MATH 191 Topics in Mathematics

Semester course; 1-3 credits. May be repeated for credit. A study of selected topics in mathematics. For a course to meet the general education requirements it must be stated in the Schedule of Classes. See the Schedule of Classes for specific topics to be offered each semester and prerequisites.

MATH 200 Calculus with Analytic Geometry

Continuous courses; 4 lecture hours. 4-4 credits. Prerequisite for MATH 200: MATH 151 or satisfactory score on the VCU Mathematics Placement Test within the one-year period immediately preceding the beginning of the course. Prerequisite for MATH 201: completion of MATH 200. Limits, continuity, derivatives, differentials, antiderivatives and definite integrals. Applications of differentiation and integration. Selected topics in analytic geometry. Infinite series.

MATH 201 Calculus with Analytic Geometry

Continuous courses; 4 lecture hours. 4-4 credits. Prerequisite for MATH 200: MATH 151 or satisfactory score on the VCU Mathematics Placement Test within the one-year period immediately preceding the beginning of the course. Prerequisite for MATH 201: completion of MATH 200. Limits, continuity, derivatives, differentials, antiderivatives and definite integrals. Applications of differentiation and integration. Selected topics in analytic geometry. Infinite series.

MATH 211 Mathematical Structures

Semester course; 3 lecture hours. 3 credits. Prerequisite: calculus-level placement on the VCU Mathematics Placement Test within the one-year period immediately preceding enrollment in the course or MATH 151 or MGMT 212. An alternative prerequisite course may be approved at the discretion of the academic adviser. An introduction to mathematical logic and set theory, including applications in Boolean algebras and graph theory.

MATH 230 Mathematics in Civilization

Semester course; 3 lecture hours. 3 credits. For Honors College students only. The growth, development and far-reaching applications of trigonometry, navigation, cartography, logarithms and algebra through ancient, medieval, post-Renaissance and modern times are explored. Will include methods to solve mathematical problems using various historical procedures and will involve collaboration through group projects.

MATH 255 Introduction to Computational Mathematics

Semester course; 3 lecture hours. 3 credits. Prerequisite: MATH 201. (A core course for mathematics/applied mathematics majors.) An introduction to computer algebra systems (CAS) and their use in mathematical, scientific and engineering investigations/computations. Introductory mathematical computer programming using a CAS, including implementation of problem-specific algorithms.

MATH 291 Topics in Mathematics

Semester course; 1-3 credits. May be repeated for credit. A study of selected topics in mathematics. See

the Schedule of Classes for specific topics to be offered each semester and prerequisites.

MATH 300 Introduction to Mathematical Reasoning

Semester course; 3 lecture hours. 3 credits.
Prerequisite: MATH 201. (A core course for mathematics/applied mathematics majors.) An introduction to basic concepts of mathematical reasoning and the writing of proofs in an elementary setting. Direct, indirect and induction proofs. Illustrations of the concepts include basic proofs from mathematical logic, elementary set theory, elementary number theory, number systems, foundations of calculus, relations, equivalence relations, functions and counting with emphasis on combinatorial proofs.

MATH 301 Differential Equations

Semester course; 3 lecture hours. 3 credits.
Prerequisite: MATH 201. Solutions of ordinary differential equations of first order. Solutions of higher order linear differential equations with constant coefficients and variable coefficients by the methods of undetermined coefficients and variation of parameters, solutions by Laplace transforms and applications.

MATH 302 Numerical Calculus

Semester course; 3 lecture hours. 3 credits.
Prerequisites: MATH 255 (or knowledge of a programming language/mathematical software package) and MATH 201, or permission of the instructor. An introduction to numerical algorithms for solving systems of linear equations, finding zeroes, numerical differentiation and definite integration, optimization.

MATH 303 Investigations in Geometry

Semester course; 2 lecture and 3 laboratory hours. 3 credits. Prerequisite: MATH 361. Restricted to students majoring in the liberal studies for early and elementary education in the Bachelor of Interdisciplinary Studies program. A study of topics in Euclidean geometry to include congruence, similarity, measurement, coordinate geometry, symmetry and transformation in both two and three dimensions. These topics will be investigated using manipulatives and computer software.

MATH 305 Elementary Number Theory

Semester course; 3 lecture hours. 3 credits.
Prerequisite: MATH 300. Divisibility, congruences, Euler phi-function, Fermat's Theorem, primitive roots, Diophantine equations.

MATH 307 Multivariate Calculus

Semester course; 4 lecture hours. 4 credits.
Prerequisite: MATH 201. The calculus of vector-valued functions and of functions of more than one variable. Partial derivatives, multiple integrals, line integrals, surface integrals and curvilinear coordinates. Lagrange multipliers; theorems of Green, Gauss and Stokes. Applications.

MATH 309/STAT 309 Introduction to Probability Theory

Semester course; 3 lecture hours. 3 credits.
Prerequisite: MATH 201. Completion of MATH 211 or MATH 300 (or equivalent knowledge) is strongly recommended. A study of the mathematical theory of probability, including finite and infinite sample spaces, random variables, discrete and continuous

distributions, mathematical expectation, functions of random variables and sampling distributions.

MATH 310 Linear Algebra

Semester course; 3 lecture hours. 3 credits.
Prerequisite: MATH 201. Systems of linear equations, vector spaces, linear dependence, bases, dimensions, linear mappings, matrices, determinants, quadratic forms, orthogonal reduction to diagonal form, eigenvalues and geometric applications.

MATH 327/OPER 327 Mathematical Modeling

Semester course; 3 lecture hours. 3 credits.
Prerequisite: MATH 200. Fundamental concepts of mathematical modeling. Topics may include differential equation models, optimization models and probabilistic models. Practical problems will be discussed throughout.

MATH 351 Applied Abstract Algebra

Semester course; 3 lecture hours. 3 credits.
Prerequisite: MATH 300. A survey of several areas in applied abstract algebra which have applications in computer science such as groups, codes, matrix algebra, finite fields and advanced graph theory.

MATH 361 Numbers and Operations

Semester course; 3 lecture hours. 3 credits.
Prerequisite: TEDU 101 and either MATH 131 or satisfactory score on the VCU Mathematics Placement Test within the one-year period immediately preceding the beginning of the course. Ways of representing numbers, relationships between numbers, number systems, the meanings of operations and how they relate to one another, and computation within the number systems as a foundation for algebra. Structured observations and tutoring of elementary-level students. Restricted to students majoring in the liberal studies concentration for early and elementary education in the Bachelor of Interdisciplinary Studies program.

MATH 362 Algebra and Functions

Semester course; 3 lecture hours. 3 credits.
Prerequisite: MATH 361. Topics include algebraic concepts, linear, quadratic, exponential, logarithmic, trigonometric functions including graphical modeling of physical phenomena. Attention will be given to the use of graphing technology, the transition from arithmetic to algebra, working with quantitative change, and the description and prediction of change. Structured observations and tutoring of elementary-level students. Restricted to B.I.S. students in the liberal studies for early and elementary education concentration.

MATH 380/BNFO 380/BIOL 380 Introduction to Mathematical Biology

Semester course; 3 lecture and 2 laboratory hours. 4 credits. Prerequisites: MATH 200 and BIOL 151, or permission of instructor. An introduction to mathematical biology. Various mathematical modeling tools will be covered and implemented in a range of biological areas. Additionally, the collaborative research process will be presented and discussed.

MATH 391 Topics in Mathematics

Semester course; 1-3 credits. May be repeated for credit. A study of selected topics in mathematics. See the Schedule of Classes for specific topics to be offered each semester and prerequisites.

MATH 407 Advanced Calculus

Semester course; 3 lecture hours. 3 credits.
Prerequisite: MATH 300. Theoretical aspects of calculus. Topics include properties of real numbers, countable and uncountable sets, sequences and series, limits, continuity, derivatives, and Riemann integration.

MATH 427 Excursions in Analysis: Real

Semester course; 3 lecture hours. 3 credits.
Prerequisites: MATH 307, MATH 310 and MATH 407. May be repeated once for credit with a different emphasis and permission of the instructor. Intensive study of ideas and applications from real analysis.

MATH 428 Excursions in Analysis: Complex

Semester course; 3 lecture hours. 3 credits.
Prerequisites: MATH 307, MATH 310 and MATH 407. May be repeated once for credit with a different emphasis and permission of the instructor. Intensive study of ideas and applications from complex analysis.

MATH 429 Excursions in Analysis: Applied

Semester course; 3 lecture hours. 3 credits.
Prerequisites: MATH 301, MATH 307, MATH 310 and MATH 407. May be repeated once for credit with a different emphasis and permission of the instructor. Intensive study of ideas and applications from applied analysis.

MATH 490 Mathematical Expositions

Semester course; 2 lecture hours. 2 credits.
Prerequisites: UNIV 200 or HONR 200. Restricted to seniors in mathematical sciences with at least 85 credit hours taken toward the degree. Required for all majors in the Department of Mathematics and Applied Mathematics. A senior capstone course in the major designed to help students attain proficiency in expository mathematical writing and oral presentation, which require the efficient and effective use of mathematics and the English language. Students will learn a variety of topics in mathematics, write reviews of selected award-winning mathematics papers and write a senior paper.

MATH 492 Independent Study

Semester course; variable hours. 1-4 credits.
Maximum 4 credits per semester; maximum total of 6 credits. Generally open only to students of junior or senior standing who have acquired at least 12 credits in the departmental discipline. Determination of the amount of credit and permission of instructor and department chair must be procured prior to registration for the course. The student must submit a proposal for investigating some area or problem not contained in the regular curriculum. The results of the student's study will be presented in a report.

MATH 493 Mathematical Sciences Internship

Semester course; the equivalent of at least 15 work hours per week for a 15-week semester. 3 credits. Mathematical sciences majors only with junior or senior standing. Admission by permission from the department chair. Through placement in a position in business, industry, government or the university, the student will serve as an intern in order to obtain a broader knowledge of the mathematical sciences and their applications.

Military Science

MILS 101 Military Science and Leadership: Foundations of Officership

Semester course; 1 lecture hour. 1 credit. Introduces students to fundamental components of service as an officer in the U.S. Army. Forms building blocks of progressive lessons in values, fitness, leadership and officership. Also addresses "life skills" including communications theory and practice (written and oral) and interpersonal relationships.

MILS 102 Military Science and Leadership: Introduction to Leadership

Semester course; 1 lecture hour. 1 credit. Introduces students to "life skills" of problem-solving, decision-making and leadership. Designed to help students be more effective as leaders, both immediately on campus and in the long term in either military or civilian life. Introduces students to fundamental officer skills such as map reading, land navigation, tactics and leadership values/actions. Using these basic skills, students will build a rudimentary understanding of the core competencies necessary to become an Army officer and leader.

MILS 201 Military Science and Leadership: Innovative Team Leadership

Semester course; 2 lecture hours. 2 credits. Prerequisites: MILS 101 and 102 or permission of department chair. Explores the dimensions of creative and innovative tactical leadership strategies and styles by examining team dynamics and two historical leadership theories that form the basis of the Army leadership framework. Aspects of personal motivation and team building are practiced by planning, executing and assessing team exercises, and by participating in leadership labs. The course continues to develop knowledge of leadership values and attributes through understanding Army rank, structure and duties as well as broadening knowledge of land navigation and squad tactics. Case studies provide a tangible context for learning the Soldiers Creed and Warrior Ethos as they apply in the contemporary operating environment.

MILS 202 Military Science and Leadership: Foundations of Tactical Leadership

Semester course; 2 lecture hours. 2 credits. Prerequisite: MILS 201 or permission of department chair. Examines the challenges of leading tactical teams in the complex contemporary operating environment (COE). Highlights dimensions of terrain analysis, patrolling and operation orders. Continued study of the theoretical basis of the Army leadership framework explores the dynamics of adaptive leadership in the context of military operations. Cadets develop greater self-awareness as they assess their own leadership styles and practice communication and team-building skills. COE case studies give insight into the importance and practice of teamwork and tactics in real-world scenarios.

MILS 203 Military Science and Leadership: Leader's Training Course

0-6 credits. Prerequisites: enrollment in the ROTC program, military service obligation and permission of department chair. Five-week summer course consisting of leadership training at Fort Knox, Ky. Completion of this course equates to completion of MILS 101, 102, 201 and 202, and enables students to enroll in the advanced military leadership courses. Amount of

academic credit awarded depends upon amount of basic military science credit previously earned. Travel pay and salary provided through Department of Military Science and Leadership. Graded pass/fail.

MILS 301 Military Science and Leadership: Adaptive Team Leadership

Semester course; 3 lecture hours. 3 credits. Prerequisites: MILS 101, 102, 201 and 202 (or MILS 203), permission of department chair and military service obligation. Challenges cadets to study, practice and evaluate adaptive team leadership skills as they are presented with the demands of the ROTC Leader Development and Assessment Course. Challenging scenarios related to small unit tactical operations are used to develop self-awareness and critical thinking skills. Cadets receive systematic and specific feedback on leadership abilities.

MILS 302 Military Science and Leadership: Leadership in Changing Environments

Semester course; 3 lecture hours. 3 credits. Prerequisite: MILS 301 or permission of department chair. Provides instruction and case studies that build upon leadership competencies and military skills attained in MILS 301 in preparation for future responsibilities as Army officers. Specific instruction is given in individual leader development, planning and execution of small unit operations, individual and team development, and the Army as a career choice.

MILS 306 Military Science

0 credit. Prerequisite: MILS 302 and successful completion of four basic military science courses or MILS 203 Basic Military Science for six credits. ROTC National Advanced Leadership Camp. The ROTC camp summer practicum is six weeks long. Individual and group experience for application of leadership training. Exposure to leadership situations that require decisions made under physical and mental stress conditions.

MILS 401 Military Science and Leadership: Developing Adaptive Leaders

Semester course; 3 lecture hours. 3 credits. Prerequisite: MILS 302 or permission of department chair. Develops student proficiency in planning, executing and assessing complex operations, functioning as a member of a staff, and providing performance feedback to subordinates. Cadets are given situational opportunities to assess risk, make ethical decisions and lead fellow ROTC cadets. Lessons on military justice and personnel processes prepare cadets to make the transition to becoming Army officers. MS IV (senior) cadets lead lower-level cadets. Both classroom and battalion leadership experiences are designed to prepare MS IV cadets for their first unit of assignment. Cadets identify responsibilities of key staff, coordinate staff roles and use battalion operations situations to teach, train and develop subordinates.

MILS 402 Military Science and Leadership: Leadership in a Complex World

Semester course; 3 lecture hours. 3 credits. Prerequisites: MILS 301, 302 and 401, or permission of department chair. Explores the dynamics of leading in the complex situations of current military operations in the contemporary operating environment. Cadets examine differences in customs and courtesies, military law, principles of war, and rules of engagement in the face of international terrorism.

Cadets also explore aspects of interacting with non-government organizations, civilians on the battlefield and host nation support. Course places significant emphasis on preparing cadets for Basic Officer Leadership courses and their first unit of assignment. Utilizes case studies, scenarios and "What now, Lieutenant?" exercises to prepare cadets to face the complex ethical and practical demands of leading as a commissioned officer in the U.S. Army.

Operations Research

OPER 327/MATH 327 Mathematical Modeling

Semester course; 3 lecture hours. 3 credits. Prerequisite: MATH 200. Fundamental concepts of mathematical modeling. Topics may include differential equation models, optimization models and probabilistic models. Practical problems will be discussed throughout.

OPER 427 Deterministic Operations Research

Semester course; 3 lecture hours. 3 credits. Prerequisites: CMSC 245 or 255, MATH/OPER 327 and MATH 310. Introduction to topics in optimization including linear programming, network models and integer programming. Focuses on constructing sound models and on solving them using appropriate software. Algorithms and model properties are also discussed. Students may not receive degree credit for both OPER 427 and OPER 527.

OPER 428 Stochastic Operations Research

Semester course; 3 lecture hours. 3 credits. Prerequisites: CMSC 245 or 255, MATH/STAT 309 and MATH 310. Introduction to topics in discrete-event and Monte Carlo simulation including the application of probabilistic models in real-world situations, random number generation, random variate generation and Monte Carlo integration. Students may not receive degree credit for both OPER 428 and OPER 528.

Philosophy

PHIL 101 Introduction to Philosophy

Semester course; 3 lecture hours. 3 credits. An introduction to some of the main branches of philosophy. Some of the issues that might be addressed are: What is knowledge? Is reason or experience the basis for all knowledge? Can we have knowledge of the past or of the future? What is truth? Does God exist? Is there a mental realm separate from the material realm? Are the laws of nature deterministic? Do we have free will? What makes an action morally permissible? What is the proper role of the state in regulating our lives? This course is directed primarily at first- and second-year students.

PHIL 103 Ancient Greek and Medieval Western Philosophy

Semester course; 3 lecture hours. 3 credits. A survey of Western philosophy from the ancient Greeks (e.g., Socrates, Plato and Aristotle) through the medieval period (e.g., Augustine and St. Thomas Aquinas).

PHIL 104 Modern Western Philosophy

Semester course; 3 lecture hours. 3 credits. A survey of Western philosophy from the Renaissance to the 19th century (e.g., Hobbes, Descartes, Spinoza, Leibniz, Locke, Berkeley, Hume, Kant, Hegel and Marx).

PHIL 201 Critical Thinking About Moral Problems

Semester course; 3 lecture hours. 3 credits.
Prerequisite: UNIV 112 or both ENGL 295 and HONR 200. Focuses on the development of sound critical-thinking skills and their application to a range of topics in moral philosophy, including questions about the nature of morality and whether we have reason to be moral, and also to various topics in applied ethics such as the morality of abortion, animal rights, world hunger, pornography, capital punishment, sexual behavior, environmental ethics and reverse discrimination. Credit toward graduation may be received for only one of PHIL 201, 212, 213 or 214.

PHIL 211 History of Ethics

Semester course; 3 lecture hours. 3 credits.
Prerequisite: UNIV 112 or equivalent. A philosophical investigation of the main concepts and theories of ethics and their application to fundamental moral questions, as illustrated by the ethical systems of such historically important Western philosophers as Plato, Aristotle, Augustine, Hume, Mill and Kant.

PHIL 212 Ethics and Applications

Semester course; 3 lecture hours. 3 credits.
Prerequisite: UNIV 112 or equivalent. A philosophical investigation of the main concepts and theories of ethics, with applications to fundamental moral questions as they arise in different areas. Such problems as abortion, the welfare of animals, world hunger, pornography, capital punishment, nuclear defense, sexual behavior, environmental ethics and reverse discrimination may be used as illustrations. Credit toward graduation may be received for only one of PHIL 201, 212, 213 or 214.

PHIL 213 Ethics and Health Care

Semester course; 3 lecture hours. 3 credits.
Prerequisite: UNIV 112 or equivalent. A philosophical investigation of the main concepts and theories of ethics, with applications to fundamental moral questions as they arise in health care. The following issues may be used as illustrations: abortion, euthanasia and the right to die, human experimentation, treating mental illness, genetic technologies, the concepts of health and disease, and the funding of health care. Credit toward graduation may be received for only one of PHIL 201, 212, 213 or 214.

Effective Spring 2015

PHIL 213 Ethics and Health Care

Semester course; 3 lecture hours. 3 credits.
Prerequisite: UNIV 112 or both ENGL 295 and HONR 200. A philosophical investigation of the main concepts and theories of ethics, with applications to fundamental moral questions as they arise in health care. The following issues may be used as illustrations: abortion, euthanasia and the right to die, human experimentation, treating mental illness, genetic technologies, the concepts of health and disease, and the funding of health care. Credit toward graduation may be received for only one of PHIL 201, 212, 213 or 214.

PHIL 214 Ethics and Business

Semester course; 3 lecture hours. 3 credits.
Prerequisite: UNIV 112 or equivalent. A philosophical investigation of the main concepts and theories of ethics, with applications to fundamental moral questions as they arise in business. The following issues may be used as illustration: affirmative action,

investment in unethical companies or countries, product safety, whistle blowing and advertising. Credit toward graduation may be received for only one of PHIL 201, 212, 213 or 214.

PHIL 221 Critical Thinking

Semester course; 3 lecture hours. 3 credits. An introduction to inductive and deductive reasoning, with emphasis on common errors and fallacies.

PHIL 222 Logic

Semester course; 3 lecture hours. 3 credits. An evaluation of deductive arguments utilizing the methods of symbolic logic.

PHIL 230 Reason, Science and the Self

Semester course; 3 lecture hours. 3 credits. Open to Honors College students only. The reasonableness of a belief often depends on the arguments that support it. One primary goal of this course is to sharpen the abilities to identify, analyze and assess arguments. Another primary goal is to show how to apply critical reasoning skills to philosophical explorations of the nature of science, knowledge and personal identity.

PHIL 250 Thinking About Thinking

Semester course; 3 lecture hours. 3 credits.
Prerequisite: UNIV 112 or equivalent. An interdisciplinary course about thinking. Covers the development of the principles of reasoning, such questions as how thinking relates to behavior and brain activity and how to think about specific areas of our lives, such as science, morality, religion, the arts and the law.

Effective Spring 2015

PHIL 250 Thinking About Thinking

Semester course; 3 lecture hours. 3 credits.
Prerequisite: UNIV 112 or both ENGL 295 and HONR 200. An interdisciplinary course about thinking. Covers the development of the principles of reasoning, such questions as how thinking relates to behavior and brain activity and how to think about specific areas of our lives, such as science, morality, religion, the arts and the law.

PHIL 291 Topics in Philosophy

Semester course; variable hours. 1-4 credits.
Prerequisite: as specified in the Schedule of Classes or written permission of instructor. An introductory study of an individual philosopher, a particular philosophical problem or a narrowly defined period or school. See the Schedule of Classes for specific topics to be offered each semester.

PHIL 301 Mind and Reality

Semester course; 3 lecture hours. 3 credits.
Prerequisites: 9 credits in philosophy including PHIL 221 or PHIL 222, and one of PHIL 101, PHIL 103 or PHIL 104, or permission of instructor. An examination of central metaphysical issues, for example, the mind-body problem, free will, causality, action, realism and the problems of universals.

PHIL 302 Reason and Knowledge

Semester course; 3 lecture hours. 3 credits.
Prerequisites: 9 credits in philosophy including PHIL 221 or PHIL 222, and one of PHIL 101, PHIL 103 or PHIL 104, or permission of instructor. An examination of central epistemological issues, for example, the problem of justification, empirical knowledge, perception, rationality and truth.

PHIL 303 Philosophy of Language

Semester course; 3 lecture hours. 3 credits.
Prerequisites: 9 credits in philosophy including PHIL 222 and 6 additional credits, at least 3 of which must be from PHIL 101, PHIL 103 or PHIL 104, or permission of the instructor. An examination of central issues in the philosophy of language; for example, the nature of meaning and reference, reductionism, properties of languages and the character of artificial symbols systems.

PHIL 320 Philosophy of Law

Semester course; 3 lecture hours. 3 credits.
Prerequisites: 9 credits in philosophy, which must include PHIL 221 or PHIL 222, and one of PHIL 201, PHIL 211, PHIL 212, PHIL 213, or PHIL 214, or permission of instructor. A critical examination of the nature of law and criminal justice in the light of important human values. The following topics will be considered: the nature of law and legal reasoning, the legal enforcement of morality, and such controversies as punishment versus rehabilitation and the right to due process versus the need for public safety.

PHIL 322/RELS 322 Tibetan Buddhism

Semester course; 3 lecture hours. 3 credits. A basic introduction to the history, development and mythology of the Buddhism of Tibet focusing on the Indian heritage and shared basis of all Buddhist practices, a clear identification of the three vehicles found in Buddhism, and a careful consideration of the path of the Bodhisattva, the hero of Great Vehicle Buddhism.

PHIL 326/RELS 326 Existentialism

Semester course; 3 lecture hours. 3 credits.
Prerequisites: 3 credits in philosophy (exclusive of PHIL 221 and PHIL 222) or permission of instructor. An examination of the nature of truth, freedom, responsibility, individuality and interpersonal relations as found in some principal writings of Kierkegaard, Nietzsche, Jaspers, Sartre, Heidegger, Camus, Buber and Marcel.

PHIL 327 Ethical Theory

Semester course; 3 lecture hours. 3 credits.
Prerequisites: 9 credits in philosophy, which must include PHIL 221 or PHIL 222, and one of PHIL 201, PHIL 211, PHIL 212, PHIL 213, or PHIL 214, or permission of instructor. A study of the problems of philosophical ethics, including relativism, egoism, utilitarianism, intrinsic value and the meaning and justification of ethical principles. Both historical and contemporary thinkers will be considered.

PHIL 331 Philosophy of Science

Semester course; 3 lecture hours. 3 credits.
Prerequisites: 3 credits of philosophy and 6 credits of natural sciences courses. An examination of the bases of scientific inquiry in both the natural and social sciences; including a study of such topics as hypothesis formation and testing, and the nature of scientific laws, theories and explanations.

PHIL 335 Social and Political Philosophy

Semester course; 3 lecture hours. 3 credits.
Prerequisites: 9 credits in philosophy, which must include PHIL 221 or PHIL 222, and one of PHIL 201, PHIL 211, PHIL 212, PHIL 213, or PHIL 214, or permission of instructor. A critical examination of political power and of the relationship between the individual and society. Possible topics include:

anarchism and the justification of having a state at all; political views about what sort of state is justified (e.g., conservatism, liberalism, communitarianism, feminism, Marxism); private vs. collective property; market vs. planned economies; democracy vs. totalitarianism; and civil disobedience and revolution.

PHIL 340 Philosophy for Children

Semester course; 3 lecture hours. 3 credits.
Prerequisites: two philosophy courses, which must include at least one of PHIL 101, 103 or 104. A service-learning course requiring at least 15 hours of service in which students will be required to lead philosophical discussions with primary/secondary schoolchildren. An analysis of perennial philosophical questions and problems with the aim of introducing them to children. Some of the questions that might be addressed include: What is happiness? What is justice? What is a mind? Can a mind exist apart from a body? Can machines think? What is time? What is knowledge? What are the limits of human knowledge?

PHIL 342/RELS 342 Buddhist Reasoning and Debate

Semester course; 4 lecture hours. 4 credits.
Prerequisite: RELS/INTL 311. A basic introduction to perception, logic and epistemology in Buddhist thought. The course is designed to convey basic reasoning skills including formation of arguments, checking arguments for validity, and developing techniques and strategies for rational discourse.

PHIL 391 Topics in Philosophy

Semester course; variable hours. 1-4 credits.
Prerequisite: as specified in the Schedule of Classes or permission of instructor. A study of an individual philosopher, a particular philosophical problem or a narrowly defined period or school. See the Schedule of Classes for specific topics to be offered each semester.

PHIL 408/RELS 408 Indian Tradition

Semester course; 3 lecture hours. 3 credits.
Prerequisites: At least six credits in philosophy or religious studies courses. A systematic analysis of the major theories of Indian religious and philosophical thought: Vedas, Upanishads, Gita, Charvaka, Jainism, Buddhism, the six systems of Hinduism and contemporary development.

PHIL 410/RELS 410/INTL 410 The Chinese Tradition in Philosophy

Semester course; 3 lecture hours. 3 credits. A study of the development of Confucianism, of alternative ways of thought prior to the fall of the Han Dynasty and of neo-Confucianism. The systems of thought are examined in the light of their social, political and religious impact on China, Korea and Japan.

PHIL 412/RELS 412/INTL 412 Zen Buddhism

Semester course; 3 lecture hours. 3 credits.
Prerequisite: UNIV 200 or HONR 200. A study of Zen Buddhism, including backgrounds in Indian philosophy and practice, development in China and Korea, and present-day Zen theory and practice in Japan and in Western countries.

PHIL 421 Aesthetics

Semester course; 3 lecture hours. 3 credits.
Prerequisites: 3 credits in philosophy (exclusive of PHIL 221 and PHIL 222) or permission of instructor. A critical survey of philosophies of art from antiquity to the 20th century. Topics include: the nature of art,

creativity, aesthetic experience and aesthetic judgments.

PHIL 430/RELS 430 Philosophy of Religion

Semester course; 3 lecture hours. 3 credits.
Prerequisites: 3 credits in philosophy (exclusive of PHIL 221 and PHIL 222) or permission of instructor. A critical analysis of such topics as the concept of God, arguments for the existence of God, the problem of evil, the concept of faith, religious language and the conceptual problems posed by the plurality of religions.

PHIL 440/RELS 440 Mysticism

Semester course; 3 lecture hours. 3 credits.
Prerequisite: UNIV 200 or HONR 200. A critical analysis of the varieties of mysticism in world religions. Arguments for and against mysticism will be emphasized. Mysticism will be related to art, psychology, science, philosophy, theology and magic.

PHIL 490 Seminar in Philosophy

Semester course; 3 lecture hours. 3 credits. May be repeated with different topics for maximum of 6 credits. Prerequisite: one of PHIL 301, 302, 303, 320, 327, 335 or permission of instructor in exceptional cases. Research and analysis of selected philosophical topic in a seminar setting. Must be taken at least once as a senior (i.e., after the completion of at least 85 credit hours toward the degree) to satisfy the capstone requirement.

PHIL 492 Independent Study

Semester course; variable hours. Variable credit. Maximum of 6 credits per semester; maximum total of 12 credits for all independent study courses. Open generally to students of only junior or senior standing who have acquired at least 12 credits in the departmental discipline. Determination of the amount of credit and permission of instructor and department chair must be procured prior to registration of the course. An independent study course to allow interested majors in philosophy to do research, under the direction of a professor qualified in that field, in an area of major interest.

PHIL 496 Senior Research Project

Semester course; 1-4 credits. Prerequisites: Senior status; two courses from PHIL 301, 302, 303, 320, 327, 335, 391; and written approval by faculty supervisor. An individual research project to develop a polished journal-length research paper. This course is intended primarily for students who wish to develop a dossier paper for submission to a philosophy graduate program.

Physics

PHYS 101 Foundations of Physics

Semester course; 3 lecture hours. 3 credits. For non-science majors. Introduction to the fundamental ideas of physics. The course covers selected topics in mechanics, heat, optics, electricity and magnetism and modern physics. Not applicable toward the physics major. An optional laboratory may be taken with this course. See PHYZ 101L.

PHYS 103 Elementary Astronomy

Semester course; 3 lecture hours. 3 credits. A descriptive approach to astronomy dealing with basic features of our solar system, our galaxy and the universe. Not applicable toward physics major. An

optional laboratory may be taken with this course. See PHYZ 103L.

PHYS 107 Wonders of Technology

Semester course; 5 lecture/laboratory/recitation hours. 4 credits. Introduction to physics concepts involved in everyday technological applications. The course covers selected topics in mechanics, heat, optics, electricity and magnetism, and modern physics by depicting their role in common devices. The laboratory focuses on applications of physics principles to everyday real-life situations. Not applicable toward the physics major.

PHYS 201 General Physics

Continuous courses; 3 lecture and 3 laboratory hours. 4-4 credits. Prerequisite: MATH 151. Completion of PHYS 201 to enroll in PHYS 202. Designed primarily for life-science majors. First semester: basic concepts of motion, waves and heat. Second semester: basic concepts of electricity, magnetism, light and modern physics. Not applicable toward physics major.

PHYS 202 General Physics

Continuous courses; 3 lecture and 3 laboratory hours. 4-4 credits. Prerequisite: MATH 151. Completion of PHYS 201 to enroll in PHYS 202. Designed primarily for life-science majors. First semester: basic concepts of motion, waves and heat. Second semester: basic concepts of electricity, magnetism, light and modern physics. Not applicable toward physics major.

PHYS 207 University Physics I

Semester course; 3 lecture, 1 recitation and 3 laboratory hours. 5 credits. Prerequisite: MATH 200 or permission of instructor. A vector- and calculus-based introduction to the fundamental concepts of mechanics, heat and wave motion.

PHYS 208 University Physics II

Semester course; 3 lecture, 1 recitation and 3 laboratory hours. 5 credits. Prerequisite: PHYS 207. Corequisite: MATH 201. A vector- and calculus-based introduction to the fundamentals of electricity, magnetism and optics.

PHYS 215 Science, Technology and Society

Semester course; 3 lecture hours. 3 credits. Examination of scientific breakthroughs that have led to transformational technologies that are continuing to impact society today. Topics include a historical perspective, an understanding of scientific principles and technologies and an examination of how such discoveries have changed society.

PHYS 291 Topics in Physical Science

Semester course; 1-3 lecture or laboratory hours. 1-3 credits per semester. A study of a selected topic in physics, astronomy, geology, meteorology or oceanography. Not applicable toward physics major. See the Schedule of Classes for specific topics to be offered each semester and prerequisites.

PHYS 301 Classical Mechanics I

Semester course; 3 lecture hours. 3 credits.
Prerequisites: PHYS 208 and MATH 307. Corequisite: MATH 301. Review of vector calculus. Newtonian mechanics: single particle, oscillations, motion under central forces and dynamics of a systems of particles.

PHYS 302 Classical Mechanics II

Semester course; 3 lecture hours. 3 credits.
Prerequisites: PHYS 301 and MATH 301. Motion in

noninertial frames, dynamics of rigid bodies, coupled oscillators, continuous systems and wave equations in one dimension.

PHYS 307/MHIS 307 The Physics of Sound and Music

Semester course; 3 lecture hours. 3 credits.

Prerequisites: A 100- or 200-level physics course or equivalent and the ability to read music or sing or play a musical instrument, or permission of instructor. Basics of the physics of waves and sound. Fourier synthesis, tone quality, human ear and voice, musical temperament and pitch, physics of musical instruments, electronic synthesizers, sound recording and reproduction, room and auditorium acoustics. Not applicable toward the physics major.

PHYS 315/ENVS 315 Energy and the Environment

Semester course; 3 lecture hours. 3 credits.

Prerequisite: junior or senior standing. A study of society's demands for energy, how it is currently being met, the environmental consequences thereof and some discussion of alternatives. Open to non-physics majors; not applicable to the physics major.

PHYS 320 Modern Physics

Semester course; 3 lecture hours. 3 credits.

Prerequisites: PHYS 208 and MATH 307. Corequisite: MATH 301. Foundations of modern physics including special relativity, thermal radiation and quantization, wave-particle duality of radiation and matter, Schrodinger equation, atomic, nuclear and particle physics, and molecular structure and spectra. A continuation of PHYS 208.

PHYS 325 Visualization of Physics Using Mathematica

Semester course; 3 lecture hours. 3 credits.

Prerequisite: PHYS 320 or permission of instructor. Visualization of various areas of physics using the Mathematica language for performing numerical calculations and producing graphics and animations. Examples will be taken from classical mechanics, classical electromagnetism, modern physics, statistical mechanics and condensed matter physics.

PHYS 340 Statistical Mechanics and Thermodynamics

Semester course; 3 lecture hours. 3 credits.

Prerequisites: PHYS 301 and MATH 301. Microscopic theory of temperature, heat and entropy, kinetic theory, multicomponent systems, and quantum statistics. Mathematical relationships of thermodynamics.

PHYS 351 Guided Inquiry for University Physics I

Semester course; 1 lecture and 1 recitation hour. 1.5 credits. Prerequisites: PHYS 207 and permission of instructor. Student learning assistants aid in recitation sections of PHYS 207 University Physics I using guided inquiry and group-based activities. Further develops the core skills of PHYS 207. Introduces students to the principles of active and collaborative learning in physics through practical, hands-on problem-solving, class discussions and demonstrations.

PHYS 352 Guided Inquiry for University Physics II

Semester course; 1 lecture and 1 recitation hour. 1.5 credits. Prerequisites: PHYS 208 and permission of

instructor. Student learning assistants aid in recitation sections of PHYS 208 University Physics II using guided inquiry and group-based activities. Further develops the core skills of PHYS 208. Introduces students to the principles of active and collaborative learning in physics through practical, hands-on problem-solving, class discussions and demonstrations.

PHYS 376 Electromagnetism

Semester course; 3 lecture hours. 3 credits.

Prerequisites: PHYS 301 and MATH 301. Electrostatics, magnetism and electromagnetic properties of matter, Maxwell's equations, electromagnetic waves, boundary conditions, and polarization.

PHYS 380 Quantum Physics I

Semester course; 3 lecture hours. 3 credits.

Prerequisites: PHYS 320 and MATH 301, or permission of instructor. Brief introduction to the correspondence between classical and quantum mechanics, Schrodinger wave equation, operator methods in quantum mechanics, angular momentum and conservation laws, solution to harmonic oscillator and the hydrogen atom, magnetic dipole momentum and spin.

PHYS 391 Topics in Physics

Semester course; 1-3 lecture hours. 1-3 credits per semester. Maximum total of 6 credits. In-depth study of a selected topic in physics or physics-related technology, usually at a level requiring only elementary algebra. Not applicable toward physics major. See the Schedule of Classes for specific topics to be offered each semester and prerequisites.

PHYS 397 Directed Study

Semester course; variable hours. 1-3 credits per semester. Maximum of 3 credits applicable toward physics major requirement; maximum total of 4 credits. Open to nonmajors. Determination of amount of credit and permission of instructor must be obtained before registration of course. Intended to allow nonmajors and majors to examine in detail an area of physics or physics-related technology not otherwise available in upper-level courses. May involve either directed readings or directed laboratory work.

PHYS 420 Quantum Physics II

Semester course; 3 lecture hours. 3 credits.

Prerequisite: PHYS 380 or permission of instructor. Transition rates, addition of angular momentum, multi-electron atoms-ground state, X-ray and optical excitations, time independent perturbation theory, relativistic hydrogen atom and the structure of atoms, collision theory, nuclear structure, elementary particles and their symmetries.

PHYS 422 Optics

Semester course; 3 lecture hours. 3 credits.

Prerequisite: PHYS 376 or permission of instructor. Comprehensive study of propagation of light, including geometrical optics, polarization, interference, diffraction, Fourier optics and quantum optics.

PHYS 440 Introduction to Condensed Matter Physics

Semester course; 3 lecture hours. 3 credits.

Prerequisites: PHYS 340 and 380. Corequisite: PHYS 376. Structure and bonding in solids, phonons, free

electron Fermi gas, energy bands, semiconductors, Fermi surface, optical properties and magnetism.

PHYS 450 Senior Physics Laboratory

Semester course; 1 lecture and 4 laboratory hours. 3 credits. Prerequisites: PHYS 301 and 320, and PHYZ 320. Experiments in condensed matter physics with an introduction to the instrumentation and data analysis used in the research laboratory.

PHYS 490 Seminar in Conceptual Physics

Semester course; 1 lecture and 1 recitation hours. 1 credit. Prerequisites: PHYS 301 and 320, and PHYZ 320. Corequisites: PHYS 340, 376 and 380. Attend weekly physics colloquia, practice oral presentation of ideas and problems. Assessment of general physics background.

PHYS 491 Topics in Physics

Semester course; 3 lecture hours. 3 credits. Maximum of 3 credits applicable toward physics major requirement; maximum total of 6 credits. An in-depth study of a selected topic in physics. See the Schedule of Classes for specific topics to be offered each semester and prerequisites.

PHYS 492 Independent Study

Semester course; variable hours. 1-3 credits per semester. Maximum of 3 credits applicable toward physics major requirement; maximum total of 8 credits. Open generally to students of only junior or senior standing who have acquired at least 12 credits in the departmental discipline. Determination of the amount of credit and permission of instructor and department chair must be procured prior to registration of the course. Independent projects in experimental or theoretical physics.

Physics Lab

PHYZ 101 Foundations of Physics Laboratory

Semester course; 2 laboratory hours. 1 credit. Corequisite: PHYS 101. An optional laboratory consisting of experiments and activities correlated with PHYS 101.

PHYZ 103 Elementary Astronomy Laboratory

Semester course; 2 laboratory hours. 1 credit. Pre- or corequisite: PHYS 103. An optional laboratory course consisting of experiments and activities related to PHYS 103.

PHYZ 320 Modern Physics Laboratory

Semester course; 3 laboratory hours. 1 credit. Pre- or corequisite: PHYS 320. Experimental work correlated with PHYS 320.

Political Science

POLI 103 U.S. Government

Semester course; 3 lecture hours. 3 credits. A study of American national government focusing on its underlying political ideas, constitutional basis, major institutions and their interaction in the determination of public policy.

POLI 105/INTL 105 International Relations

Semester course; 3 lecture hours. 3 credits. An introductory analysis of interstate relations and world affairs. Attention focuses on theories of international politics, military capabilities and their application,

international organizations, global economic trends, domestic sources of state behavior and other selected issues as appropriate.

POLI 107 Political Theory

Semester course; 3 lecture hours. 3 credits. Introduces students to the great thinkers and ideas of political theory. Provides an analysis of the relationship between ethics and politics in contemporary democracy and current challenges to traditional democratic theory. Topics discussed may include the nature of human existence and civilization; political obligations between the state and the citizen and among citizens; attempts to justify authority; the content and uses of power; and the right to disobedience and resistance, freedom, social justice, and equality.

POLI 109 Comparative Politics

Semester course; 3 lecture hours. 3 credits. Introduces students to the ways in which societies around the world govern themselves. Covers such topics as the historical evolution of the political system, political processes and institutions, and key issues in contemporary public policy for a globally representative group of 10 to 15 countries.

POLI 201 Introduction to Politics

Semester course; 3 lecture hours. 3 credits. This course examines the basic concepts involved in the study of politics. Topics include nature of the state, purpose of government, justice, power, etc.

POLI 205/SOCY 205 Introduction to Social Science Computing

Short course; 4 lecture/laboratory hours. 5 weeks. 1 credit. An introduction to the use of SPSS for storage, retrieval and exploration of social science data.

POLI 301 U.S. Parties and Elections

Semester course; 3 lecture hours. 3 credits. An overview of U.S. political parties and elections. Topics will include the history, organization and methods of U.S. political parties, presidential nominations and elections; Congressional elections.

POLI 302/AFAM 302 Politics of the Civil Rights Movement

Semester course; 3 lecture hours. 3 credits. The main objectives of the course are to introduce and examine the personalities and activities of the modern Civil Rights Movement. The course provides the historical background leading up to the peak years of the struggle for racial equality in America.

POLI 303 Public Opinion, Polling and the Media

Semester course; 3 lecture hours. 3 credits. Study of the interplay among the mass media, political campaigns and public opinion. Topics include public opinion and its measurement, how campaigns use public opinion polling and the impact of the media on public opinion.

POLI 306 The Congress

Semester course; 3 lecture hours. 3 credits. A study of the behavior of legislators and the structures and processes of legislative decision making in the U.S. Congress. Analysis will include both the internal and external environment of congressional policy making, and an assessment of the impact of congressional policy.

POLI 308 U.S. Presidency

Semester course; 3 lecture hours. 3 credits. A political and institutional study of the chief executive, focusing especially on the presidential personality and relations with Congress, the bureaucracy, the courts and the shaping of domestic and foreign policy.

POLI 310 Public Policy

Semester course; 3 lecture hours. 3 credits. An analytical survey of policy formulation and implementation in the United States, together with an examination of the impact of policy upon individuals and groups in American society.

POLI 311/ENVS 311 Politics of the Environment

Semester course; 3 lecture hours. 3 credits. An exploration of the current controversy about environmental politics and the issues and crisis it centers on. Special attention will be given to the constitutional, political and geographical factors in the development of environmental policy and the organized effort to deal with governmental actions and inaction and its impact on policy outcomes.

POLI 314 U.S. Constitutional Law

Semester course; 3 lecture hours. 3 credits. A survey of the development of the Constitution through judicial interpretation. Topics to be covered include an introduction to the operation of the Supreme Court, decisions on federalism, the powers of Congress, the president, the judiciary and civil rights and civil liberties.

POLI 315 Courts and Politics

Semester course; 3 lecture hours. 3 credits. Prerequisite: POLI 314. A study of theories and models of judicial decision-making in the Supreme Court, focusing on judicial structure and procedures, policy-making analysis, political ideology, and judicial activism.

POLI 316/GSWS 316 Women and the Law

Semester course; 3 lecture hours. 3 credits. This course will introduce students to the history, politics and status of women under the American legal system. Topics to be covered may include equal protection, sexual violence, the particular rights of women of color and lesbians, reproductive rights, women criminals and women in the legal profession.

POLI 318/AFAM 318/GSWS 318 Politics of Race, Class and Gender

Semester course; 3 lecture hours. 3 credits. A study of the racial, class and gender influences on the history and development of political values, conflicts, processes, structures and public policy in the United States.

POLI 319/GSWS 319 Women and American Politics

Semester course; 3 lecture hours. 3 credits. This course analyzes the participation of women in American politics. Attention is given to both women's historical and contemporary roles in politics, their participation as voters and citizens, and their behavior as candidates and office holders. Additional topics may include workplace, family and education issues and reproductive rights.

POLI 320/SOCY 320 Research Methods in the Social Sciences

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Current methods of research in the social sciences. Includes a brief introduction to the use of SPSS for storage, retrieval and exploration of social science data.

POLI 321 City Politics

Semester course; 3 lecture hours. 3 credits. An examination of urban political power and influence, governance, and public policy. Topics include: power and influence, governmental structures and the political process, public policy, and service delivery.

POLI 322 State and Local Government and Politics

Semester course; 3 lecture hours. 3 credits. An examination of the politics and governance of states and localities. Attention is devoted to political culture, interest groups, political parties, the legislative, executive and judicial components of state government, along with the structure and political processes of local governments.

POLI 323 Virginia Government and Politics

Semester course; 3 lecture hours. 3 credits. An examination of Virginia state government and politics, with appropriate attention given to political culture, interest groups, political parties, the media and the legislative, executive and judicial branches of government.

POLI 329 Intergovernmental Relations

Semester course; 3 lecture hours. 3 credits. An examination of vertical and horizontal intergovernmental relations. Attention will be given to the major variants of federalism. The role of categorical and block grants in programmatic federalism will be assessed. Trends in intergovernmental relations will be advanced.

POLI 331 Public Administration

Semester course; 3 lecture hours. 3 credits. A study of the concepts and practices of public administration in the United States. Particular attention will be given to the administrative procedures and practices of the national government and of the government in Virginia.

POLI 341 History of Political Thought

Semester courses; 3 lecture hours. 3-3 credits. A survey of political thought from the time of Plato to the present. First semester: leading political ideas of the ancient and medieval periods. Second semester: modern and contemporary thought.

POLI 342 History of Political Thought

Semester courses; 3 lecture hours. 3-3 credits. A survey of political thought from the time of Plato to the present. First semester: leading political ideas of the ancient and medieval periods. Second semester: modern and contemporary thought.

POLI 343/AFAM 343 Black Political Thought

Semester course; 3 lecture hours. 3 credits. An historical and sociological perspective on the political and social ideas of black thinkers from David Walker to the present.

POLI 344 Contemporary Political Theory

Semester course; 3 lecture hours. 3 credits. This course provides a survey of recent trends in political theory. It examines updates of the major ideological traditions, arguments about the nature of modernity and recent developments in environment, feminist and non-Western thought.

POLI 345/AFAM 345 African-American Politics

Semester course; 3 lecture hours. 3 credits. In this course, students will discuss and analyze the dynamics of the black experience in the American political system. The status of African-Americans in the United States and the struggle for racial equality will be examined, as will the manner in which American institutions have responded to these phenomena. Students will examine the race/class metric in African-American politics, particularly policies of Affirmative Action as a black progress strategy.

POLI 351/INTL 351 Governments and Politics of the Middle East

Semester course; 3 lecture hours. 3 credits. A comparative analysis of political systems in the Middle East including the study of contemporary aspects of traditionalism, the political nature of transition, the instruments of political modernization and evolution and revolution in the political process of Middle Eastern states. The course will explore the primary bases of cleavage and conflict and the principal forces that shape the policies and political dynamics of the region.

POLI 352/INTL 352 European Governments and Politics

Semester course; 3 lecture hours. 3 credits. A comparative study of the political systems of selected western and eastern European countries.

POLI 353/INTL 353 Latin American Governments and Politics

Semester course; 3 lecture hours. 3 credits. A survey of politics characteristic of Latin American systems, including democratic reformism, military authoritarianism and revolutionary socialism. The course also examines the contemporary problems of fledgling democracies as they cope with economic and debt crises and various opposition challenges.

POLI 354/INTL 354 Russian and Post-Soviet Politics

Semester course; 3 lecture hours. 3 credits. A study of the origins, institutions, processes and disintegration of the Soviet political system, and the ongoing reform efforts during the post-Soviet period. Special emphasis is placed on the politics of the transition to a democratic political system and a market economy. Other topics include nationality issues, social problems and foreign policy.

POLI 355/INTL 355 Asian Governments and Politics

Semester course; 3 lecture hours. 3 credits. A comparative analysis of the politics and governments of major Asian states, with a focus on Japan, China and India.

POLI 356/AFAM 356/INTL 356 Government and Politics of Africa

Semester course; 3 lecture hours. 3 credits. This course will introduce the student to the basic outlines of

government and politics in Africa. The course will consider such topics as colonialism, elitism and nationalism and modernization strategies. Using the comparative approach, the course will primarily focus on West, East and Central Africa.

POLI 357/AFAM 357/INTL 357 Politics of Southern Africa

Semester course; 3 lecture hours. 3 credits. An examination of racial and political developments in the southern tip of Africa. While South Africa will be the primary focus of analysis, other countries in the region such as Zimbabwe, Angola and Mozambique will be studied.

POLI 358/INTL 358 Concepts of Comparative Government

Semester course; 3 lecture hours. 3 credits. Comparative study of politics and governments. Introduces concepts and theories used in the study of political systems. Topics include democratization and democratic governance, the role of the state, one-party and military regimes, revolution, and economic and political development.

POLI 361/INTL 361 Issues in World Politics

Semester course; 3 lecture hours. 3 credits. An exploration of several significant issues in world politics. Topics may include peacekeeping and collective security, international economic competitiveness, global environmental politics as well as selected others. Topics will vary with current events and trends in the international arena.

POLI 362/INTL 362 International Organizations and Institutions

Semester course; 3 lecture hours. 3 credits. A study of the background development structure and operations of organizations and institutions such as the United Nations, the European Community and the Organization of American States.

POLI 363/INTL 363 U.S. Foreign Policy

Semester course; 3 lecture hours. 3 credits. An analytical survey of processes and practices in the formulation of U.S. foreign policy, including an introduction to the goals, problems of implementation and current challenges faced by policy makers.

POLI 364/INTL 364 Vietnam

Semester course; 3 lecture hours. 3 credits. An analysis of the complete record of the conflict in Vietnam. The primary focus will be on the period of United States involvement. The course will examine closely how and why the United States became involved in Vietnam and what impact the Vietnam war has had on political institutions and behavior. In particular, the course will examine what impact the period of U.S. involvement has had upon U.S. foreign policy. The course also will consider additional topics including: public opinion and the war, the relationship between president and Congress in light of the war and contemporary U.S. politics as a backlash against the political movements of the 1960s.

POLI 365/INTL 365 International Political Economy

3 lecture hours. 3 credits. A survey of both theoretical and current policy issues in international political economy. Theories to be covered include liberalism, mercantilism, Marxism, regionalism, world systems theory and others. Policy issues include differing styles

of capitalism in the industrialized world, the political economy of development, the politics of international corporate alliances and others.

POLI 366/GSW 366/INTL 368 Women and Global Politics

Semester course; 3 lecture hours. 3 credits. A study of women and global politics, providing both a feminist re-examination of traditional international-relations theories and a comparative analysis of the political, legal and economic status of the world's women. The impact of women on global political institutions such as the United Nations will be addressed as well as other feminist and grass roots means of taking political action.

POLI 367/CRJS 367/HSEP 301 Terrorism

Semester course; 3 lecture hours. 3 credits. Prerequisites: HSEP 101, POLI 103 and INTL/POLI 105, or permission of instructor. A survey of the modern problem of terrorism with an emphasis on the political nature of terrorist acts. Examines the history of terrorism, domestically within the U.S. and internationally, the role of religion, the structures and operations of terrorist organizations, as well as counterterrorism policies and policy making.

POLI 370 Nonprofit Organizations and Society

Semester course; 3 lecture hours. 3 credits. Examines the history and foundations of the nonprofit agency in the U.S. and abroad. Compares and contrasts relationships between business, government and the nonprofit sector. Discusses requirements for formalizing and managing nonprofit organizations from the perspectives of the volunteer board and employees. Examines issues of accountability, policy, research and resource development.

POLI 372 Ethics, Law and Governance

Semester course; 3 lecture hours. 3 credits. Examines how legal, legislative and public policy issues affect the development and growth of nonprofit organizations. Examines ethical principals and legal issues related to personnel and employment, as well as the goals of advocacy and its importance to nonprofit practitioners.

POLI 374 Financial Management for Nonprofits

Semester course; 3 lecture hours. 3 credits. Examines how nonprofit organizations are influenced by prices, distribution of goods and services and the distribution of income and wealth. Topics include financial-statement analysis, time-value of money, budgeting concepts and techniques, securities valuation, long- and short-term financial planning issues and working capital management. Designed to develop skills in decision-making in financial management of the nonprofit organization.

POLI 391 Topics in Political Science

Semester course; 3 lecture hours. 3 credits. Maximum total of 9 credits in all departmental topics courses may be applied to the major. An intensive survey of a specialized field of political interest. See the Schedule of Classes for specific topics to be offered each semester.

POLI 420 Seminar in Urban Politics

Semester course; 3 lecture hours. 3 credits. Attention will be devoted to concerns bearing on community power and influence, the dynamics of the urban

political process, the nature of urban public policy and metropolitan governmental structure.

POLI 432 Bureaucratic Politics

Semester course; 3 lecture hours. 3 credits.
Prerequisite: POLI 331. An analysis of the nature of bureaucracy and bureaucratic phenomena in American governments; the role and involvement of the bureaucracy in politics and the policy-making process. Primary focus on theories and approaches to understanding the central role of bureaucracy in modern society and its use and abuse of power.

POLI 448 Scope and Method of Political Science

Semester course; 3 lecture hours. 3 credits.
Prerequisites: POLI 103 or permission of instructor. A comprehensive and systematic study of the philosophy of political science, various theories seeking to explain political phenomena and some of the techniques of political analysis.

POLI 452/INTL 452 Seminar in the Politics of Developing Areas

Semester course; 3 lecture hours. 3 credits. Analysis of the processes of political and economic development. Includes a study of various challenges facing developing countries, such as economic inequalities, environmental degradation, mass political participation, military coups, revolution and civil war.

POLI 468/INTL 468 Seminar on Comparative Foreign Policy

Semester course; 3 lecture hours. 3 credits. A study of theories, models and hypotheses of foreign policy behavior in various types of political systems with emphasis on empirical research and analysis of differences and similarities.

POLI 480/INTL 480 China in Transition

Semester course; 3 lecture hours. 3 credits. Traces how China is making the transition from a planned to market economy, and what implications this transition has on the political, social and urban landscape. Class discussions are grounded on a basic understanding of China's modern history and regional geography.

POLI 490 Senior Seminar

Semester course; 3 lecture hours. 3 credits.
Prerequisites: 24 credits in political science courses or permission of instructor. A capstone course examining the major ideas and debates in each of the four sub-fields of the discipline of political science: American government, political theory, comparative politics and international relations. Students are required to produce a research project on a critical issue in one of the sub-fields.

POLI 491 Topics in Political Science

Semester course; 3 lecture hours. 3 credits. Maximum total of 9 credits in all departmental topics courses may be applied to the major. An intensive survey of a specialized field of political interest. See the Schedule of Classes for specific topics to be offered each semester.

POLI 492 Independent Study

Semester course; variable hours. Variable credit. Maximum of 4 credits per semester; maximum total of 6 credits for all independent study courses. Open generally to students of only junior or senior standing who have acquired at least 12 credits in political

science. Determination of the amount of credit and permission of the instructor and department chair must be obtained prior to registration of the course. An independent study course that allows a political science major or other student who meets the requirement to do research, under the direction of an instructor qualified in that area, in a subject or field of major interest.

POLI 493/URSP 493 Urban Government Internship

Semester course; 150 clock hours at a local legislative body or administrative agency. 3 credits. May be repeated once for a maximum of 6 credits or 300 clock hours. Approval of selection committee required. Under supervision of a faculty committee and a field supervisor, the internship is designed to present opportunities for qualified students to acquire exposure to aspects of public decision-making processes by participation in (1) local legislative bodies of the Richmond metropolitan area; (2) local and regional administrative agencies and commissions; and (3) private organizations that have demonstrated interest in local government and politics.

Effective Spring 2015

POLI 493/URSP 493 Urban Government Internship
Semester course; 150 clock hours at a local legislative body or administrative agency. 3 credits. May be repeated once for a maximum of 6 credits or 300 clock hours. Approval of selection committee required.

Under supervision of a faculty committee and a field supervisor, the internship is designed to present opportunities for qualified students to acquire exposure to aspects of public decision-making processes by participation in (1) local legislative bodies of the Richmond metropolitan area; (2) local and regional administrative agencies and commissions; and (3) private organizations that have demonstrated interest in local government and politics. Graded as Pass/Fail.

POLI 493/URSP 493 Urban Government Internship

Effective Spring 2015

Semester course; 150 clock hours at a local legislative body or administrative agency. 3 credits. May be repeated once for a maximum of 6 credits or 300 clock hours. Approval of selection committee required. Under supervision of a faculty committee and a field supervisor, the internship is designed to present opportunities for qualified students to acquire exposure to aspects of public decision-making processes by participation in (1) local legislative bodies of the Richmond metropolitan area; (2) local and regional administrative agencies and commissions; and (3) private organizations that have demonstrated interest in local government and politics. Graded as Pass/Fail.

Portuguese

PORT 101 Elementary Portuguese

Continuous courses; 5 lecture/recitation hours. 4, 4 credits. Prerequisite: completion of PORT 101 to enroll in PORT 102. Elementary grammar, reading and oral skills.

PORT 102 Elementary Portuguese

Continuous courses; 5 lecture/recitation hours. 4, 4 credits. Prerequisite: completion of PORT 101 to enroll in PORT 102. Elementary grammar, reading and oral skills.

PORT 201 Intermediate Portuguese

Semester course; 3 lecture hours. 3 credits. Continuation of the essentials of grammar, with emphasis on achieving proficiency in aural comprehension, speaking, reading and writing skills.

PORT 202 Intermediate Portuguese Readings

Semester course; 3 lecture hours. 3 credits. Prerequisite: PORT 201. Designed to increase the student's proficiency through the study of selected cultural and literary texts.

PORT 391 Topics in Portuguese

Semester course; variable hours. 1-3 credits. May be repeated with different topics for a maximum of 12 credits. Prerequisite: PORT 202. An in-depth study of selected topics in Portuguese. See the Schedule of Classes for specific topic to be offered each semester.

Psychology

PSYC 101 Introduction to Psychology

Semester course; 3 lecture and 1 computer-assisted instructional hours. 4 credits. A survey of the basic principles, methods of investigation and fields of study and application. Includes individualized application of principles and methods in computerized learning activities. This course is a prerequisite for upper-level work in the field of psychology.

PSYC 201 Career Development in Psychology

Semester course; 2 lecture hours. 2 credits. Prerequisite: PSYC 101. Introduction to the discipline of psychology and the career alternatives available in various specialties. Self-assessment, career decision-making skills, educational program planning methods will be covered. Special topics will include graduate/professional school options, opportunities for minority students and job search strategies for the B.A. or B.S. psychology major.

PSYC 214 Applications of Statistics

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisites: PSYC 101 and STAT 210 both with a minimum grade of C. Frequency distributions, measures of central tendency and variability; sampling, probability, correlation and significance tests as applied in psychological data.

PSYC 301 Child Psychology

Semester course; 3 lecture hours. 3 credits. Prerequisite: PSYC 101. A study is made of the growth and development of the child until puberty. Childlike is viewed in terms of physical, mental, social, emotional and educational factors. PSYC 304 Life Span Developmental Psychology also may not be taken for credit.

PSYC 302 Psychology of Adolescence

Semester course; 3 lecture hours. 3 credits. Prerequisites: PSYC 101. A study of mental, moral, social and physical development from puberty to maturity viewed as in child psychology. Designed for secondary school teachers, youth leaders and professional psychologists.

PSYC 303 Personal Adjustment

Semester course; 3 lecture hours. 3 credits. Prerequisite: PSYC 101. Surveys major theories of personality as a basis for studying theory, research and intervention into areas that require personal adjustment. Such areas include sense of self, stress and

coping, work and career and several varieties of interpersonal relationships. Positive adjustment and growth as well as problems are discussed.

PSYC 304 Life Span Developmental Psychology

Semester course; 3 lecture hours. 3 credits.
Prerequisite: PSYC 101. Reviews the basic concepts and principles of physical, cognitive and social development at each major stage of life—prenatal, infancy, toddlerhood, preschool, middle childhood, adolescence, adulthood and old age. Consideration is given to the study of development at each stage of life and to different theoretical explanations for development. PSYC 301 Child Psychology may not also be taken for credit.

PSYC 305/EDUS 305 Educational Psychology

Semester course; 3 lecture hours. 3 credits.
Prerequisite: PSYC 101. The application of psychological principles to the teaching-learning process with special emphasis on theories of learning and development.

PSYC 306 Psychology of Adult Development

Semester course; 3 lecture hours. 3 credits.
Prerequisite: PSYC 101. The life stages and transitions of the young adult, middle age and young-old phases of the life cycle are considered, following a review of methods of research within life-span development psychology. Topics include the impact of events such as birth of the first child, job relocation, mid-life re-evaluation and anticipated retirement.

PSYC 307/LFSC 307 Community Solutions: Multiple Perspectives

Semester course; 3 lecture hours. 3 credits.
Prerequisite: PSYC 101. Explores possibilities for addressing social concerns of the Richmond community by understanding the complex nature of social issues as essential to their successful amelioration via perspectives of life and social sciences. Toward this end, expertise from the social sciences, the life sciences and the community are integrated. Includes a service-learning experience (a 20-hour volunteer requirement).

PSYC 308 Stress and its Management

Semester course; 3 lecture hours. 3 credits.
Prerequisite: PSYC 101. Physiological and psychological aspects of stressors and the stress response. Review of principles, research and methods of stress management, such as relaxation, self-suggestions, meditation and biofeedback.

PSYC 309 Personality

Semester course; 3 lecture hours. 3 credits.
Prerequisite: PSYC 101. The study of the various approaches to understanding human behavior in terms of personality theory. Various theories will be examined for commonality and uniqueness in assumptions, dynamics and development of personality.

PSYC 310 Industrial Psychology

Semester course; 3 lecture hours. 3 credits.
Prerequisite: PSYC 101. Application of psychological principles and techniques to problems in personnel management and human engineering; recruitment, selection, training and placement in industry; criteria in testing and test development; morale evaluation and improvement, employee counseling; work-

management communications; human engineering in equipment design, quality control, working conditions and safety.

PSYC 317 Experimental Methods

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisite: PSYC 214 with a minimum grade of C. Introduction to experimental procedures and laboratory techniques in psychology. Demonstrations and experiments in sensation, perception, learning, emotion and motivation.

PSYC 318 Principles of Psychological Tests and Measurements

Semester course; 3 lecture hours. 3 credits.
Prerequisites: minimum grade of C in PSYC 101 and minimum grade of C in STAT 210. Concepts in psychological measurement and a survey of commonly used tests; testing procedures and rationale underlying these tests; tests of intelligence, aptitude, achievement, interest and personality critically examined, procedures described for selecting and evaluating specific group tests in these areas.

PSYC 321 Social Psychology

Semester course; 3 lecture hours. 3 credits.
Prerequisite: PSYC 101. Survey theory and research in social psychology. Topics include interpersonal and social influence processes, attitudes and social cognition, the impact of personality on social behavior, conformity, leadership and small group behavior.

PSYC 322/AFAM 322 Personality and Behavior of the African American

Semester course; 3 lecture hours. 3 credits.
Prerequisite: PSYC 101. A study of personality factors such as motivation, ego-functioning and the socialization processes, with special emphasis on living conditions of African-Americans.

PSYC 323 Interpersonal Relations

Semester course; 3 lecture hours. 3 credits.
Prerequisite: PSYC 101. Analyzes human relations from various theoretical perspectives. Typical topics include the effects of attraction, friendship, love and dependency on relationships; the evolution of relationships from initiation through termination. Strategies for increasing effectiveness of communication between individuals also are addressed.

PSYC 333/RELS 333 Psychology and Religious Experience

Semester course; 3 lecture hours. 3 credits.
Prerequisite: PSYC 101. Religious belief and experience as viewed by major psychological theorists. How psychological methodology has been used to study religious experience. Topics include personality factors and development, conversion experiences, religious experiences and mental health and human values.

PSYC 335/GSW 335 Psychology of Women

Semester course; 3 lecture hours. 3 credits.
Prerequisite: PSYC 101. Overview of issues in psychology relevant to women. Topics include: research methods of women's issues; sex-role socialization; women and hormones; psychological androgyny; personality theory and counseling strategies for women; women and language; women and violence; and rape and abuse.

PSYC 340 Introduction to the Helping Relationship

Semester course; 3 lecture hours. 3 credits.
Prerequisite: PSYC 101. Overview to the dynamics of communication in a helping relationship. Didactic material includes the principles of empathy, nonverbal behavior, problem-solving, crisis intervention and interview techniques. Basic paraprofessional counselor skills will be demonstrated and practiced through structured exercises.

PSYC 341/SOCY 341 Group Dynamics

Semester course; 3 lecture hours. 3 credits.
Prerequisite: PSYC 101. Social and psychological principles and research related to the individual in groups. Specific topics include motivation for individuals forming and joining groups, performance and productivity of group members, group leadership and majority and minority influence. The group will be examined in relation to the larger society and as a subculture in itself.

PSYC 401 Physiological Psychology

Semester course; 3 lecture hours. 3 credits.
Prerequisite: PSYC 101. Data from the fields of anatomy and physiology are presented, and their implications for psychology are discussed. The central nervous system, internal environment, vision, audition, reflexes, emotion, learning behavior disorders and their physiological components. Behavior of the human organisms is studied from the biopsychological point of view.

PSYC 404/SOCY 404 Social Psychology of Emotions

Semester course; 3 lecture hours. 3 credits.
Prerequisites: PSYC 101, SOCY 101. An examination of the social shaping of emotion as well as its function in maintaining the social process. Cross-cultural uniformities and diversity in basic emotions and their expression are addressed as well as selected social psychological theories of emotions.

PSYC 406 Perception

Semester course; 3 lecture hours. 3 credits.
Prerequisite: PSYC 101. Perception of information from sensory systems with concentration on vision and hearing. Research and theories on how we learn and judge color, form, movement, depth and how individuals integrate these in object identification.

PSYC 407 Psychology of the Abnormal

Semester course; 3 lecture hours. 3 credits.
Prerequisite: PSYC 101. Development of personality is discussed, with emphasis on factors leading to maladjustment. Lectures and reading cover the symptom groups of emotional disorders of both psychological and organic origin. Methods of assessing and treating these disorders are surveyed.

PSYC 410 Principles of Learning and Cognition

Semester course; 3 lecture hours. 3 credits.
Prerequisite: PSYC 101. Comprehensive treatment of learning and cognition with emphasis on humans, from behavioral, cognitive, biological and developmental viewpoints. Topics include conditioning, information processing, memory, sociobiology and cognitive and moral development.

PSYC 412 Health Psychology

Semester course; 3 lecture hours. 3 credits.

Prerequisite: PSYC 101. Application of the principles and techniques of psychology to the field of medicine, to health maintenance and to illness. The integration of theoretical, research and applied issues is emphasized in the analysis of such topics as psychological/behavioral factors contributing to and protecting against physical illness (stress, smoking, exercise), factors relating to treatment and recovery (coping, treatment compliance), psychological problems resulting from illness and injury, and specific techniques and problem areas in health psychology (such as biofeedback, pain management, pediatric psychology, geropsychology, rehabilitation psychology and lifestyle change.)

PSYC 414/GSW 414 Psychology of Women's Health

Semester course; 3 lecture hours. 3 credits. Overviews the psychological research on women's health. Topics include health behavior change, personality and individual differences, cognitive factors, disease-specific behaviors and interventions.

PSYC 426 Child Psychopathology

Semester course; 3 lecture hours. 3 credits.

Prerequisites: PSYC 101. Principal childhood behavioral abnormalities. A review of causes, assessment and diagnostic methods, and treatment, intervention and prevention approaches.

PSYC 451 History of Psychology

Semester course; 3 lecture hours. 3 credits.

Prerequisite: PSYC 101, junior or senior standing. Traces the history of ideas about mind and behavior as they relate to the theory and practice of psychology.

PSYC 491 Topics in Psychology

Semester course; 3 lecture hours. 3 credits. Maximum total of 6 credits in topics courses. Prerequisite: PSYC 101. An in-depth study of selected topics and issues in psychology. See the Schedule of Classes for specific topics to be offered.

PSYC 492 Independent Study

Semester course; variable hours. 1, 2 or 3 credits per semester. Maximum of 6 credits for all independent study courses. PSYC 492, PSYC 493 or PSYC 494 may be repeated for a total of 6 credits but a maximum of 12 credits total for all three courses. Prerequisite: PSYC 101. Open only to students of junior or senior standing who have acquired at least 12 credits in the departmental discipline. Determination of the amount of credit and permission of instructor and department chair must be procured prior to registration of the course. Independent study is defined as student-conceived and initiated readings or research project which is supervised by a psychology faculty member. An oral examination or written, comprehensive paper is required at the end of the semester.

PSYC 493 Fieldwork: Human Services

Semester course; 3 credits. PSYC 492, PSYC 493 and PSYC 494 may be repeated for a total of 6 credits but a maximum of 12 credits total for all three courses is allowed. Prerequisite: permission of instructor. Students are placed in an agency, which will provide supervised work experience in various aspects of helping other people. The setting might be a government or private community agency, or a corporation, depending on the student's goals. The

student works eight hours per week at the placement site, attends several group discussion sessions during the semester and completes written assignments. This course is designed to enhance the psychology major's career pursuits for either graduate-level training or post-baccalaureate employment.

PSYC 494 Research Internship in Psychology

Semester course; variable hours. 1, 2 or 3 credits per semester. May be repeated for a maximum of 6 credits with adviser's approval. PSYC 492, PSYC 493 or PSYC 494 may be repeated for a total of 6 credits but a maximum of 12 credits total for all three courses.

Prerequisites: PSYC 101 and permission of faculty research supervisor must be obtained prior to registration. PSYC 214 and PSYC 317, or permission of supervisor. Students will work on various phases of a research project (design, data collection, data analysis, manuscript writing) under a psychology faculty member's close supervision. This course is designed to enhance the psychology major's career pursuits for either graduate-level training or post-baccalaureate employment.

PSYC 497 Honors Seminar

Semester course; 2 lecture hours. 2 credits.

Prerequisites: PSYC 101 and junior standing and admission to the Honors in Psychology Program. Pre- or corequisite: PSYC 317. An introduction to the scientific process, particularly as applied to the field of psychology. Prepares students for future research experience and surveys current research, opportunities for post-graduate study and professional development in psychology.

PSYC 498 Honors in Psychology

Continuous courses; 3 lecture hours. 2-3 credits.

Prerequisites: PSYC 101 and consent of undergraduate committee of the psychology department. Completion of PSYC 498 to enroll in PSYC 499. Discussion will include advanced research strategies, related professional issues and topics determined by the student's interest. Students are required to develop and complete a senior honors thesis, which will be the major emphasis of the second semester.

PSYC 499 Honors in Psychology

Continuous courses; 3 lecture hours. 2-3 credits.

Prerequisites: PSYC 101 and consent of undergraduate committee of the psychology department. Completion of PSYC 498 to enroll in PSYC 499. Discussion will include advanced research strategies, related professional issues and topics determined by the student's interest. Students are required to develop and complete a senior honors thesis, which will be the major emphasis of the second semester.

Religious Studies**RELS 101 Introduction to Religious Studies**

Semester course; 3 lecture hours. 3 credits. This course examines the phenomenon of religion and religious experience. Through a phenomenological approach definitions and descriptions of the major features of the religious experience and of religious establishments, including concepts of the sacred, the numinous, religious language, texts, symbols, rituals and myths are reviewed. In addition, the social, political and spiritual dimensions of religion in human culture will be investigated.

RELS 108 Human Spirituality

Semester course; 3 lecture hours. 3 credits. A study of the manifestations of one or more of the themes of religious studies in a diverse group of religious communities. The themes may include such wide-ranging topics as the sacred and profane, the epistemology of faith and knowledge, creation stories, human identity, the nature of the divine, the possibility of liberation or salvation, mythology, ritual, ethics, religion and art, religion and law, and religion and politics.

RELS 201 Biblical Hebrew

Semester course; 3 lecture hours. 3 credits. Vocabulary, elementary grammar, introduction to lexica and reading of biblical texts.

RELS 202 Biblical Hebrew

Semester course; 3 lecture hours. 3 credits.

Prerequisite: RELS 201. Vocabulary, elementary grammar, introduction to lexica and reading of biblical texts.

RELS 250 Death: Myth and Reality

Semester course; 3 lecture hours. 3 credits. A study of intellectual and emotional responses to death and dying with emphasis upon their role in the development of religious thought and practice. Special attention will be paid to the death theme in literature, funeral practices and beliefs concerning the afterlife in selected world religions.

RELS 280 Introduction to Catholic Studies

Semester course; 3 lecture hours. 3 credits. This course provides an introduction to Catholicism's major doctrines, figures, historical events, philosophy and ethics from its beginnings in the first centuries of the Common Era through contemporary debates over such issues as abortion, sexuality and war. Students will learn about scripture, doctrine, theology, the sacraments, art and architectures, saints, social justice and gender, and the history and role of the Church.

RELS 291 Topics in Religious Studies

Semester course; variable hours. 1-3 credits. May be repeated with different topics for a maximum of six credits. Focused study of selected ideas, institutions, movements, time periods and/or thinkers. See Schedule of Classes for specific topic to be offered each semester.

RELS 301 Introduction to the Hebrew Bible

Semester course; 3 lecture hours. 3 credits. A survey of the Hebrew Bible from its beginning through the post-Exile period. Emphasis given to the literary and historical development of the text.

RELS 302 Introduction to the New Testament

Semester course; 3 lecture hours. 3 credits. A survey of the New Testament with particular emphasis given to the historical development of the Canon.

RELS 303 Intertestamental Literature and Thought

Semester course; 3 lecture hours. 3 credits. The period between the Old and New Testaments as seen through the literature of the era, with emphasis on the writings of the Apocrypha, Pseudepigrapha and Josephus.

RELS 305 Hebrew Prophets

Semester course; 3 lecture hours. 3 credits. A survey of the literature and history of Israel as seen through the work of the writing prophets. Emphasis will be placed

on the second part of the Hebrew Canon and the Book of Daniel.

RELS 306/INTL 306 Introduction to Judaism
Semester course; 3 lecture hours. 3 credits. A general survey of the dynamics and characteristic patterns of Jewish civilization encompassing history, practices and beliefs.

RELS 307/AFAM 307/INTL 307 Black Religion

Semester course; 3 lecture hours. 3 credits. An analysis of the role of religion in the lives of blacks with an emphasis on African religions and philosophies, the black church in America, and the roles of the various faiths, sects and cults.

RELS 308/HIST 311 High and Later Middle Ages

Semester course; 3 lecture hours. 3 credits. A detailed historical overview of developments in Western Europe from the end of the first millennium through the end of the 15th century.

RELS 310 Mediterranean Religions

Semester course; 3 lecture hours. 3 credits. Explores the earliest evidence of religious practice and belief in the Mediterranean region and probes the ways that the ancient traditions shaped the religions that still endure today. Also investigates the effect of religion in the Mediterranean region on related issues of intercultural relations, peace and conflict, and migration.

RELS 311/INTL 311, 312 Religions of the World

Semester course; 3 lecture hours. 3, 3 credits. An investigation of the historical, cultural and theological foundations and development of major world religions. First semester: Hinduism, Buddhism, Confucianism, Taoism and Shinto. Second semester: Zoroastrianism, Judaism, Christianity and Islam.

RELS 312/INTL 311, 312 Religions of the World

Semester course; 3 lecture hours. 3, 3 credits. An investigation of the historical, cultural and theological foundations and development of major world religions. First semester: Hinduism, Buddhism, Confucianism, Taoism and Shinto. Second semester: Zoroastrianism, Judaism, Christianity and Islam.

RELS 313 Life and Literature of Paul

Semester course; 3 lecture hours. 3 credits.
Prerequisite: RELS 302. A survey of the life and literature of Paul as given in Acts and the Epistles, involving special consideration of Paul's contribution to the expansion of Christianity.

RELS 314 Jesus in the New Testament Tradition

Semester course; 3 lecture hours. 3 credits.
Prerequisite: RELS 302. A study of the Christ of faith and the Jesus of history as presented in New Testament literature and as interpreted in the works of selected scholars from the Church fathers to the present.

RELS 315 /HIST 301 The Ancient Near East

Semester course; 3 lecture hours. 3 credits. A study of the ancient Near Eastern civilizations from the preliterary period to the end of Kassite rule in Babylonia (c. 1160 B.C.).

RELS 317/INTL 317 Islam

Semester course; 3 lecture hours. 3 credits. A study of the emergence of Islam in Arabia in the seventh century and its subsequent developments, including a look at the Qur'an (the holy book), the Prophetic traditions, the concept of God, and mysticism (sufism) and law (shari'ah) and an overview of ritual practices, fundamental beliefs, theological principles and current issues in Islam and international relationship.

RELS 318/HIST 333 History of the Jewish People I

Semester course; 3 lecture hours. 3 credits. A study of the Jewish people from the biblical period to the early modern period, including the Israelite conquest of Canaan, Judea in Hellenistic and Roman times, the Diaspora in Islam and in Europe, social and cultural trends, and Jewish settlement in the Ottoman Empire.

RELS 319/HIST 334 History of the Jewish People II

Semester course; 3 lecture hours. 3 credits. A study of the Jewish people from the early modern to the present, including the impact of the Emancipation, the rise of the American Jewish community, the impact of modernism and growth of Reform, the beginnings and growth of Zionism, restoration in Palestine, the Holocaust, the creation of Israel, and the relations of Israel and world Jewry.

RELS 320 Taoism

Semester course; 3 lecture hours. 3 credits. A study of one of the most fundamental and influential philosophies of life in Chinese culture, focusing on the theory and practice of the basic principles of Taoism as formulated by the legendary Lao Tzu and further developed by Chuang Tzu.

RELS 322/PHIL 322 Tibetan Buddhism

Semester course; 3 lecture hours. 3 credits. A basic introduction to the history, development and mythology of the Buddhism of Tibet focusing on the Indian heritage and shared basis of all Buddhist practices, a clear identification of the three vehicles found in Buddhism, and a careful consideration of the path of the Bodhisattva, the hero of Great Vehicle Buddhism.

RELS 326/PHIL 326 Existentialism

Semester course; 3 lecture hours. 3 credits.
Prerequisites: 3 credits in philosophy (exclusive of logic) or permission of instructor. An examination of the nature of truth, freedom, responsibility, individuality and interpersonal relations as found in some principal writings of Kierkegaard, Nietzsche, Jaspers, Sartre, Heidegger, Camus, Buber and Marcel.

RELS 327/HIST 335 History of Christianity I

Semester course; 3 lecture hours. 3 credits. A historical and theological examination of Christianity from its origin to the early modern period, or the age of the Reformations. Emphasis is placed upon an understanding of leading events, ideas, movements and persons in their historical settings.

RELS 333/PSYC 333 Psychology and Religious Experience

Semester course; 3 lecture hours. 3 credits.
Prerequisite: PSYC 101. Religious belief and experience as viewed by major psychological theorists. How psychological methodology has been used to study religious experience. Topics include personality

factors and development, conversion experiences, religious experiences and mental health and human values.

RELS 334 Religion in Contemporary America

Semester course; 3 lecture hours. 3 credits. This course studies the history, literature, belief patterns and unique traits of religion in the United States. The evolution of religion and religious sentiment in a modern pluralistic, democratic society, including the varieties of religious experiences in contemporary America will be reviewed.

RELS 335 The American Jewish Experience

Semester course; 3 lecture hours. 3 credits. The religious, social and cultural structure of American Jewry from the Colonial era to the present.

RELS 336 Religions in Latin America

Semester course; 3 lecture hours. 3 credits. An interdisciplinary survey of the major religious groups of Latin America, with a focus on the development of Catholicism, Protestantism and the traditions of the African diaspora, such as Santeria and Voduo, during the 20th century.

RELS 337 Contemporary Cults and New Religious Movements

Semester course; 3 lecture hours. 3 credits. An overview of contemporary religious movements. Focuses on new groups that have emerged in the context of globalization. Involves understanding of what gives rise to these movements, how they are distinctive and how they develop.

RELS 340/INTL 341 Global Ethics and the World's Religions

Semester course; 3 lecture hours. 3 credits. Pre- or corequisites: RELS/INTL 311 and 312. A critical survey of ethical concepts and issues in the thought and practice of major religious traditions. Comparison of ethical perspectives on selected themes and attention to cooperative efforts toward a global ethic.

RELS 342/PHIL 342 Buddhist Reasoning and Debate

Semester course; 4 lecture hours. 4 credits.
Prerequisite: RELS/INTL 311. A basic introduction to perception, logic and epistemology in Buddhist thought. The course is designed to convey basic reasoning skills including formation of arguments, checking arguments for validity, and developing techniques and strategies for rational discourse.

RELS 350/INTL 360 World Classics of Spirituality

Semester course; 3 lecture hours. 3 credits. A critical reading of selected works from among the spiritual classics of Judaism, Christianity, Islam, Hinduism, Taoism and other religious traditions.

RELS 360/SOCY 360 Sociology of Religion

Semester course; 3 lecture hours. 3 credits. A systematic review and assessment of major sociological theories of and empirical research on religious behavior and groups. Topics include the structure of religious organizations; social correlates and functions of religion; denominationalism; religion and social class, social change and population.

RELS 361/ENGL 361 The Bible as Literature
Semester course; 3 lecture hours. 3 credits. Literary aspects of the Bible will be considered. Also, attention will be given to the history of the English Bible.

RELS 362 Shakespeare and Religion
Semester course; 3 lecture hours. 3 credits. An examination of the religious ideas in selected plays by William Shakespeare and their relevance to contemporary religious thought and experience. Topics include the nature of God, the meaning of life, the problem of evil, moral authority and the question of immortality as found in Shakespeare's plays.

RELS 363 Archaeology and Sacred Texts
Semester course; 3 lectures hours. 3 credits.
Prerequisite: ANTH 105. Explores past and present archaeological research as it relates to events, persons, and places described in ancient sacred texts of the Mediterranean.

RELS 368 Asian Religions and Asian Medicine
Semester course; 3 lecture hours. 3 credits.
Prerequisite: RELS/INTL 311. An introductory survey of three medical systems indigenous to Asia, including study of how these medical systems are linked in theory and practice to religions and spiritual systems. These three are Indian Ayurveda in light of Hinduism, Chinese herbal medicine and acupuncture in light of Daoism, and Tibetan medicine in light of Tibetan Buddhism.

RELS 371/GSWs 371 Women in Islam
Semester course; 3 lecture hours. 3 credits.
Prerequisite: UNIV 200 or HONR 200, RELS 108, GSWs 201 or ENGL 215. Critical study of the roles and rights of women in Islam.

RELS 372/GSWs 372/INTL 372 Global Women's Spirituality
Semester course; 3 lecture hours. 3 credits. Explores the spiritual writings of women in various cultures and religious traditions.

RELS 373/GSWs 373 Gender and the Bible
Semester course; 3 lecture hours. 3 credits.
Prerequisites: RELS 108 or GSWs 201 or RELS 301 or RELS 302; and ENGL 215 or UNIV 200 or HONR 200. Studies the Hebrew and Christian scriptures with emphasis on gender. Attention to traditional, feminist, womanist and postcolonial interpretation.

RELS 380 Contemporary Catholic Thought
Semester course; 3 lecture hours. 3 credits.
Prerequisite: RELS 280. A study of the contemporary Catholic Christian response to the questions, "Who is God?" and "Where/how do we experience the Sacred?" Methods of Catholic theology will be explicated and applied to the teachings of the Second Vatican Council and current responses to those teachings in such areas as sacramental worship and liturgy, and moral/ethical teachings of the Church.

RELS 391 Topics in Religious Studies
Semester course; 3 lecture hours. 3 credits. May be repeated with different topics for a maximum of 6 credits. A study of a selected ideas or concepts, religious thinkers or significant movements in the field of religion. See the Schedule of Classes for specific topics to be offered each semester and prerequisites.

RELS 401/LFSC 401 Faith and Life Sciences
Semester course; 3 lecture hours. 3 credits.
Prerequisite: UNIV 200 or HONR 200. Open to students of any school or program. Explores the complex relationships between faith traditions and the life sciences. Topics include epistemology, impact of life sciences on ideas of fate and responsibility, limits of science and technology, and scientific and religious perspectives on human origins, consciousness, aggression, forgiveness, health, illness and death.

RELS 407 Modern Jewish Thought
Semester course; 3 lecture hours. 3 credits.
Prerequisite: UNIV 200 or HONR 200. A study of the writings of the leading Jewish thinkers of the 19th and 20th centuries. Special reference will be made to the issues arising from the encounter of Judaism with the modern world: the nature of revelation and the authority of the Torah, the nature of God, the impact of the Holocaust, the meaning of redemption and the significance of the state of Israel.

RELS 408/PHIL 408 Indian Tradition
Semester course; 3 lecture hours. 3 credits.
Prerequisites: at least six credits from philosophy or religious studies courses. A systematic analysis of the major theories of Indian religious and philosophical thought: Vedas, Upanishads, Gita, Charvaka, Jainism, Buddhism, the six systems of Hinduism and contemporary developments.

RELS 409/INTL 409 Modern Islamic Thought and Global Trends
Semester course; 3 lecture hours. 3 credits.
Prerequisite: INTL/RELS 312 or INTL/RELS 317; UNIV 200 or HONR 200. Introduces students to the integral relationship of Islam to major events of global concern and contextualizes these events into the wider modern and postmodern developments of Islamic thought and its intellectual and ideological self-interrogation. This course will provide students with the opportunity to study both the background of modern Islamic thought and selected contemporary events.

RELS 410/PHIL 410/INTL 410 The Chinese Tradition in Philosophy
Semester course; 3 lecture hours. 3 credits. A study of the development of Confucianism, of alternative ways of thought prior to the fall of the Han Dynasty and of neo-Confucianism. The systems of thought are examined in the light of their social, political and religious impact on China, Korea and Japan.

RELS 412/PHIL 412/INTL 412 Zen Buddhism
Semester course; 3 lecture hours. 3 credits.
Prerequisite: UNIV 200 or HONR 200. A study of Zen Buddhism, including backgrounds in Indian philosophy and practice, development in China and Korea, and present-day Zen theory and practice in Japan and in Western countries.

RELS 422 Religion and Film
Semester course; 3 lecture hours. 3 credits. May be repeated with different themes for a total of six credits.
Prerequisite: UNIV 200 or HONR 200. Explores central themes present in all global religious traditions, such as ritual, faith, myth, suffering, redemption, the religious quest/pilgrimage, the nature of good and evil and perceptions of the sacred. Using readings from sacred texts and contemporary film critiques, the course juxtaposes ancient story and wisdom with

contemporary narratives in film. Possible themes would include women and religion in world cinema, Christology in world cinema, and violence and redemption in film.

RELS 425/ANTH 425/INTL 425 Religion, Magic and Witchcraft
Semester course; 3 lecture hours. 3 credits.
Prerequisites: ANTH/INTL 103 and UNIV 200 or HONR 200 with a minimum grade of C. A survey of the nature and variety of beliefs outside of the major streams of religious thought. Among topics considered are myth, totemism, taboo and sorcery. Emphasis on understanding supernatural beliefs and practices in relation to culture and society.

RELS 430/PHIL 430 Philosophy of Religion
Semester course; 3 lecture hours. 3 credits.
Prerequisites: 3 credits in philosophy (exclusive of PHIL 211 and PHIL 212) or permission of instructor. An introduction to the major problems and questions of religion and reason. Special reference will be made to the nature of God, the nature of man, the problem of evil, the source of good, immortality and the basis of authority.

RELS 440/PHIL 440 Mysticism
Semester course; 3 lecture hours. 3 credits.
Prerequisite: UNIV 200 or HONR 200. A critical analysis of the varieties of mysticism in world religions. Arguments for and against mysticism will be emphasized. Mysticism will be related to art, psychology, science, philosophy, theology and magic.

RELS 441/INTL 441 Islamic Mysticism: the Sufis
Semester course; 3 lecture hours. 3 credits.
Prerequisite: INTL/RELS 312 or INTL/RELS 317; UNIV 200 or HONR 200. Introduces students to the major Sufi masters and their works. It covers ideological and practical development of Islamic mysticism as compared to the developments within Islam itself.

RELS 442 Seminar in Hinduism
Semester course; 3 lecture hours. 3 credits. A survey of Hinduism, taking up the earliest origins of Hinduism, the Hindu creation myth, the various conceptions of the divine, the speculation regarding human nature, the stages of life, development of family and monastic codes, the great epics of Hinduism including the Bhagavad-Gita, the six schools of Hindu philosophy and modern Hinduism as it has developed in response to Western influences.

RELS 450/INTL 449 Religion, Globalization and Social Justice
Semester course; 3 lecture hours. 3 credits.
Prerequisites: RELS 340/INTL 341, WLRD 210 or WRLD 220; UNIV 200 or HONR 200. Explores the role religions are playing in the work of building a socially just and environmentally sustainable world community.

RELS 451/AFAM 451/INTL 451 Religion, Racism and Social Justice
Semester course; 3 lecture hours. 3 credits.
Prerequisites: RELS 340/INTL 341, WLRD 210 or WRLD 220; UNIV 200 or HONR 200. Explores the complex history and contemporary relationships between religion, racism and social justice.

RELS 453/GSW 453/INTL 453 Western Religions, Women and Social Justice

Semester course; 3 lecture hours. 3 credits.
Prerequisites: RELS/INTL 312 or RELS 340/INTL 341; UNIV 200 or HONR 200. This course explores the experience and portrayal of women in the three Abrahamic traditions: Judaism, Islam and Christianity. Study focuses on how these religions and their texts bear upon the social, economic, political and spiritual lives of women. Special attention is given to the impact of globalization and religious fundamentalism on women.

RELS 455/INTL 456 Catholic Ethics and Social Justice

Semester course; 3 lecture hours. 3 credits.
Prerequisites: RELS 280 or 380, or RELS/INTL 312, or RELS 340/INTL 341; UNIV 200 or HONR 200. An exploration of the Catholic church's major theological, ethical, constitutional and strategic concerns, and an analysis of Catholic social teaching and its relation to current social issues such as abortion, peace and conflict, poverty, and human rights.

RELS 490 Senior Capstone Seminar

Semester course; 3 lecture hours. 3 credits.
Prerequisites: RELS 340/INTL 341; senior standing in religious studies major with a minimum of 85 credits earned toward the degree. Senior research project; written thesis and oral presentations using established concepts, theories and research methods in religious studies. Students will select the religious groups/traditions as the focus of their research, writing and oral presentations in consultation with the course instructor.

RELS 491 Topics in Religious Studies

Semester course; 3 lecture hours. 3 credits. May be repeated with different topics for maximum of 6 credits. Prerequisite: written permission of instructor. An in-depth study of selected ideas or concepts, religious thinkers or significant movements in the field of religion. See the Schedule of Classes for specific topics to be offered each semester.

RELS 492 Independent Study

Semester course; variable hours. Variable credit. Maximum of 4 credits per semester; maximum total of 6 credits for all independent study courses. Open generally to students of only junior or senior standing who have acquired at least 12 credits in the departmental discipline. Determination of the amount of credit and permission of instructor and department chair must be procured prior to registration of the course. An independent study course to allow interested students in religious studies to do research in an area of major interest under the direction of a professor qualified in that field.

RELS 493 Religious Studies Internship

Semester course; variable hours. 1-3 credits (40 clock hours per credit). May be repeated for a maximum of 6 credits, however only 3 credits can count toward the major. Prerequisites: completion of 9 credits of upper-level (300- or above) course work in religious studies, and permission of the internship coordinator. Student must be in good academic standing with a minimum major GPA of 2.25. Designed for the advanced student to gain workplace experience in a local, national or international organization offering opportunities in religious studies.

RELS 499 Senior Seminar

Semester course; 1 lecture hour. 1 credit. Prerequisites: RELS 340/INTL 341; senior standing in religious studies major with a minimum of 85 credits earned toward the degree. Pre- or corequisite: RELS 490. Focuses on self-assessment, compilation of a portfolio and curriculum vitae, career and graduate school preparation, and on the lifelong application of skills and knowledge acquired in the program. Students will critically assess their experience in the religious studies program.

Russian

Students planning to take Russian courses at VCU who have had prior experience with the language must take the placement test in order to determine proper course selection.

RUSS 101 Elementary Russian

Continuous courses; 5 lecture/recitation hours. 4-4 credits. Prerequisite: completion of RUSS 101 to enroll in RUSS 102. Elementary grammar, reading and oral drill.

RUSS 102 Elementary Russian

Continuous courses; 5 lecture/recitation hours. 4-4 credits. Prerequisite: completion of RUSS 101 to enroll in RUSS 102. Elementary grammar, reading and oral drill.

RUSS 201 Intermediate Russian

Semester course; 3 lecture hours. 3 credits.
Prerequisite: RUSS 102. Continuation of the essentials of grammar with emphasis on achieving proficiency in aural comprehension, speaking, reading and writing skills.

RUSS 202 Intermediate Russian Readings

Semester course; 3 lecture hours. 3 credits.
Prerequisite: RUSS 201. Designed to increase the student's proficiency through the study of selected cultural and literary texts.

RUSS 205 Intermediate Russian Conversation

Semester course; 3 lecture hours. 3 credits.
Prerequisite: RUSS 201. Designed to increase the student's proficiency in the spoken language through audio-oral exercises, dialogues and free conversation.

RUSS 311 Conversation and Media

Semester course; 3 semester hours. 3 credits. May be repeated for up to six credits with permission of the instructor. Prerequisite: RUSS 202 or 205. Conducted in Russian. An introduction to everyday life in Russia and topics of current interest. Students will explore diverse media to develop skills in listening, speaking, reading and writing.

RUSS 330 Literature and Culture: _____

Semester course; 3 lecture hours. 3 credits. May be repeated for up to six credits with different topics. Prerequisite: RUSS 202 or 205. Conducted in Russian. Students will examine salient themes in Russian culture as expressed in a range of classic and contemporary texts. This course develops skills in reading, writing, speaking and listening. See the Schedule of Classes for specific topic to be offered each semester.

RUSS 422 Russian Film

Semester course; 3 lecture hours. 3 credits. May be repeated for a maximum of six credits with the permission of the instructor. Prerequisite: completion of six credits of Russian at the 300-level. Conducted in Russian. While the course is designed to develop the student's conversational skills in Russian, it will also provide practice in reading, listening and writing. Discussions will center on films from the Soviet and post-Soviet periods.

RUSS 491 Topics in Russian

Semester course; variable hours. 1-3 credits. May be repeated with different topics for maximum of 9 credits. An in-depth study of selected topics in Russian. See the Schedule of Classes for specific topics to be offered each semester.

Science, Technology and Society**SCTS 200 Science in Society: Values, Ethics and Politics**

Semester course; 3 lecture hours. 3 credits. An interdisciplinary introduction to the ethical, social and political dimensions of science, technology and medicine examined through case studies and debates.

SCTS 300/GVPA 399/HIST 399 Introduction to Science and Technology Studies

Semester course; 3 lecture hours. 3 credits. An introduction to the study of science, technology and medicine from political, sociological and historical perspectives, focusing on case studies that illustrate the methods and theories used to examine the structure and behavior of the scientific community and the role of scientific knowledge in shaping public culture.

SCTS 301/ENGL 369 Illness Narratives

Semester course; 3 lecture hours. 3 credits. An overview of the history, interpretations and practices of reading and writing illness narratives through case studies and theoretical perspectives, in fictionalized and nonfiction accounts, from the viewpoint of various actors (doctors, patients, patient families and their caregivers). Students will further examine the role of narrative knowledge in health care.

SCTS 392/HIST 392 Revolutions in Science I

Semester course; 3 lecture hours. 3 credits. A survey of the history of science from the ancient Greeks to 1800, focusing on the development of scientific ideas, practices and institutions in Western society.

SCTS 393/HIST 393 Revolutions in Science II

Semester course; 3 lecture hours. 3 credits. A survey of the history of science from 1800 to the present, focusing on the development of scientific ideas, practices and institutions in Western society.

SCTS 397/HIST 397 Genetics and Society: 1865 to the Present

Semester course; 3 lecture hours. 3 credits. An investigation of the science and technology of heredity in its historical, cultural and political contexts, emphasizing the ways in which genetic theories have been applied in attempting to solve social and biological problems.

SCTS 398/HIST 398 History of Medicine and Public Health: _____

Semester course; 3 lecture hours. 3 credits. May be repeated with different thematic content for a maximum of six credits. Studies in selected topics in the history of medicine, medical science or public health. Includes introduction to the interdisciplinary approaches practiced in the history of medicine as well as the historical content and relevant analytical skills needed to examine the specific course theme.

Social Sciences

For interdisciplinary science courses, see INSC in these listings.

SOCS 291 Issues in Social Science

Semester course; variable hours. 1-3 credits per semester. Maximum total of 6 credits. An interdisciplinary course structured around social issues pertinent to today's society. See the Schedule of Classes for specific topics to be offered each semester and the semester credit for which each course will be offered.

SOCS 302 Diverse Families and Children in the United States

Semester course; 3 lecture hours. 3 credits. Focuses on the diversity of family life in the United States. Students are encouraged to analyze and appreciate the differences that emerge from such factors as socioeconomic status, race and ethnicity (language, religion, national origin). Attention is given to the variations and commonalities in how parents teach, guide and influence children and adolescents.

SOCS 303 Marriage and Family Relationships

Semester course; 3 lecture hours. 3 credits.
Prerequisite: SOCY 101 or permission of instructor. Marriage and the family in contemporary society. Topics discussed will include the effects of masculine and feminine roles on marital and parent-child relationships, how role problems are resolved, sexual adjustments, financial adjustment, family planning and retirement.

SOCS 330 The Psychology and Sociology of Death

Semester course; 3 lecture hours. 3 credits.
Prerequisite: PSYC 101 or SOCY 101. An interdisciplinary study of the encounter with death, death and personality, the organizational processing of death and demographic regularities of dying. Sociologists and psychologists jointly teach the course.

SOCS 340 Human Sexuality

Semester course; 3 lecture hours. 3 credits. A study of the variety of the forms, sources and consequences of human sexual behaviors and the attitudes, beliefs and values associated with them. The data and its analysis are directed to the significance of sex in human experience.

SOCS 350 The Construction of Culture

Semester course; 3 lecture hours. 3 credits. An examination, using methods from several disciplines, of the ways in which human beings construct the shared meanings that constitute culture.

SOCS 389 AIDS: Myths and Realities

Semester course; 3 lecture hours. 3 credits.
Prerequisite: SOCY 101. Presents the students with the

fundamentals of infectious disease, immunology and virology as they apply to HIV disease. Students will trace the psychosocial impact the HIV pandemic has had on society since the early 1980s, and will explore the future possibilities for those who are HIV infected and/or HIV affected.

Sociology**SOCY 101 General Sociology**

Semester course; 3 lecture hours. 3 credits. An introduction to the study of human society. The basic concepts of society and culture and their relationships to each other are studied and then used to analyze the major social institutions.

SOCY 104/AFAM 104 Sociology of Racism

Semester course; 3 lecture hours. 3 credits. The course will explore the direct and indirect ways in which racial attitudes are acquired, their effect on the individuals and society, and the institutional and ideological manifestations of racism as a "faith system," as exploitation, and as a form of human conflict. The central focus of interest will be on black-white relationships.

SOCY 205/POLI 205 Introduction to Social Science Computing

Short course; 4 lecture/laboratory hours. 5 weeks. 1 credit. An introduction to the use of SPSS for storage, retrieval and exploration of social science data.

SOCY 206/AFAM 206/GSWs 206 African American Family Relationships

Semester course; 3 lecture hours. 3 credits. Focuses on the African-American family from the 1940s to the present. Examines the values and the interpersonal/role relationships that are involved in forming and maintaining African-American families in the contemporary United States. Topics include dating and sexual relationships, marital relationships, parent-child relationships and relationships with members of the extended family.

SOCY 302 Contemporary Social Problems

Semester course; 3 lecture hours. 3 credits.
Prerequisite: SOCY 101. The examination from a sociological perspective of contemporary social problems such as population growth, crime, racism, family problems, substance abuse and aging in terms of their impact on American social institutions and values.

SOCY 303 Sociology of Deviant Behavior

Semester course; 3 lecture hours. 3 credits.
Prerequisite: SOCY 101. An analysis of the relationship between social structure, social control and patterns of social deviance; a survey and critique of present social theories in light of empirical research and application of the theories to selected problem areas.

SOCY 304/ANTH 304/GSWs 304 The Family

Semester course; 3 lecture hours. 3 credits.
Prerequisite: SOCY 101 or ANTH/INTL 103. The family in its social and cultural context. Analysis of child rearing, marriage, kinship, family crises and family change in various societies around the world.

SOCY 305/AFAM 305/GSWs 305 African American Family in Social Context

Semester course; 3 lecture hours. 3 credits.
Prerequisite: SOCY 101 or SOCY/AFAM/WMNS 206. A socio-historical examination of the development of the family system of Americans from Africa. Focuses on large-scale (macro level) processes such as changes in the major mode of economic production and in political systems and the corresponding changes in black family structure and functioning. Presents the theoretical material on African-American families and social change that prepares students for further study of the family as a social institution and for the study of family policy. This course is designed to meet the needs of upper division social science majors.

SOCY 308 Collective Behavior

Semester course; 3 lecture hours. 3 credits.
Prerequisite: SOCY 101. An introduction to the field of collective behavior focusing on theories that address rumors, crowds, masses, publics, fads, crazes, fashions, images, miracles, myths, legends, millennialism and other forms of loosely organized, seemingly spontaneous human behavior.

SOCY 310 Social Movements and Social Conflict

Semester course; 3 lecture hours. 3 credits.
Prerequisite: SOCY 101. Theory and practice of social movements, community organizing and other forms of collective behavior.

SOCY 315 Education and Society

Semester course; 3 lecture hours. 3 credits.
Prerequisite: SOCY 101. Analysis of education as a social institution in the societal context. Cross-cultural comparative perspectives on education.

SOCY 318 Social Thought

Semester course; 3 lecture hours. 3 credits.
Prerequisite: SOCY 101. A review of the ideas of major social philosophers whose works are now the foundation of much modern sociology.

SOCY 320/POLI 320 Research Methods in the Social Sciences

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Current methods of research in the social sciences. Includes a brief introduction to the use of SPSS for storage, retrieval and exploration of social science data.

SOCY 321 Class, Status, and Power

Semester course; 3 lecture hours. 3 credits.
Prerequisite: SOCY 101. Analysis of social mobility, class, status and power.

SOCY 322 Minority Groups in the United States

Semester course; 3 lecture hours. 3 credits.
Prerequisite: SOCY 101. A study of the various racial, religious and ethnic minority groups. Issues of power, pluralism and assimilation are addressed as well as the relationship between subcultures and the dominant culture.

SOCY 325 Analysis of Sociological Data

Semester course; 1 lecture and 2 laboratory hours. 2 credits. Prerequisites: POLI/SOCY 320 and STAT 210. Statistical techniques used in the analysis of data from sample surveys and censuses, including tabular,

graphical and inferential procedures. SPSS software will be used in the laboratory.

SOCY 327 Urban Sociology

Semester course; 3 lecture hours. 3 credits.
Prerequisite: SOCY 101. Origin, character and significance of urban communities. Ecological and social factors are analyzed as well as changes in urban social organization and their consequences.

SOCY 328/INTL 328 Russian Society in Transition

Semester course; 3 lecture hours. 3 credits.
Prerequisite: SOCY 101 or permission of the instructor. An analysis of Russian culture and social institutions as they are today and in historical perspective. Throughout the course interrelationships among politics, the economy and social life are examined, with particular emphasis on the ideological implications of Russian/Soviet architecture, art and mass media; on environmental issues and health; on social problems and the legal systems; and on gender, the work world and family interaction.

SOCY 330/INTL 330 Global Societies: Trends and Issues

Semester course; 3 lecture hours. 3 credits.
Prerequisite: INTL/POLI 105 or POLI 201 or SOCY 101. An analysis of factors that are promoting the globalization of social, economic and political relations, and an inquiry into implications of these developments for individuals, localities, nations and the world community. The course will highlight the impact of culture and ethnicity, historical and emerging patterns of international business activity and their societal significance, divergent strategies for economic and social development in the world's regions, and the effects of population growth and environmental problems on public life within and among nations.

SOCY 331 Juvenile Delinquency

Semester course; 3 lecture hours. 3 credits.
Prerequisite: SOCY 101. Analysis of the biological, cultural, psychological and social factors involved in juvenile delinquency and their relation to current techniques of treatment, prevention and control.

SOCY 333/GSWS 333 Sociology of Sex and Gender

Semester course; 3 lecture hours. 3 credits.
Prerequisite: SOCY 101 or permission of instructor. A cross-cultural and evolutionary exploration of the interdependence between male and female roles in the following social institutions: family, law, economics, politics, religion, education and health.

SOCY 334/GSWS 334 Sociology of Women

Semester course; 3 lecture hours. 3 credits.
Prerequisite: SOCY 101 or consent of instructor. This course will examine the position and status of women across societies and the social forces that maintain existing patterns and arrangements. The integration of family and work in women's lives will be emphasized.

SOCY 336/GSWS 336 Violence Against Women

Semester course; 3 lecture hours. 3 credits. An examination of violence against women from a global and local perspective with a primary focus on violence perpetrated against women in the U.S. Requires a minimum of 20 hours of community service.

SOCY 340 Self and Society

Semester course; 3 lecture hours. 3 credits. Focused discussion of the regularities in human behavior that arise due to man's participation in social groups. Emphasis will be placed on such topics as communications, attitudes, language, interpersonal perception, personal identities and social interaction.

SOCY 341/PSYC 341 Group Dynamics

Semester course; 3 lecture hours. 3 credits.
Prerequisite: PSYC 101. Social and psychological principles and research related to the individual in groups. Specific topics include motivation for individuals forming and joining groups, performance and productivity of group members, group leadership and majority and minority influence. The group will be examined in relation to the larger society and as a subculture in itself.

SOCY 352 Social Change

Semester course; 3 lecture hours. 3 credits.
Prerequisite: SOCY 101. This course provides an analysis of the major theoretical perspectives, sources, processes, patterns and consequences of social change. It considers factors that stimulate or hinder the acceptance of change and the unintended consequences of change.

SOCY 360/RELS 360 Sociology of Religion

Semester course; 3 lecture hours. 3 credits.
Prerequisite: SOCY 101. A systematic review and assessment of major sociological theories of and empirical research on religious behavior and groups. Topics include the structure of religious organizations; social correlates and functions of religion; denominationalism; religion and social class, social change and population.

SOCY 370 Mass Media and Society

Semester course; 3 lecture hours. 3 credits.
Prerequisite: SOCY 101, MASC 101 or POLI 103. A survey of the organization and social impact of the major types of mass media. Potential topics include the media as socializing agents; the effect of media messages on cultural patterns and social values; the impact of technology on social behavior; the role of "audiences" in interpreting media content; political and economic influences on the media industry; and the media as an instrument of social change. The structure and functions of the media in different societies will be compared.

SOCY 391 Topics in Sociology

Semester course; 3 lecture hours. 3 credits. Maximum 6 credits per semester; maximum total of 18 credits in all departmental topics courses that may be applied to the major. Check with department for specific prerequisites. A discussion of specialized areas of sociological interest. See the Schedule of Classes for specific topics to be offered each semester.

SOCY 401/AFAM 401 Americans and the U.S. Health Care System

Semester course; 3 lecture hours. 3 credits.
Prerequisite: AFAM 103, AFAM/SOCY/WMNS/GSWS 305 or permission of the instructor. Explores issues surrounding the disparity in health status and health outcomes between African-Americans and other groups in the United States. Students are required to participate in an experiential exercise designed to enhance learning.

SOCY 402 Sociological Theory

Semester course; 3 lecture hours. 3 credits.
Prerequisite: at least 18 credits in sociology. A study of the works of the major sociological theorists of the 20th century.

SOCY 403 Criminology

Semester course; 3 lecture hours. 3 credits.
Prerequisite: SOCY 101. Analysis of the nature, extent and distribution of crime, emphasizing theories of and research on causation, prediction and prevention.

SOCY 404/PSYC 404 Social Psychology of Emotions

Semester course; 3 lecture hours. 3 credits.
Prerequisites: PSYC 101, SOCY 101. An examination of the social shaping of emotion as well as its function in maintaining the social process. Cross-cultural uniformities and diversity in basic emotions and their expression are addressed as well as selected social psychological theories of emotions.

SOCY 405 Family Research

Semester course; 3 lecture hours. 3 credits.
Prerequisite: SOCY/ANTH/WMNS 304. Classic and contemporary issues in the scientific study of families, with an emphasis on the examination and evaluation of research.

SOCY 406 Sociology Senior Seminar

Semester course; 3 lecture hours. 3 credits.
Prerequisite: 21 credit hours in sociology. Course must be taken in the student's last 30 hours at VCU. Senior capstone class; provides students the opportunity to synthesize, integrate and apply their sociological knowledge and skills.

SOCY 421 Applied Social Research

Semester course; variable hours. Variable credit. May be repeated for a total of 6 credits. Prerequisites: POLI/SOCY 320 and SOCY 325. A laboratory course providing training in the application of social research methods under laboratory and field situations to problems of mutual interest to community policy makers and professionals in the disciplines of sociology, social psychology and anthropology. This course is designed to enhance the skills of students in applied social research. With direct supervision by the instructor, individuals or small groups of students will address themselves to the tasks of defining, designing and executing research projects.

SOCY 426 Population Dynamics

Semester course; 3 lecture hours. 3 credits.
Prerequisite: SOCY 101. The study of trends in fertility, mortality, population growth, distribution, migration and composition. The mutual influences of these factors and social organization.

SOCY 430 Politics, Power and Ideology

Semester course; 3 lecture hours. 3 credits.
Prerequisite: SOCY 101. Sociological analysis of political organization and behavior. Such subjects as distribution and uses of power, creation and management of group conflict, development and diffusion of political ideologies, and problems of bureaucracy and mass society will be considered.

SOCY 434 Sociology of Sport

Semester course; 3 lecture hours. 3 credits.
Prerequisite: SOCY 101. Sport will be viewed as a major social institution within many societies. The

class will study the relationship between sport and society both in terms of sport reflecting the ideology and culture of society as well as sport as an active agent of change in society. Race, gender and social class will be examined within the context of sport.

SOCY 436 Work and Management in Modern Society

Semester course; 3 lecture hours. 3 credits.
Prerequisite: SOCY 101. The study of industrial plants and business organizations as social systems.

SOCY 440 Advanced Social Psychology

Semester course; 3 credits. Prerequisite: SOCY 340. The study of how human groups create the environment that, in turn, influences their individual behavior. The symbolic interactionist perspective will be thoroughly explored for its contribution to the study of persons, objects and meaning.

SOCY 445 Medical Sociology

Semester course; 3 lecture hours. 3 credits.
Prerequisite: SOCY 101. A survey of the social, economic, cultural and social psychological factors in health and illness; the sociology of health and medical care organizations and settings; the sociology of health occupations; and the techniques of research in medical sociology.

SOCY 446 Sociology of Mental Disorder

Semester course; 3 lecture hours. 3 credits.
Prerequisite: SOCY 101. A survey of selected social, economic, cultural and social psychological factors in mental health and illness. Such problems as defining mental illness; social factors in the distribution, diagnosis, etiology and treatment of mental disorders; mental illness as a social role; and research methods used in the sociology of mental illness will be considered.

SOCY 470 News Media in a Democratic Society

Semester course; 3 lecture hours. 3 credits.
Prerequisite: SOCY 101. A consideration of the role of the news media in society. The course examines the news industry, including its economic organization and professional norms; news media content; the impact of news media in society, especially on the democratic political process; and the significance of political and economic influences on the functioning of the new media.

SOCY 475 Organizations and Human Behavior

Semester course; 3 lecture hours. 3 credits.
Prerequisite: SOCY 101. A survey of theory and research in social organizations, including the study of behavior in modern complex human organizations.

SOCY 476 Labor, Occupations and Careers

Semester course; 3 lecture hours. 3 credits.
Prerequisite: SOCY 101. An examination of labor force participation in terms of the individual worker's experience, the work setting, the nature of occupations and labor force composition.

SOCY 490 Senior Project

Semester course; 1 credit. Restricted to major. Students must register for this course with the permission of an instructor. Students are required to produce a project report that must be approved by and submitted to the instructor of the course.

SOCY 492 Independent Study

Semester course; variable hours. Variable credit. Maximum of 6 credits per semester; maximum total of 12 credits for all independent study courses. Open generally only to students of junior or senior standing who have acquired at least 12 credits in the departmental discipline. Determination of the amount of credit and permission of the instructor and department chair must be received prior to registration of the course. Cannot be used in place of existing courses.

SOCY 493 Field Research Internship

Semester course; 3 credits. May be repeated for a maximum of 6 credits. Prerequisites: applications must be approved by a faculty adviser and the internship coordinator. For sociology majors of junior or senior standing. Students are placed in organizations that offer supervised work or research experience appropriate to their interests. Each student must work 150 clock hours in the organization and write a sociological analysis of experiences using appropriate fieldwork methodological techniques.

SOCY 498 Honors Research Course

Semester course; 3 credits. Prerequisites: student must be in the honors program of the department and have achieved senior status. This course will entail the planning and execution of a major research project demonstrating a thorough understanding and use of research techniques in sociological/anthropological analysis, knowledge of relevant literature, sophisticated writing and research ability under the direction of a faculty mentor.

Spanish

Students planning to take Spanish courses at VCU who have had prior experience with the language must take the placement test in order to determine proper course selection. Students who wish to complete Spanish through the intermediate level or higher are required to consecutively complete 101, 102 and 201 or the equivalent. Students may then choose either 202 or 205 to complete the intermediate level.

SPAN 101 Elementary Spanish

Continuous courses; 5 lecture/recitation hours. 4-4 credits. Prerequisite: completion of SPAN 101 to enroll in SPAN 102. Elementary grammar, reading and oral drills.

SPAN 102 Elementary Spanish

Continuous courses; 5 lecture/recitation hours. 4-4 credits. Prerequisite: completion of SPAN 101 to enroll in SPAN 102. Elementary grammar, reading and oral drills.

SPAN 201 Intermediate Spanish

Semester course; 3 lecture hours. 3 credits.
Prerequisite: SPAN 102. Continuation of the essentials of grammar, with emphasis on achieving proficiency in aural comprehension, speaking, reading and writing skills.

SPAN 202 Intermediate Spanish Readings

Semester course; 3 lecture hours. 3 credits.
Prerequisite: SPAN 201. Designed to increase the student's proficiency through the study of selected cultural and literary texts.

SPAN 205 Intermediate Spanish Conversation

Semester course; 3 lecture hours. 3 credits.
Prerequisite: SPAN 201. Designed to increase the student's proficiency in the spoken language through audio-oral exercises, dialogues and free conversation.

SPAN 300 Advanced Grammar and Writing

Semester courses; 3 lecture hours. 3, 3 credits.
Prerequisite: SPAN 202 or 205. Prerequisite for SPAN 301: SPAN 300. A systematic review of Spanish grammar with emphasis on the elements of style and vocabulary building, translation and composition.

SPAN 301 Advanced Grammar and Writing

Semester courses; 3 lecture hours. 3, 3 credits.
Prerequisite: SPAN 202 or 205. Prerequisite for SPAN 301: SPAN 300. A systematic review of Spanish grammar with emphasis on the elements of style and vocabulary building, translation and composition.

SPAN 305 Spanish Conversation

Semester course; 3 lecture hours. 3 credits.
Prerequisite: SPAN 202 or 205. Conducted in Spanish. Practice in the spoken language with emphasis on discussions relating to topics of current interest.

SPAN 307 Spanish Conversation and Film

Semester courses; 3 lecture hours. 3, 3 credits.
Prerequisite: SPAN 202, 205 or 300. Designed to develop the student's conversational skills, oral comprehension ability and knowledge of contemporary culture through discussion of selected Spanish and Latin American films. Emphasis is also placed on vocabulary development and writing practice.

SPAN 311 Spanish Through the Media

Semester course; 3 lecture hours. 3 credits.
Prerequisite: SPAN 202 or 205. Further development of listening, reading, writing, speaking and cultural skills through a focus on mass media in Latin America and Spain. Spanish language and current events will be taught through direct contact with newspapers, journals, television and radio programming, and online media. Students will view programs outside of class, participate actively in class discussions, create presentations and conduct research.

SPAN 320 Civilization of Spain I

Semester course; 3 lecture hours. 3 credits.
Prerequisites: SPAN 300; SPAN 305 or 307 or 311; corequisite: SPAN 301. Conducted in Spanish. A treatment of salient manifestations of Spanish culture and civilization from its origins to the present.

SPAN 321 Latin American Civilization I

Semester course; 3 lecture hours. 3 credits.
Prerequisites: SPAN 300; SPAN 305 or 307 or 311; corequisite: SPAN 301. Conducted in Spanish. A treatment of salient manifestations of Latin American culture and civilization from pre-Columbian times to the present.

SPAN 322 Hispanic Immigrants in the U.S.

Semester course; 3 lecture hours. 3 credits.
Prerequisites: SPAN 300; SPAN 305 or 307 or 311; corequisite: SPAN 301. Conducted in Spanish. Analysis, research and discussion of the life and history of Hispanics in the U.S. Topics such as identity, assimilation, immigration laws, education, jobs, housing, health, religion and politics will be covered. Students will apply their course learning through 15 hours of community service for Hispanics.

SPAN 330 Survey of Spanish Literature

Semester course; 3 lecture hours. 3 credits.

Prerequisite: SPAN 300; SPAN 305 or 307 or 311; corequisite: SPAN 301. Conducted in Spanish. A survey of Spanish literature up to the present.

SPAN 331/INTL 331 Survey of Latin American Literature

Semester course; 3 lecture hours. 3 credits.

Prerequisite: SPAN 300; SPAN 305 or 307 or 311; corequisite: SPAN 301. Conducted in Spanish. An introduction to major authors and trends up to the present.

SPAN 332 Latino Writers in the U.S.

Semester course; 3 lecture hours. 3 credits.

Prerequisites: SPAN 300; SPAN 305 or 307 or 311; corequisite: SPAN 301. Conducted in Spanish. Explores Latino cultural identity and the Latino contribution to U.S. cultural life through a variety of works in the different literary genres produced by Latino writers, both immigrants and those raised in the U.S.

SPAN 400 Spanish Translation

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of 6 credits. Prerequisites: SPAN 301; SPAN 305 or 307 or 311; SPAN 320 or 321 or 330 or 331. Conducted in Spanish. Integrates the basic theoretical and practical aspects of translation, focused from a perspective of applied linguistics. The course includes a workshop component and students will practice both written and oral translation of diverse texts. See the Schedule of Classes for the specific topic to be offered each semester.

SPAN 401/LING 401 Comparative Structures

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of 6 credits. Prerequisites: SPAN 301; SPAN 305 or 307 or 311; SPAN 320 or 321 or 330 or 331. Conducted in Spanish. A comparison of English and Spanish, with emphasis on pronunciation and problems encountered in the teaching of Spanish. See the Schedule of Classes for the specific topic to be offered each semester.

SPAN 402/LING 402 Language Issues in the Spanish-speaking World

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of 6 credits. Prerequisites: SPAN 301; SPAN 305 or 307 or 311; SPAN 320 or 321 or 330 or 331. Conducted in Spanish. Through a variety of topics this course explores the links between language and human behavior as exemplified by language phenomena in the Spanish-speaking world. Topics will be drawn mainly from sociolinguistics, language and culture, and education and applied linguistics. See the Schedule of Classes for the specific topic to be offered each semester.

SPAN 403 History of the Spanish Language

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of 6 credits. Prerequisites: SPAN 301; SPAN 305 or 307 or 311; SPAN 320 or 321 or 330 or 331. Conducted in Spanish. A study of the evolution of Spanish from Latin through the Middle Ages to the Modern era. Historical phonology, etymology, morphology, orthography, semantics and syntax of standard

Castilian. See the Schedule of Classes for the specific topic to be offered each semester.

SPAN 404 Spanish Interpretation

Semester course; 3 lecture hours. 3 credits.

Prerequisites: SPAN 301; SPAN 305 or 307 or 311; SPAN 320 or 321 or 330 or 331. This course covers theoretical and practical aspects of interpretation, including simultaneous and consecutive interpretation, as well as sight translation. The course also includes a workshop component in which students will put into practice these types of interpretation.

SPAN 414 Commercial Spanish

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of 6 credits. Prerequisites: SPAN 301; SPAN 305 or 307 or 311; SPAN 320 or 321 or 330 or 331. Conducted in Spanish. This course will develop the student's ability to use the Spanish language as a means of oral and written communication in the business world. See the Schedule of Classes for the specific topic to be offered each semester.

SPAN 420 Civilization of Spain II

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of 6 credits. Prerequisites: completion of 9 credits of Spanish at the 300 level including SPAN 300 or 301. This course explores the cultural diversity and differences of Spain. Topics focus on a particular interdisciplinary theme, such as the formation of cities, ethnicity and on a particular area of Spain. See the Schedule of Classes for the specific topic to be offered each semester.

SPAN 421/INTL 421 Civilization of Latin America II

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of 6 credits. Prerequisites: completion of 9 credits of Spanish at the 300 level including SPAN 300 or 301. This course explores the cultural diversity of Latin America and the social and political forces behind cultural change. Topics will focus on a specific interdisciplinary theme, such as urban life, the politics of identity and on a specific area of Latin America. See the Schedule of Classes for the specific topic to be offered each semester.

SPAN 422 Spanish and Latin American Cinema

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different themes, up to a total of 6 credits. Prerequisites: completion of 9 credits of Spanish at the 300 level including SPAN 300 or 301. Conducted in Spanish. Spanish and/or Latin American cinema from the 1940s to the present, including the works of important directors, such as Bunuel, Saura, Almodovar, Emilio Fernandez, Glauber Rocha, Solanas or Gutierrez-Alea. The formal and aesthetic issues of cinematic texts and the historical, cultural and social contexts of their production. See the Schedule of Classes for the specific theme to be offered each semester.

SPAN 430 Literary Genres

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of 6 credits. Prerequisites: completion of 9 credits of Spanish at the 300 level including SPAN 300 or 301. Conducted in Spanish. An in-depth look at the

development and expression of varieties of literature in Spanish. See the Schedule of Classes for the specific topic to be offered each semester.

SPAN 431 Literary Periods

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of 6 credits. Prerequisites: completion of 9 credits of Spanish at the 300 level including SPAN 300 or 301. Conducted in Spanish. An in-depth synchronic look at movements and their context in literature in Spanish. See the Schedule of Classes for the specific topic to be offered each semester.

SPAN 432 Hispanic Culture Through Literature

Semester course; 3 lecture hours. 3 credits. Prerequisites: SPAN 301 and 320; SPAN 330 or 331 or 332. Conducted in Spanish. An in-depth analysis of Hispanic texts dealing with cultural topics such as love relationships, death, family, religion, politics, gender and ethnicity, as well as their relationships to cultural values, behaviors, ideologies, beliefs and the histories of Spain and Spanish America.

SPAN 433 Don Quixote

Semester course; 3 lecture hours. 3 credits. Prerequisites: SPAN 301, and SPAN 320 or SPAN 330. Conducted in Spanish. An in-depth analysis of Miguel de Cervantes's masterpiece. Focuses on questions of the literary, linguistic and cultural complexity of *Don Quixote*. Examines the work in the social and historical context of Early Modern Spain.

SPAN 485 Spanish Study Abroad

Semester course; variable hours. Variable credit. Prerequisites: SPAN 301 and SPAN 321; SPAN 330 or 331 or 332. This course offers all students the opportunity to improve their oral and written proficiency in Spanish, to enhance their awareness of cultural diversity and to become independent learners of Spanish language and the cultures of its speakers.

SPAN 491 Topics in Spanish

Semester course; variable hours. 1-3 credits. May be repeated with different topics for a maximum of 9 credits. Prerequisites: SPAN 301; SPAN 305 or 307 or 311; SPAN 320 or 321 or 330 or 331. An in-depth study of selected topics in Spanish. See the Schedule of Classes for specific topics to be offered each semester.

SPAN 492 Independent Study

Semester course; variable hours. Variable credit. Maximum of 3 credits per semester; maximum total of 6 credits for all independent study courses in Spanish. Prerequisites: SPAN 301; SPAN 305 or 307 or 311; SPAN 320 or 321 or 330 or 331. A course designed to give students an opportunity to become involved in independent study in a literary or linguistic area or subject in which they have an interest.

SPAN 494 Spanish Interpretation and Translation Internship

Semester course; 50-150 clock hours in local, national or international internship placement where Spanish language interpretation or translation is required. 1-3 credits. Repeatable for up to 6 credits. Prerequisites: SPAN 301; SPAN 305 or 307 or 311; SPAN 320 or 321; SPAN 400; and SPAN 401. Under the supervision of both a faculty member and a field supervisor, students will apply their linguistic skills in an

approved work situation. Each internship will be specifically designed in accordance with the student's linguistic level and the placement site requirements.

Spanish/English Translation and Interpretation

SETI 400 Spanish-English Comparative Grammar

Semester course; 3 lecture hours. 3 credits.
Prerequisites: SPAN 301; SPAN 320, 321 or 322; and SPAN 330, 331 or 332. Conducted in Spanish and English. Advanced comparison of English and Spanish grammar with emphasis on the more complex forms of both languages.

SETI 410 Introduction to Spanish-English Translation

Semester course; 3 lecture hours. 3 credits.
Prerequisite: SETI 400. Course conducted in Spanish and English. Integrates the basic theory and practical aspects of translation, focused from a perspective of applied linguistics. Practice given in both written and oral translation of diverse texts.

SETI 411 Intermediate Translation

Semester course; 3 lecture hours. 3 credits.
Prerequisite: SETI 410. Course conducted in Spanish and English. Exposes students to more advanced translation skills, introducing a more focused vocabulary for the legal, medical, business and educational fields that regularly use translation. Introduces students to professional associations and journals of the industry, including those dedicated to literary translation. Analyzes pros and cons of computer-assisted translations.

SETI 420 Introduction to Spanish-English Interpretation

Semester course; 3 lecture hours. 3 credits.
Prerequisite: SETI 400. Course conducted in Spanish and English. Covers theory and practical aspects of interpretation, including the three modes of interpretation -- simultaneous, consecutive and sight translation.

SETI 421 Intermediate Interpretation

Semester course; 3 lecture hours. 3 credits.
Prerequisite: SETI 420. Conducted in Spanish and English. Exposes students to more advanced interpreting skills in all three modes of interpretation -- simultaneous, consecutive and sight translation -- introducing a more focused vocabulary for the legal, medical, business and educational fields that regularly use interpreters.

SETI 422 Legal Interpretation

Semester course; 3 lecture hours. 3 credits.
Prerequisite: SETI 420. Conducted in Spanish and English. Exposes students to the ethics, regulations and advanced vocabulary used in legal interpreting, with a focus on the state examination for certification in the court system.

SETI 423 Medical Interpretation

Semester course; 3 lecture hours. 3 credits.
Prerequisite: SETI 420. Conducted in Spanish and English. Exposes students to the ethics, regulations and advanced vocabulary used in medical interpreting. Explores the range of accreditation bodies and history of national and international certification in the

medical interpreter profession, with the goal of grooming students for careers in this field.

SETI 493 SETI Internship

Semester course; 120 clock hours in local, national or international internship placement where Spanish-English language interpretation or translation is required. 3 credits. Prerequisites: SETI 410 and SETI 420. Under the supervision of both a faculty member and a field supervisor, students will apply their translation and/or interpretation skills in an approved work situation. Each internship will be specifically designed in accordance with the student's linguistic level and the placement site requirements.

Statistical Sciences

STAT 208 Statistical Thinking

Semester course; 2 lecture and 1.5 laboratory hours. 3 credits. Prerequisite: satisfactory score on the VCU Mathematics Placement Test within the one-year period immediately preceding the beginning of the course, or a minimum grade of C in MATH 131, 141, 151, 200 or 201. An exploration of the use of statistics in the world around us through in-depth case studies. Emphasis is on understanding statistical studies, charts, tables and graphs frequently seen in various media sources. Laboratories involve learning activities centered on case studies. Students may receive credit toward graduation for only one of STAT 208, 210, 212, 312 or MGMT 301.

STAT 210 Basic Practice of Statistics

Semester course; 3 lecture hours. 3 credits.
Prerequisite: satisfactory score on the VCU Mathematics Placement Test within the one-year period immediately preceding the beginning of the course, or MATH 131, 141, 151, 200 or 201. An exception to this policy is made in the case where the stated alternative prerequisite course has been completed at VCU. Designed for students who will likely take another quantitative reasoning course for which statistics may be a prerequisite. Not open to mathematical sciences or computer science majors. Topics include examining distributions, examining relationships, producing data, sampling distributions and probability, introduction to inference. Students may receive credit toward graduation for only one of STAT 208, 210, 212, 312 or MGMT 301.

STAT 212 Concepts of Statistics

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisite: MATH 200. An introduction to the nature of statistical thinking and the application of abstract systems to the resolution of nonabstract problems. Probability models for stochastic events. Parametric representations. Estimation, testing hypotheses and interval estimation with application to classical models. Laboratories include activity-based learning and computer usage. A core course for mathematical sciences. Students may receive credit toward graduation for only one of STAT 208, 210, 212, 312 or MGMT 301.

STAT 291 Topics in Statistics

Semester course; 1-3 lecture hours. 1-3 credits. A study of selected topics in statistics. Specific topics may fulfill general education requirements. See the Schedule of Classes for specific topics and prerequisites.

STAT 309/MATH 309 Introduction to Probability Theory

Semester course; 3 lecture hours. 3 credits.
Prerequisite: MATH 201. Completion of MATH 211 or MATH 300 (or equivalent knowledge) is strongly recommended. A study of the mathematical theory of probability, including finite and infinite sample spaces, random variables, discrete and continuous distributions, mathematical expectation, functions of random variables and sampling distributions.

STAT 312 Data Analysis and Statistics for Elementary Education

Semester course; 3 lecture hours. 3 credits.
Prerequisites: MATH 361 and 362. Restricted to students majoring in the liberal studies concentration for early and elementary education. Understanding probability, describing data both graphically and numerically, regression/correlation, common distributions and interpretation, item analysis for tests, interpreting test scores and educational studies, experimental design and limitations, comparing results using t-tests and ANOVA. This course relies heavily on Excel as a data-analysis tool and requires one structured interaction at the elementary school level. Students may receive credit toward graduation for only one of STAT 208, 210, 212, 312 or MGMT 301.

STAT 314 Applications of Statistics

Semester course; 4 lecture hours. 4 credits.
Prerequisite: STAT 210 or 212. A study of the concepts and application of statistical methods including: estimation and hypothesis testing for two sample problems; one factor analysis of variance and multiple comparisons; randomized block designs and analysis; inferences on categorical data, including chi-square test for independence for contingency tables; simple linear regression and correlation; multiple linear regression. Special topics include distribution-free (nonparametric) methods in various statistical problems, two factor analysis of variance and the use of a statistical software package for data analysis.

STAT 321 Introduction to Statistical Computing

Semester course; 3 lecture hours. 3 credits.
Prerequisites: STAT 212 and MATH 200 or their equivalents. The application of computers to statistical practice using SAS, R or similar statistical software. Topics include data storage and retrieval, data modification and file handling, statistical and graphical data analysis, and simulation.

STAT 391 Topics in Statistics

Semester course; 1-3 lecture hours. 1-3 credits.
Prerequisite: because of the changing subject matter to be treated in this course, permission of the instructor is required. A study of selected topics in statistics. See the Schedule of Classes for specific topics to be offered each semester and prerequisites.

STAT 404 Introduction to Statistical Inference

Semester course; 3 lecture hours. 3 credits.
Prerequisites: both STAT 212 and STAT/MATH 309, or permission of instructor. Framework for statistical inference. Point and interval estimation of population parameters. Hypothesis testing concepts, power functions, Neyman-Pearson lemma and likelihood ratio tests. Elementary decision theory concepts.

STAT 421 Computational Issues in Statistical Science

Semester course; 3 lecture hours. 3 credits.
Prerequisites: STAT 212, and MATH 310, and CMSC 245 or CMSC 255 or STAT 321 plus permission of instructor, or their equivalents. Introduction to computational issues in statistics through the exploration of the major topics in machine learning and statistical pattern recognition. Students will be exposed to basic algorithms used in learning systems such as supervised and unsupervised learning, theoretical issues such as computational learning theory, and applications of machine learning such as text classification. Students will be required to program in a higher-level language.

STAT 422 Structured Problem Solving Using Statistics

Semester course; 3 lecture hours. 3 credits.
Prerequisite: STAT 314, PSYC 214 or MGMT 302, or permission of instructor. Focuses on using analytic frameworks and applying statistics to solve problems in a real-world environment. Topics include discussion of analytical frameworks, problem restatement, divergent/convergent thinking, causal flow diagramming, the matrix method, decision tree analysis, review of sampling, confidence intervals, regression, ANOVA, chi squared tests, as well as applications of these concepts to solve case studies.

STAT 435 Industrial Statistics

Semester course; 3 lecture hours. 3 credits.
Prerequisites: STAT 309/MATH 309 and STAT 314. Introduction to statistical methods for quality control and process improvement. Topics include special versus common causes of variation, statistical thinking in industrial settings, Shewhart control charts, capability analysis, components of variation, design of experiments and response surface methods. Incorporates use of statistical software.

STAT 445 Analyses of Dependent Data

Semester course; 3 lecture hours. 3 credits.
Prerequisites: STAT 309/MATH 309, MATH 310 and STAT 314. Introduction to the analysis of dependent data including the areas of multivariate statistical analysis and time series analysis. Topics include multivariate normal distribution, principal components analysis, factor analysis, cluster analysis, linear discriminant analysis, smoothing methods for time series data, ARIMA and SARIMA models for time series data, and regression with dependent error structures.

Statistical Sciences and Operations Research**SSOR 490 Developing Professional Skills in Operations Research and Statistics**

Semester course; 3 lecture hours. 3 credits.
Prerequisites: UNIV 200 or HONR 200; either STAT 314 and STAT 321, or OPER 427 and OPER 428. Capstone course designed to help students apply analysis techniques and attain proficiency in professional and academic communication in the context of statistics and operations research. Focuses on the discipline-specific skills necessary to excel in careers or graduate studies in these disciplines.

SSOR 492 Independent Study

Semester course; variable hours. 2-4 credits.
Maximum 4 credits per semester; maximum total of 6 credits. Generally open only to students of junior or senior standing who have acquired at least 12 credits in the departmental discipline. Determination of the amount of credit and permission of instructor and department chair must be procured prior to registration in the course. The student must submit a proposal for investigating some area or problem not contained in the regular curriculum. The results of the student's study will be presented in a report.

University Studies**UNVS 291 Interdisciplinary Topics**

Semester course; variable hours. 1-4 credits per semester. Maximum total of 8 credits in all university studies courses. An interdisciplinary course designed to give the student an overview of a topic not associated with a particular discipline.

World Studies**WRLD 203/INTL 203 Cultural Texts and Contexts:**

Semester course; 3 lecture hours. 3 credits. Through the analysis and interpretation of literary, cinematic and other cultural texts, this course explores the ways cultural and national identities have been shaped, imagined and contested in various regions of the world. While responding to the readings and films as artistic manifestations or social documents, students will also become familiar with the aesthetic, political and social contexts in which the works were and are produced. See the Schedule of Classes for specific topics to be offered each semester.

WRLD 210 International Social Justice Studies

Semester course; 3 lecture hours. 3 credits. An overview of the issues, themes, disciplines, and areas of research and teaching that comprise international social justice studies in a variety of global contexts.

WRLD 220 Human Rights and Literature

Semester course; 3 lecture hours. 3 credits. A cross-cultural survey of human rights violations. The moral, political and pragmatic dimensions in the international response to violations are investigated including transnational organizations that document abuses as expressed in memoirs, eyewitness accounts, literature and film.

WRLD 230 Introduction to World Cinema

Semester course; 5 lecture/screening hours. 3 credits. An overview of the main theoretical frameworks, critical concepts and debates devoted to non-Hollywood world cinemas, with special emphasis on the rethinking of national cinema and the problematizing of identity in an increasingly transnational era. Broad interdisciplinary readings in film theory, film history and cultural studies will be supplemented by case studies of particular cinemas and filmmakers, so as to convey an appreciation of the main international movements in the history of cinema.

WRLD 291 Topics in World Languages and Cultures

Semester course; variable hours. 1-3 credits. May be repeated with different content for a maximum of 6 credits. A study of a specialized topic in world cultures and languages. See the Schedule of Classes for specific topics to be offered each semester.

WRLD 302 Communicating Across Cultures

Semester course; 3 lecture hours. 3 credits. Designed to increase understanding of the foundational concepts of communication and intercultural dialogue. Examines (among others) such concepts as individualism, collectivism, ethnocentrism, xenophobia, uncertainty avoidance, nonverbal communication and stereotyping.

WRLD 310 Mediterranean Cultural Geography

Semester course; 3 lecture hours. 3 credits. An in-depth analysis of the Mediterranean region, its distinctive and defining features (physical, climatic and sociopolitical) and its paradigmatic role in global politics and economy.

WRLD 311 Civilization of the Mediterranean

Semester course; 3 lecture hours. 3 credits. Exploration of the Mediterranean from pre-history to modernity, with an emphasis on cross-cultural engagement. Aims at exploring the interaction and cross-cultural fertilization between societies and cultures of the lands of the Middle Sea: North Africa, Middle East and southern Europe.

WRLD 330 Introduction to Film Studies

Semester course; 3 lecture hours. 3 credits.
Prerequisite: WRLD 230 or permission of instructor. An overview of film studies with special attention given to the debates informing the periodization of film history, the critical paradigms of the major film theories and the elements of a cinematographic language from both a technical and aesthetic standpoint.

WRLD 359 International Media Coverage: The Middle East

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisite: MASC 101 with a minimum grade of C or 151 with a minimum grade of C. This interdisciplinary course explores the media's role in covering cultural, political, religious and other issues in the Middle East. Students will examine the role and impact of the media in both the United States and Middle East in shaping global and regional public opinion. Using webcam and online technology, VCU students will discuss cross-cultural perspectives with students from the other U.S. universities and universities in the Middle East.

WRLD 391 Topics in World Languages and Cultures

Semester course; variable hours. 1-3 credits. May be repeated with different content for a maximum of 6 credits. An in-depth study of a specialized topic in world cultures and languages. See the Schedule of Classes for specific topics to be offered each semester and prerequisites.

WRLD 422 National Cinema

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different themes up to a total of 6 credits. Prerequisite: WRLD 230 or 330 or permission

of instructor. Tracing the development of cinematic traditions in selected nations, this course focuses on the thematic selections and stylistic techniques particular to that particular cinematographic culture. See the Schedule of Classes for the specific theme to be offered each semester.

WRLD 430 Film and the City

Semester course; 3 lecture hours. 3 credits.

Prerequisite: permission of instructor. Focuses on cinematic representations of cities worldwide, so as to probe the increasingly cross-cultural dynamics of urban landscapes. Films discussed will span the entire history of cinema across genres and national traditions.

WRLD 490 Seminar in World Cultures and Languages

Semester course; 3 lecture hours. 3 credits. Restricted to seniors in world cultures and languages with at least 85 credit hours earned toward the degree. Research and analysis of a selected topic in world cultures and languages in a seminar setting.

WRLD 491 Topics in World Languages and Cultures

Semester course; variable hours. 1-3 credits. May be repeated with different content for a maximum of 6 credits. An intensive and comprehensive examination of specialized areas of interest in world cultures and languages. See the Schedule of Classes for specific topics to be offered each semester and prerequisites.

WRLD 493 World Cultures Internship

Semester course; variable hours. 1-3 credits (40 clock hours per credit). May be repeated for a maximum of 6 credits, however only 3 credits can count toward the major concentration. Prerequisites: completion of 9 credits of upper-level (300- or above) course work toward any non-foreign-language concentration within the School of World Studies, and permission of the internship coordinator. Student must be in good academic standing with a minimum major GPA of 2.25. Designed for the advanced student to gain workplace experience in internationally oriented public and private organizations and agencies.

WRLD 499 Senior Capstone Seminar

Semester course; 1 lecture hour. 1 credit. Prerequisite: completion of 6 credits of 400-level courses in the major and senior standing. Open only to students enrolled as majors in the School of World Studies, including anthropology, religious studies, and world cultures and languages. Capstone seminar summarizing and synthesizing studies in World Studies programs. Preparation for entry into career search. Organization and polishing of written works representing skills acquired in programs. Assembly of individual portfolio as means of assessment and career tool.

School of Allied Health Professions

Allied Health Professions

ALHP 391 Special Topics

Semester course; 1-4 credits. Prerequisite: permission of instructor. Offered for undergraduate level. Interdisciplinary study through lectures, tutorial study or independent research of selected topics not provided in other courses.

Clinical Laboratory Sciences

CLLS 201 Introduction to Clinical Laboratory Science

Semester course; 1 lecture hour. 1 credit. Open to students on the Monroe Park Campus who are interested in clinical laboratory science/medical technology as a career. Presentation and discussion of clinical laboratory science including an introduction to each of the specific areas of concentration, job opportunities in the profession and a tour of a hospital laboratory. Graded as pass/fail.

CLLS 300 Basic Concepts

Semester course; 1 lecture and 1 laboratory hours. 1.5 credits. An introduction to the basic concepts/techniques applicable to all laboratory science areas. Includes optical physics, quality control, laboratory safety, medical terminology and pipetting techniques along with other basic subjects.

CLLS 301 Hematology

Continuous courses; 4.5 lecture and 6 laboratory hours. 2-7.5 credits. Prerequisite: completion of CLLS 301 to enroll in CLLS 302. A study of the blood and blood-forming tissues. Emphasis is placed on hematologic techniques, accurate identification of normal and abnormal cells and their correlation with normal or pathologic conditions. An introduction to the hemostatic mechanism also is presented.

CLLS 302 Hematology

Continuous courses; 4.5 lecture and 6 laboratory hours. 2-7.5 credits. Prerequisite: completion of CLLS 301 to enroll in CLLS 302. A study of the blood and blood-forming tissues. Emphasis is placed on hematologic techniques, accurate identification of normal and abnormal cells and their correlation with normal or pathologic conditions. An introduction to the hemostatic mechanism also is presented.

CLLS 304 Urine and Body Fluid Analysis

Semester course; 1.5 lecture and 1 laboratory hours. 1-2 credits. A study of the principles and practices of urinalysis, kidney function, cerebrospinal fluid and other body fluids.

CLLS 306 Immunohematology

Semester course; 2.5 lecture and 4 laboratory hours. 2.5-4.5 credits. Prerequisite: CLLS 310. A study of the theory and principles of blood banking with an emphasis on methods and techniques used in the laboratory for cell typing, cross-matching and antibody identification.

CLLS 307 Introduction to Pathogenic Microbiology

Semester course; 3 lecture hours. 1-3 credits. May be taken as 1 credit each for study of basic parasitology, mycology or virology. Includes fundamentals of

parasites, fungi and viruses as potentially pathogenic microorganisms.

CLLS 308 Pathogenic Bacteriology

Semester course; 3 lecture hours and 4 laboratory hours. 3-5 credits. Emphasis is placed on pathogenic bacteria, techniques, pathogenesis, epidemiology, isolation and identification, and antimicrobial susceptibility testing.

CLLS 310 Clinical Immunology

Semester course; 3.5 lecture and 2 laboratory hours. 3-4.5 credits. Introduces the basic principles of immunology, serology and molecular diagnostics. Emphasis is placed on laboratory evaluation of the immune response including both cellular and humoral aspects. Serologic techniques are practiced in the laboratory sessions.

CLLS 311 Clinical Chemistry and Instrumentation I

Semester course; 3 lecture and 4 laboratory hours. 3-5 credits. A study of human physiology and metabolism in health and various disease states. Topics include energy and nitrogen metabolism and proteins in body fluids. Emphasis is placed on the application of quantitative analytical methods and instrumentation for the chemical characterization of body fluids to provide clinically useful information for the diagnosis and treatment of diseases.

CLLS 312 Clinical Chemistry and Instrumentation II

Semester course; 4 lecture and 2 laboratory hours. 4-5 credits. Prerequisite: CLLS 311 or permission of the instructor. A study of human physiology and metabolism in health and various disease states. Topics include water and ion balance, clinical enzymology, therapeutic drug monitoring, and toxicology. Emphasis is placed on the application of quantitative analytical methods and instrumentation for the chemical characterization of body fluids to provide clinically useful information for the diagnosis and treatment of diseases.

CLLS 337 Clinical Education

Semester course; 120 clock hours. 1 credit. Supervised clinical experience in hospitals across the state is designed to give the student a broader clinical education and to provide venipuncture experience. In addition to the application of academically acquired knowledge, this affiliation provides an opportunity for the student to correlate each area of study into one composite picture for final laboratory diagnosis. Closer working relationships with other allied health personnel is an important aspect of this affiliation. Graded as pass/fail.

CLLS 407 Interpretive Immunohematology

Semester course; 2.5 lecture hours. 2-2.5 credits. Prerequisites: CLLS 306 and 310, or permission of instructor. Advanced study of the principles of immunohematology and immunology with major emphasis on blood group systems and blood components. Includes the application of laboratory data and techniques to solve problems in blood banking and immunology.

CLLS 408 Advanced Microbiology

Semester course; 2 lecture hours. 2 credits. Prerequisites: CLLS 307 and 308, or permission of instructor. Advanced study of the principles of

pathogenic microbiology. Includes the application of laboratory data and techniques to solve problems in the clinical microbiology laboratory.

CLLS 409 Interpretive Hematology

Semester course; 2 lecture hours. 2 credits. Prerequisites: CLLS 301-302 and 485, or permission of instructor. Advanced study of the principles of hematopoiesis and their pathophysiological correlation to hematological disorders. Interpretation of morphological findings are correlated with case histories. Includes homeostatic problems.

CLLS 410 Advanced Clinical Chemistry and Instrumentation

Semester course; 2 lecture hours. 2 credits. Prerequisites: CLLS 311-312, or permission of instructor. Presents an advanced study of (1) the principles of clinical chemistry as related to intermediary metabolism and pathology and (2) laboratory and hospital information systems. Includes the application of laboratory data and technologies to solve problems in analytical methods and instruments.

CLLS 411 Principles of Education/Management

Semester course; 3 lecture hours. 2.5-3.5 credits. Introduces fundamental educational theories and practice, principles of management and employee relations and health-care issues from a global perspective with an emphasis on multicultural diversity. Stresses the application of these theories in the clinical laboratory.

CLLS 412 Senior Seminar

Semester course; 1 lecture hour. 1 credit. Seminars are presented on various aspects of professionalism, experimental design and critical evaluation of scientific literature. A simulated registry exam is given at the conclusion. Graded as pass/fail.

CLLS 415 Special Topics in Clinical Laboratory Sciences

Semester course; 1-6 credits. Course provides for tutorial studies, laboratory experience and/or library assignments in specialized areas for those students who have previous course work or laboratory experience in a specific subject.

CLLS 438/HONR 492 Research Paper

Semester course; 1 lecture hour. 1 credit. This course is designed to introduce the student to the fundamentals of scientific writing.

CLLS 483 Biochemistry Practicum

Semester course; 40-180 clock hours. 1-4.5 credits. Prerequisites: CLLS 311-312. Individual participation in hospital chemistry laboratories. Students gain practical experience in the use of procedures and instruments by working with the staff. After gaining competence, students are expected to perform and sign out routine laboratory work under supervision. Graded as pass/fail.

CLLS 485 Hematology Practicum

Semester course; 40-180 clock hours. 1-4.5 credits. Prerequisites: CLLS 301-302. Individual participation in hospital hematology laboratories. Students gain practical experience in the use of procedures and instruments by working with the staff. After gaining competence, the students are expected to perform and

sign out routine laboratory work under supervision. Graded as pass/fail.

CLLS 493 Clinical Microbiology Practicum

Semester course; 40-180 clock hours. 1-4.5 credits. Prerequisites: CLLS 307-308. Individual participation in hospital bacteriology laboratories. Students gain practical experience in the performance and use of procedures by working with the clinical staff. After gaining competence, the students are expected to properly perform and sign out routine laboratory work under supervision. Graded as pass/fail.

CLLS 494 Miscellaneous Clinical Practicum

Semester course; 40-180 clock hours. 1-4.5 credits. Prerequisites: CLLS 301-302, 308, 310, 311-312 or permission of instructor. Students gain practical experience in the use of instruments and the performance of procedures by working with the clinical staff. After gaining competence, students are expected to properly perform and sign out routine laboratory work under supervision. Graded as pass/fail.

CLLS 496 Blood Bank Practicum

Semester course; 40-180 clock hours. 1-4.5 credits. Prerequisite: CLLS 306. Individual participation in hospital blood bank laboratories and Virginia Blood Services. Students gain practical experience in the use of procedures and instruments by working with the staff. Donor drawing and component preparation is observed. After gaining competence, the students are expected to properly perform and sign out routine laboratory work under supervision. Graded as pass/fail.

Clinical Radiation Sciences

CLRS 101 Introduction to Clinical Radiation Sciences

Semester course; 1 lecture hour. 1 credit. Open to students on the Academic Campus who are interested in clinical radiation sciences as a career. Presentation and discussion of the art and science of medical imaging. The use of ionizing radiation will be explored from its discovery to its current application in therapy and medical diagnosis. Radiography, nuclear medicine and radiation therapy will be discussed in terms of career specialties within the profession.

CLRS 201 Radiographic Imaging and Exposure I

Semester course; 3 lecture hours. 3 credits. Prerequisite: CLRS 205. Corequisite: CLRZ 201. Introduction to radiographic equipment and the imaging process. Covers topics including equipment operation and manipulating radiation exposure to produce quality radiographs. Presents information that prepares students for clinical practice. Emphasizes clinical problem-solving as it relates to patient variables, pathology and technical exposure factors.

CLRS 203 Pathophysiology I and II

Continuous courses; 3-3 lecture hours. 3-3 credits. Prerequisites: BIOL 205, PHIS 206 and PHIZ 206. Completion of CLRS 203 to enroll in CLRS 204. Presentation of the principles of disease and an introduction to various conditions of illness involving body systems.

CLRS 204 Pathophysiology I and II

Continuous courses; 3-3 lecture hours. 3-3 credits. Prerequisites: BIOL 205, PHIS 206 and PHIZ 206. Completion of CLRS 203 to enroll in CLRS 204. Presentation of the principles of disease and an introduction to various conditions of illness involving body systems.

CLRS 205 Exploring Radiation Sciences

Semester course; 1 lecture hour. 1 credit. A general overview of the wide variety of imaging and treatment modalities in radiation sciences will be presented. Emphasis will be on understanding how these modalities are utilized in today's complex health care environment, as well as the role of the technologist/therapist.

CLRS 206 Cross-sectional Anatomy

Semester course; 4 tutorial laboratory hours. 2 credits. Prerequisites: BIOL 205, PHIS 206, PHIZ 206, or permission of instructor. A general overview of cross-sectional anatomy at representative levels will be presented. Emphasis will be on identifying major muscles, organs, bones and vessels on diagrams, photographs and images.

CLRS 208 Foundations of Patient Care

Semester course; 3 lecture and 2 laboratory hours. 4 credits. Legal, ethical and technical foundations of patient care will be explored with emphasis on the application of these principles to common radiologic situations.

CLRS 211 Radiographic Procedures I

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisites: BIOL 205, PHIS 206 and CLRS 208 with a minimum grade of C. Combines the study of anatomy and physiology and positioning for diagnostic radiographic examinations of the upper extremity, thorax, abdomen, lower extremity, spine and pelvis. Requires demonstration of competence in radiographic procedures, including positioning of simulated patients, manipulation of radiographic equipment and evaluation of radiographs.

CLRS 212 Radiographic Procedures II

Semester course; 1 lecture and 3 laboratory hours. 2 credits. Prerequisite: CLRS 211 with a minimum grade of C. Continuation of CLRS 211 with emphasis on anatomy and physiology and positioning for diagnostic radiographic examinations of routine contrast studies and basic headwork. Requires students to demonstrate competence in radiographic procedures, including positioning of simulated patients, manipulation of radiographic equipment and evaluation of radiographs.

CLRS 232 Radiation Safety

Semester course; 2 lecture hours. 2 credits. Prerequisite: PHYS 101 and PHYZ 101. Provides an overview of radiation protection as it applies to the radiation sciences. Emphasizes radiation sources, detection and regulations. Discusses radiation protection responsibilities of the radiologic technologist for patients, personnel and the public.

CLRS 294 Introduction to Clinical Education I

Semester course; 60 clinical hours. 1 credit. Prerequisite: CLRS 208 with a minimum grade of C. Introduction to clinical experience supervised by clinical faculty and affiliate facility staff. Introduces students to the clinical process and equipment, and provides practical experience in routine, basic procedures.

Effective Spring 2015

CLRS 294 Introduction to Clinical Education I Semester course; 60 clinical hours. 0.5 credit. Prerequisite: CLRS 208 with a minimum grade of C. Introduction to clinical experience supervised by clinical faculty and affiliate facility staff. Introduces students to the clinical process and equipment, and provides practical experience in routine, basic procedures.

CLRS 295 Introduction to Clinical Education II

Semester course; 128 clinical hours. 2 credits. Prerequisites: CLRS 201, 211, 232 and 294 with a minimum grade of C in all. Continued introduction to clinical experience supervised by clinical faculty and affiliate facility staff. Provides additional practical experience in routine, basic procedures.

Effective Summer 2015

CLRS 295 Introduction to Clinical Education II Semester course; 120 clinical hours. 1 credit. Prerequisites: CLRS 201, 211, 232 and 294 with a minimum grade of C in all. Continued introduction to clinical experience supervised by clinical faculty and affiliate facility staff. Provides additional practical experience in routine, basic procedures.

CLRS 303 Orientation to Nuclear Medicine

Semester course; 1 lecture and 2 clinical hours. 2 credits. Prerequisites: CLRS 208 and CLRS 232 both with a minimum grade of C. Designed to acquaint the student with the field of nuclear medicine in general and the Program in Nuclear Medicine Technology in particular. It also provides an introduction to clinical practice.

CLRS 305 Orientation to Radiation Therapy

Semester course; 1 lecture and 2 laboratory hours. 2 credits. Prerequisites: CLRS 208 and CLRS 232, both with a minimum grade of C. Introduction to the clinical process, equipment and history of radiation therapy. Information will be presented that prepares the student to begin clinical practice. Clinical rotations and lab exercises are designed to expose the student to various aspects of radiation therapy.

CLRS 309 Oncologic Patient Care

Semester course; 2 lecture hours. 2 credits. Prerequisite: CLRS 208 with a minimum grade of C. Pre- or corequisite: CLRS 305. Covers the basic concepts of patient care specific to radiation therapy, including consideration of physical and psychological conditions. Patient interactions, patient examinations, asepsis, local and systemic reactions, nutrition and medications are discussed. Factors influencing patient health during and following a course of radiation will be identified.

CLRS 312 Radiographic Procedures III

Semester course; 2 lecture hours. 2 credits. Prerequisite: CLRS 212 with a minimum grade of C. Continuation of CLRS 211 and 212 to cover additional and alternative positions for routine radiographic examinations as well as special studies of circulatory, reproductive, urinary, skeletal and central nervous systems. Discusses equipment, procedures and strategies for performing pediatric, trauma, mobile and operating room radiographic exams. Includes small group simulation opportunities.

CLRS 314 Pathology and Treatment Principles I

Semester course; 3 lecture and 2 laboratory hours. 4 credits. Prerequisites: CLRS 309 and CLRS 323 with a minimum grade of C in both. Presents the fundamentals of the disease processes for cancer of the following: skin, thorax, genitourinary, gynecological, head and neck, central nervous system, and breast. Discusses malignant condition, etiology and epidemiology, patient workup, and methods of treatment. Attention to patient prognosis, treatment results and the effects of combined therapies. Requires demonstration of competence in selected radiotherapeutic procedures, including positioning of simulated patients and the manipulation of equipment.

CLRS 317 Nuclear Medicine Procedures I

Semester course; 3 lecture hours. 3 credits. Prerequisite: two semesters of general chemistry. Pre- or corequisite: CLRS 303. Presents the techniques employed in the performance of routine nuclear medicine procedures. Topics include anatomy and physiology, pathology, patient preparation, contraindications, radiopharmaceuticals, dose route of administration, biodistribution, imaging protocols, equipment setup, and common findings.

CLRS 318 Nuclear Medicine Procedures II

Semester course; 2 lecture hours. 2 credits. Prerequisite: CLRS 317 with a minimum grade of C. Presents the techniques employed in the performance of routine nuclear medicine procedures. Topics include anatomy and physiology, pathology, patient preparation, contraindications, radiopharmaceuticals, dose route of administration, biodistribution, imaging protocols, equipment setup, and common findings.

CLRS 319 Nuclear Medicine Procedures III

Semester course; 3 lecture hours. 3 credits. Prerequisite: CLRS 318 with a minimum grade of C. Presents the techniques employed in the performance of routine nuclear medicine procedures. Topics include anatomy and physiology, pathology, patient preparation, contraindications, radiopharmaceuticals, dose route of administration, biodistribution, imaging protocols, equipment setup, and common findings.

CLRS 320 Radiographic Imaging and Exposure II

Semester course; 3 lecture hours. 3 credits. Prerequisites: CLRS 201 and CLRS 201 both with a minimum grade of C. Emphasizes federal regulations and monitoring of the imaging system components that may affect radiographic quality through improper functioning. Provides in-depth exploration of digital imaging.

CLRS 321 Nuclear Medicine Physics and Instrumentation I

Semester course; 2 lecture hours. 2 credits. Pre- or corequisite: CLRS 303. Corequisite: CLRS 321. Presents the physical principles of atomic structure, electromagnetic spectrum, units of measurement, radioactive decay and attenuation in matter. Operation of radiation equipment will include statistical applications and quality control procedures.

CLRS 322 Nuclear Medicine Physics and Instrumentation II

Semester course; 3 lecture hours. 3 credits. Prerequisites: CLRS 317, CLRS 321 and CLRS 321 with a minimum grade of C in all. Corequisite: CLRS

322. Presents advanced applications in physics and the operating principles of nuclear medicine imaging devices and related quality control procedures.

CLRS 323 Radiation Therapy, Techniques and Applications

Semester course; 4 lecture hours. 4 credits. Pre- or corequisite: CLRS 305. Presents the basic concepts of dosimetry and treatment planning. Various external beam techniques and applications, depth dose data and summation of isodose curves are discussed. Modalities of treatment, patient setup, dose measurement and verification also are included.

CLRS 331 Radiographic Imaging Equipment

Semester course; 3 lecture hours. 3 credits. Prerequisite: CLRS 320 with a minimum grade of C. Presents the principles and operation of general and specialized X-ray equipment. Emphasizes the equipment necessary to perform radiographic, fluoroscopic and tomographic examinations.

CLRS 332 Radiographic Pathology

Semester course; 3 lecture hours. 3 credits. Prerequisites: CLRS 204 and CLRS 393 with a minimum grade of C or permission of instructor. Provides introduction to the study of radiographic pathology through reading and observation of film interpretation. Emphasizes recognition of common disease processes as demonstrated radiographically and, via advanced imaging modalities; where appropriate, understanding how to vary positioning and techniques to produce optimally diagnostic images; and the role of different imaging modalities in the evaluation of disease.

CLRS 341 Radiation Physics

Semester course; 2 lecture hours. 2 credits. Prerequisites: PHYS 101, PHYS 101 or PHYS 201 and CLRS 232 with a minimum grade of C. Discusses fundamentals of the atom, electricity and magnetism. Emphasizes the production of X- and gamma rays, and the interaction of radiation with matter.

CLRS 342 Physics for Radiation Therapy

Semester course; 3 lecture hours. 3 credits. Prerequisites: CLRS 323 and CLRS 341 with a minimum grade of C in both. Includes a discussion of the properties of electromagnetic and particulate radiation. Details of production, interactions, treatment units, measurement of radiation, radioactivity and brachytherapy are presented.

CLRS 390 Research Methods in the Radiation Sciences

Semester course; 2 lecture hours. 2 credits. Pre- or corequisites: STAT 210 and junior standing or permission of instructor. The fundamentals of the research process will be presented for analysis and discussion. Elements of research appropriate to the radiation sciences will be reviewed. Emphasis will be on the ability to critically review research studies along with the selection and design of a research project.

CLRS 393 Clinical Education I

Semester course; variable clinical hours (120 hours per credit). 2-5 credits. Prerequisites: CLRS 208 and CLRS 232 with a minimum grade of C in both and CLRS 201 with a minimum grade of C or CLRS 303 or CLRS 305. Clinical experience supervised by clinical faculty and affiliate facility staff. Students gain

practical experience in routine, basic procedures and observe more advanced procedures.

CLRS 394 Clinical Education I and II

Continuous courses; variable clinical hours. 3-5 credits. Prerequisites for 393: CLRS 208 and CLRS 232 with a minimum grade of C in both and CLRS 201 with a minimum grade of C or CLRS 303 or CLRS 305. A minimum grade of C in 393 is required to enroll in 394. Clinical experience supervised by clinical faculty and affiliate facility staff. Students gain practical experience in routine, basic procedures and observe more advanced procedures.

Effective Spring 2015

CLRS 394 Clinical Education II

Semester course; variable clinical hours (120 hours per credit). 2-4 credits. Prerequisite: CLRS 393 with a minimum grade of C. Clinical experience supervised by clinical faculty and affiliate facility staff. Students gain practical experience in routine, basic procedures and observe more advanced procedures.

CLRS 395 Clinical Education III

Semester course; variable clinical hours. 5-6 credits. Prerequisite: CLRS 394 with a minimum grade of C. Clinical experience supervised by clinical faculty and affiliate facility staff. Students gain additional practical experience in routine as well as advanced procedures.

Effective Summer 2015

CLRS 395 Clinical Education III

Semester course; variable clinical hours (120 hours per credit). 2-6 credits. Prerequisite: CLRS 394 with a minimum grade of C. Clinical experience supervised by clinical faculty and affiliate facility staff. Students gain additional practical experience in routine as well as advanced procedures.

CLRS 398 Introduction to Research

Semester course; 1 credit. Prerequisite: CLRS 390. Provides students the opportunity to explore and investigate a topic of special interest in their area of concentration under the supervision of a faculty adviser. Emphasizes the application of research concepts to writing a research project proposal.

CLRS 403 Advanced Patient Care for the Imaging Professional

Semester course; 3 lecture hours. 3 credits. Prerequisites: CLRS 208 with a minimum grade of C and junior standing or permission of instructor. Explores advanced patient care techniques and age-specific considerations in the radiation sciences. Emphasizes the application of advanced patient care principles.

CLRS 405 Principles of Mammography

Semester course; 2 lecture hours. 2 credits. Prerequisites: CLRS 201 and CLRS 320 with a minimum grade of C in both and senior standing or permission of instructor. Presentations and discussions designed to provide an overview of the principles of mammography. Topics include history, anatomy, physiology and pathology of the breast; exposure techniques; and quality control. Focuses on routine and specialized positioning of the breast and image evaluation to prepare students for practical experience in mammography.

CLRS 406 Introduction to MRI

Semester course; 3 lecture hours. 3 credits. Prerequisite: CLRS 341 with a minimum grade of C or permission of instructor. An introduction to the

elements of magnetic resonance imaging, including instrumentation, physical principles, image production and quality, MR safety, magnetic resonance angiography and imaging applications.

CLRS 407 Introduction to PET/CT

Semester course; 2 lecture hours. 2 credits.

Prerequisite: CLRS 408. Overview of PET and PET/CT focusing on instrumentation, radiopharmaceuticals and its diagnostic application in neurology, oncology and cardiology.

CLRS 408 Introduction to Computed Tomography (CT)

Semester course; 2 lecture hours. 2 credits.

Prerequisite: CLRS 341 with a minimum grade of C or permission of instructor. Provides the student with an overview of computed tomography. Topics include computed tomography physical principles, data acquisition/image reconstruction, equipment and terminology. Patient care issues (i.e., preparation, monitoring) and basic quality control will be introduced.

CLRS 410 Routine Computed Tomography Procedures

Semester course; 1 lecture hour. 1 credit. Prerequisites: CLRS 206 and 408, or permission of instructor.

Presents routine procedures used in computed tomography imaging. Reviews examinations and protocols involving the head, chest, abdomen and extremities.

CLRS 412 Radiation Therapy Treatment Planning

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisites: CLRS 323 and CLRS 342 with a minimum grade of C in both or permission of instructor. An introduction to routine 2-D and 3-D treatment planning for the most common forms of cancer including prostate, rectum, lung, breast, and head and neck regions. Simulated lab training using a treatment planning system will be included. Emphasis will be on the rationale and process of treatment planning for patients undergoing radiation therapy.

CLRS 415 Pathology and Treatment Principles II

Semester course; 3 lecture and 2 laboratory hours. 4 credits. Prerequisite: CLRS 314 with a minimum grade of C. A continuation of CLRS 314. Presents the fundamentals of the disease process for the following cancers: gastrointestinal, lymphomas and hematological malignancies, bone tumors, childhood tumors, and eye and orbital tumors. Discusses patient workup and prognosis, treatment results, and the effects of combined therapies. Radiotherapeutic emergencies, palliation and combined modality treatment also will be discussed. Emphasis will be placed on traditional and advanced technology and its applications in treatment delivery in radiation oncology. Requires demonstration of competence in selected radiotherapeutic procedures, including positioning of simulated patients and the manipulation of equipment.

CLRS 417 Nuclear Medicine Procedures IV

Semester course; 3 lecture hours. 3 credits.

Prerequisite: CLRS 319 with a minimum grade of C. Presents the techniques employed in the performance of advanced nuclear medicine procedures. Topics include anatomy and physiology, pathology, patient

preparation, contraindications, radiopharmaceuticals, dose route of administration, biodistribution, imaging protocols, equipment setup, and common findings.

CLRS 420 Introduction to Vascular-Interventional Radiology

Semester course; 3 lecture hours. 3 credits.

Prerequisite: departmental approval. Introduction to the basic techniques of vascular and interventional radiologic procedures with emphasis on the anatomy demonstrated, equipment, contrast agents, and the role and responsibilities of the technologist.

CLRS 430 Radiobiology

Semester course; 2 lecture hours. 2 credits.

Prerequisites: CLRS 232 with a minimum grade of C and senior standing or permission of instructor. Presents the principles of biologic responses to radiation, including factors influencing radiation effects, tissue sensitivity and tolerance. Clinical application in radiography, nuclear medicine and radiation therapy are reviewed.

CLRS 453 Quality Management in Nuclear Medicine

Semester course; 2 lecture hours. 2 credits.

Prerequisites: CLRS 322 and CLRZ 322 with a minimum grade of C in both. Explores the quality assurance parameters in a nuclear medicine department. Emphasis is given to the performance of tests to assess survey meters, spectrometers, dose calibrators, gamma cameras and SPECT imaging systems. Additionally, quality assurance is discussed in terms of radiopharmaceuticals, radioimmunoassay laboratories and patient management.

CLRS 455 Quality Management in Radiation Therapy

Semester course; 2 lecture hours. 2 credits.

Prerequisites: CLRS 323 and CLRS 342 with a minimum grade of C. Designed to provide the student with knowledge of the concepts and principles of quality assurance. The performance of various tests including purpose, sources of malfunction and action guidelines will be discussed.

CLRS 461 Radiopharmaceutical: Preparation and Quality Control

Semester course; 2 lecture hours. 2 credits.

Prerequisites: CLRS 319, CLRS 322 and CLRZ 322, all with a minimum grade of C. Provides the technical knowledge necessary for the preparation and quality control of radiopharmaceutical agents for in-vivo and in-vitro nuclear medicine studies.

CLRS 471 Radiology Imaging Procedures for Radiologist Assistants I and II

Continuous courses; 3-3 lecture hours. 3-3 credits.

Prerequisites: CLRS 332, CLRS 403, CLRZ 403 and permission of instructor. Completion of CLRS 471 to enroll in CLRS 472. Establishes a framework for radiologist assistants' participation in patient examinations for diagnostic inspection and/or therapeutic treatment. Emphasizes establishment of fundamental radiology procedures that follow American College of Radiology Standards for principles and practices producing high-quality radiographic care. Includes basic radiology procedures in genitourinary, gastrointestinal, pediatric, thoracic, musculoskeletal selections and vascular/interventional specialties. Addresses legal, ethical and professional issues concerning radiologist assistants.

CLRS 472 Radiology Imaging Procedures for Radiologist Assistants I and II

Continuous courses; 3-3 lecture hours. 3-3 credits.

Prerequisites: CLRS 332, CLRS 403, CLRZ 403 and permission of instructor. Completion of CLRS 471 to enroll in CLRS 472. Establishes a framework for radiologist assistants' participation in patient examinations for diagnostic inspection and/or therapeutic treatment. Emphasizes establishment of fundamental radiology procedures that follow American College of Radiology Standards for principles and practices producing high-quality radiographic care. Includes basic radiology procedures in genitourinary, gastrointestinal, pediatric, thoracic, musculoskeletal selections and vascular/interventional specialties. Addresses legal, ethical and professional issues concerning radiologist assistants.

CLRS 475 Medical Imaging Fundamentals for Radiologist Assistants

Semester course; 3 lecture hours. 3 credits.

Prerequisites: CLRS 332, CLRS 403, CLRZ 403 and permission of instructor. Promotes an understanding of methods and techniques for the systematic observation of static and dynamic diagnostic images for the purpose of evaluating the presence of abnormalities, anomalies and pathological conditions. Includes protocols for drafting memoranda of initial observations based on image assessment.

CLRS 480 Applied Radiology Management

Semester course; 3 lecture hours. 3 credits.

Prerequisite: departmental approval. Relates basic concepts in management to the radiologic environment and explores the relationship between the radiologic facility and the health care system.

CLRS 481 Applied Pharmacology for Radiation Sciences

Semester course; 3 lecture hours. 3 credits.

Prerequisite: departmental approval. Covers general pharmacology including the study of drug groups, dosages, administrations and reactions of drugs common to patients. Special emphasis on contrast media and other agents commonly used in medical imaging and therapy.

CLRS 488 Senior Seminar

Semester course; 3 lecture hours. 3 credits.

Prerequisite: senior standing in department. Designed to allow students to integrate the various individual courses into a single perspective as it relates to the radiation sciences. Addresses timely professional issues, including the need for lifelong learning and participation in professional organizations, as well as preparing for certification and future employment.

CLRS 492 Directed Study: Radiation Sciences

Semester course; 1-4 credits. Maximum of 6 credits

can apply to graduation requirements. Prerequisite: permission of department chair. Provides the opportunity for individualized research projects, tutorial studies, special clinical work or other topics not available in formal course work.

CLRS 493 Clinical Education IV

Semester course; variable clinical hours. 1-7 credits.

Prerequisite: CLRS 395 with a minimum grade of C. Clinical experience supervised by clinical faculty and affiliate facility staff. Students gain additional practical experience in routine, basic and advanced procedures.

Effective Fall 2015

CLRS 493 Clinical Education IV

Semester course; variable clinical hours (120 hours per credit). 1-5 credits. Prerequisite: CLRS 395 with a minimum grade of C. Clinical experience supervised by clinical faculty and affiliate facility staff. Students gain additional practical experience in routine, basic and advanced procedures.

CLRS 494 Clinical Education V

Semester course; variable clinical hours. 1-7 credits. Prerequisite: CLRS 493 with a minimum grade of C. Clinical experience supervised by clinical faculty and affiliate facility staff. Students gain additional practical experience in routine, basic and advanced procedures.

Effective Spring 2016

CLRS 494 Clinical Education V

Semester course; variable clinical hours (120 hours per credit). 1-5 credits. Prerequisite: CLRS 493 with a minimum grade of C. Clinical experience supervised by clinical faculty and affiliate facility staff. Students gain additional practical experience in routine, basic and advanced procedures.

CLRS 498 Senior Project

Semester course; 2 credits. Prerequisites: CLRS 390, 398 and senior standing in department. Provides students the opportunity to investigate a topic of special interest in their area of concentration. Emphasizes the application of research concepts in the design, implementation and presentation of a project under the supervision of a faculty adviser.

Clinical Radiation Sciences Lab

CLRZ 201 Radiographic Imaging and Exposure I Laboratory

Semester course; 2 laboratory hours. 1 credit. Prerequisite: CLRS 205. Pre- or corequisite: CLRS 201. Designed to introduce students to the fundamentals of radiographic image production. Requires performance of laboratory exercises to become familiar with equipment operation and manipulate radiation exposure variables to produce quality images.

CLRZ 321 Nuclear Medicine Physics and Instrumentation Laboratory I

Semester course; 2 laboratory hours. 1 credit. Pre- or corequisite: CLRS 303. Corequisite: CLRS 321. Presentation of the applications and techniques employed in the operation of nuclear medicine non-imaging devices. Labs will emphasize the use of survey meters, dose calibrator and scintillation counting device.

CLRZ 322 Nuclear Medicine Physics and Instrumentation Laboratory II

Semester course; 2 laboratory hours. 1 credit. Prerequisites: CLRS 321 and CLRZ 321 with a minimum grade of C in both. Corequisite: CLRS 322. Evaluation of applications of different imaging techniques and computer processing utilized in nuclear medicine. Emphasizes the use of single and multiple channel analyzers, planar and SPECT acquisition, and image processing.

CLRZ 403 Advanced Patient Care for the Imaging Professional

Semester course; 2 laboratory hours. 1 credit. Prerequisite: CLRS 208 or permission of instructor. Pre- or corequisite: CLRS 403. This course provides simulated experience in performing advanced patient care techniques related to the radiation sciences. Topics include cardiac rhythm interpretation, advanced cardiac life support, urinary catheterization, tracheostomy care, basic laboratory skills, basic respiratory therapy skills, pulse oximetry, IV therapy and pharmacology, and conscious sedation.

CLRZ 405 Principles of Mammography Lab

Semester course; 2 laboratory hours. 1 credit. Prerequisites: CLRS 201 and CLRS 320, or permission of instructor. Pre- or corequisite: CLRS 405. Provides simulated experience in performing positioning of the breast. Students will be expected to demonstrate competence in positioning the breast phantom for a variety of routine and specialized projections. In addition, quality control procedures specific to mammography will be performed.

CLRZ 461 Radiopharmacy Laboratory

Semester course; 2 laboratory hours. 1 credit. Prerequisites: CLRS 319, CLRS 322 and CLRZ 322, all with a minimum grade of C. A simulated radiopharmacy laboratory will focus on operation of laboratory equipment in the compounding of radiopharmaceuticals.

Gerontology

GRTY 410 Introduction to Gerontology

3 credits. A survey of the field of aging with attention to physical, psychological, social, economic and cultural ramifications of age.

Health Care Management

HCMG 300 Health Care Organization and Services

Semester course; 3 lecture hours. 3 credits. Examines the structure and function of the U.S. health services delivery system. Examines the role and responsibilities of health care professions and occupations, technology and financing arrangements in the delivery system.

Patient Counseling

The Program in Patient Counseling has an integrated curriculum in which students typically experience certain core courses concurrently. Exceptions to this rule are by faculty approval only. Admission to any course by students outside the department requires permission of the instructor.

PATC 410 Basic Patient Counseling

Semester course; 3 lecture hours. 3 credits. Provides an intensive course of study toward the development of pastoral skills in the hospital context. Assigns students to selected clinical areas with faculty supervision. Utilizes group process and individual supervision for the review of clinical material.

Rehabilitation Counseling

Courses in rehabilitation services provide a basic understanding of people with mental, physical, cognitive and sensory disabilities and how to help them lead more productive lives. The courses are not only relevant to future graduate study in the profession of rehabilitation counseling, but to a number of other rehabilitation related professions such as clinical and counseling psychology, social work, special education, corrections, therapeutic recreation, occupational therapy, physical therapy and so forth. As resources permit, courses are offered in substance abuse rehabilitation at the undergraduate level to prepare the student to meet eligibility requirements for state and national substance abuse counselor certification, but also are available as elective credit, which may be applied toward fulfilling degree requirements or meeting continuing education needs. One honors course is included in the university honors program in RHAB 202 General Substance Abuse Studies. Interested students should contact the University Honors Program office for further information.

RHAB 201 Introduction to Rehabilitation Services

Semester course; 3 lecture hours. 3 credits. This course has been designed to expose the student to the history and development of the rehabilitation movement. Topics explored include basic concepts and philosophies of rehabilitation, psychological and vocational adjustments of the disabled, and an examination of selected rehabilitation methods.

RHAB 202 General Substance Abuse Studies

Semester course; 3 lecture hours. 3 credits. This course is designed to help the student develop an appreciation of society's attitude about the use of drugs and alcohol, and each individual's responsibility in decisions about the use of drugs. Discussion is offered on specific characteristics of drugs, how addiction occurs and role of rehabilitation after addiction.

RHAB 321 Introduction to Substance Abuse

Semester course; 3 lecture hours. 3 credits. Prerequisite: RHAB 202. Introduction to substance abuse as a progressive family disease with consideration of basic contributing factors (physiological, psychological and sociocultural builds on foundation established in RHAB 202); exposure to multidisciplinary rehabilitative approaches to arresting the disease, as well as some knowledge of intervention; brief mention of the highlights of the continuum of care available in the recovery process.

RHAB 452 Crisis Intervention with the Substance Abuser

Semester course; 3 lecture hours. 3 credits. Prerequisites: RHAB 321, RHAB 322 and RHAB 523, or permission of instructor. Focus on the application of concepts discussed in theory in the recovery process course; sharing of difficulties and successes with crisis intervention by individuals already in the field; provision of new and more refined techniques under the direction of experts demonstrating their applicability.

RHAB 495 Practicum in Rehabilitation

Semester course; 3 credits. Prerequisite: permission of instructor. Designed to provide opportunities for observation and participation in rehabilitation and

related settings. Experiences are systematically related to theoretical concepts.

School of the Arts

Advanced Media Production Technology

AMPT 401 Listen and Capture

Semester course; 2 lecture and 3 studio hours. 3 credits. Foundational studio course in audio production that covers acoustics, audio physics and history, and equipment and technologies used in recording and editing.

AMPT 402 Editorial Storytelling

Semester course; 2 lecture and 3 studio hours. 3 credits. Introductory studio course on motion visual editing techniques, exploring non-linear editing software, film editing history, color techniques, and basic visual effects including animation.

AMPT 403 Emerging Digital Cinema

Semester course; 2 lecture and 3 studio hours. 3 credits. Studio course that explores how traditional film and video production has been transformed by new technologies, including DSLR and high resolution RED cameras, teleprompting, green screen techniques.

AMPT 404 Script

Semester course; 2 lecture and 3 studio hours. 3 credits. Studio course on screen writing and story development, exploring traditional linear and non-linear plot development.

AMPT 422 Audio for Gaming

Semester course; 2 lecture and 3 studio hours. 3 credits. Studio course that focuses on proper recording and formatting of music and sound effects within the context of video game production.

AMPT 423 Motion Graphics

Semester course; 2 lecture and 3 studio hours. 3 credits. Studio course that focuses on visual effects including titles, preparing clips for a video editor, and generating computer based animation.

AMPT 424 Music Production Techniques

Semester course; 2 lecture and 3 studio hours. 3 credits. Studio course that explores music production for modern styles of popular and alternative acoustic music, particularly virtual instruments, loops and vocal production techniques.

AMPT 425 Light

Semester course; 2 lecture and 3 studio hours. 3 credits. Studio course that examines lighting requirements for digital media, exploring lighting design and techniques in the context of video production.

AMPT 426 Foley and Sound Design

Semester course; 2 lecture and 3 studio hours. 3 credits. Studio course that explores adding sound created by actors and audio engineers to picture, focusing on the use of both traditional techniques and current digital audio workstation software.

AMPT 495 Sound Manipulation

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: AMPT 401. Studio course that focuses on the live audio recording process, covering sound design, foley techniques, and use and maintenance of relevant sound equipment.

AMPT 496 Finishing the Story

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: AMPT 402. Studio course that expands on the concepts previously covered in prerequisite course for students concentrating in video post-production, further exploring the technology of high-definition and digital cinema.

AMPT 497 Mastering Digital Cinema

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: AMPT 403. Studio course that builds on concepts explored in prerequisite course for students in the production concentration, further exploring how traditional film and video production has been transformed by new technologies.

Applied Lessons

APPL 200 Applied Lessons

Semester course; half-hour weekly private lesson plus daily practice. 1 credit. May be repeated for a total of 8 credits. Previous experience and ability to read music required. Additional fee for course required. Private applied lessons for musical instruments. Consult the music department for appropriate section.

APPL 310 Applied Lessons

Semester course; one-hour weekly private lesson plus daily practice. 2 credits. May be repeated for a total of 8 credits. For music majors only. Permission of chair required. Applied lessons for principal performing medium. Consult the music department for appropriate section.

APPL 311 Applied Lessons

Semester course; one-hour weekly private lesson plus daily practice. 2 credits. For music majors only. Corequisite: APPM 299 (except jazz studies majors). Applied lessons for principal performing medium proficiency Level I. Jury required. Consult adviser for appropriate course and section.

APPL 312 Applied Lessons

Semester course; one-hour weekly private lesson plus daily practice. 2 credits. For music majors only. Prerequisite: APPL 311 with a minimum grade of C. Corequisite: APPM 299 (except jazz studies majors). Applied lessons for principal performing medium proficiency Level II. Jury required. Consult adviser for appropriate course and section.

APPL 313 Applied Lessons

Semester course; one-hour weekly private lesson plus daily practice. 2 credits. For music majors only. Prerequisite: APPL 312 with a minimum grade of C. Corequisite: APPM 299 (except jazz studies majors). Applied lessons for principal performing medium proficiency Level III. Jury required. Consult adviser for appropriate course and section.

APPL 314 Applied Lessons

Semester course; one-hour weekly private lesson plus daily practice. 2 credits. For music majors only. Prerequisite: APPL 313 with a minimum grade of C. Corequisite: APPM 299 (except jazz studies majors). Applied lessons for principal performing medium proficiency Level IV. Jury required. Consult adviser for appropriate course and section.

APPL 320 Applied Lessons Secondary

Instrument

Semester course; half-hour weekly private lesson plus daily practice. 1 credit. May be repeated for a total of 4 credits. Open to music majors only. Private applied lessons for secondary instrument requirement. Consult music department for appropriate section.

APPL 321 Applied Lessons Secondary

Instrument

Semester course; one-hour weekly private lesson plus daily practice. 2 credits. Open to music majors only. Corequisite: APPM 299. Applied lessons for secondary performing medium proficiency Level I. Jury required. Consult adviser for appropriate course and section.

APPL 322 Applied Lessons Secondary

Instrument

Semester course; one-hour weekly private lesson plus daily practice. 2 credits. Open to music majors only. Prerequisite: APPL 321 with a minimum grade of C. Corequisite: APPM 299. Applied lessons for secondary performing medium proficiency Level II. Jury required. Consult adviser for appropriate course and section.

APPL 323 Applied Lessons Secondary

Instrument

Semester course; one-hour weekly private lesson plus daily practice. 2 credits. Open to music majors only. Prerequisite: APPL 322 with a minimum grade of C. Corequisite: APPM 299. Applied lessons for secondary performing medium proficiency Level III. Jury required. Consult adviser for appropriate course and section.

APPL 324 Applied Lessons Secondary

Instrument

Semester course; one-hour weekly private lesson plus daily practice. 2 credits. Open to music majors only. Prerequisite: APPL 323 with a minimum grade of C. Corequisite: APPM 299. Applied lessons for secondary performing medium proficiency Level IV. Jury required. Must earn a minimum grade of C. Consult adviser for appropriate course and section.

APPL 415 Applied Lessons

Semester course; one-hour weekly private lesson plus daily practice. 2 credits. For music majors only. Prerequisite: APPL 314 with a minimum grade of C. Corequisite: APPM 299. Applied lessons for principal performing medium proficiency Level V. Jury required. Consult adviser for appropriate course and section.

APPL 416 Applied Lessons

Semester course; one-hour weekly private lesson plus daily practice. 2 credits. For music majors only. Prerequisite: APPL 415 with a minimum grade of C. Corequisites: APPM 299 and 394. Applied lessons for principal performing medium proficiency Level VI. Recital required. Consult adviser for appropriate course and section.

APPL 417 Applied Lessons

Semester course; one-hour weekly private lesson plus daily practice. 2 credits. For music majors only. Prerequisite: APPL 416 with a minimum grade of C. Corequisite: APPM 299. Applied lessons for principal performing medium proficiency Level VII. Jury

required. Consult adviser for appropriate course and section.

APPL 418 Applied Lessons

Semester course; one-hour weekly private lesson plus daily practice. 2 credits. For music majors only. Prerequisite: APPL 417 with a minimum grade of C. Corequisites: APPM 299 and 494. Applied lessons for principal performing medium proficiency Level VIII. Recital required. Must earn a minimum grade of C. Consult adviser for appropriate course and section.

Applied Music

Upper-division undergraduate students may enroll for selected 500-level graduate courses with permission of the department chair and instructor. See the Graduate and Professional Programs Bulletin for course descriptions.

APPM 126 Keyboard Skills Applied Lesson

Semester course; half-hour lesson per week. 1 credit. Repeatable for a maximum total of 3 credits. Open only to music majors. Acquisition of keyboard performance skills with emphasis on sight reading, keyboard harmony and improvisation. Proficiency exam through jury required. Graded PR for students who have successfully completed the course but did not pass the proficiency exam.

APPM 161 Lyric Diction

Continuous courses; 3 lecture hours. 3-3 credits. Prerequisite: completion of APPM 161 to enroll in APPM 162. A study of English, Italian, ecclesiastical Latin, French and German stage diction with practical experience in singing and phonetic transcription using the International Phonetic Alphabet.

APPM 162 Lyric Diction

Continuous courses; 3 lecture hours. 3-3 credits. Prerequisite: completion of APPM 161 to enroll in APPM 162. A study of English, Italian, ecclesiastical Latin, French and German stage diction with practical experience in singing and phonetic transcription using the International Phonetic Alphabet.

APPM 173 Keyboard Skills

Continuous courses; 2 laboratory hours. 1-1 credit. Prerequisite: completion of APPM 173 to enroll in APPM 174; completion of APPM 273 and permission of instructor to enroll in APPM 274. Open only to music majors. Initial placement in course sequence determined by proficiency audition. Acquisition of keyboard performance skills with emphasis on sight reading, keyboard harmony and improvisation. Proficiency exam through jury required. Graded PR for students who have successfully completed the course but did not pass the proficiency exam.

APPM 174 Keyboard Skills

Continuous courses; 2 laboratory hours. 1-1 credit. Prerequisite: completion of APPM 173 to enroll in APPM 174; completion of APPM 273 and permission of instructor to enroll in APPM 274. Open only to music majors. Initial placement in course sequence determined by proficiency audition. Acquisition of keyboard performance skills with emphasis on sight reading, keyboard harmony and improvisation. Proficiency exam through jury required. Graded PR for students who have successfully completed the course but did not pass the proficiency exam.

APPM 199 Recital/Convocation Attendance

Semester course; no credit. Course may be repeated without limit. Music majors only. Attendance at weekly departmental convocations and a minimum of 10 additional concerts or recitals each semester.

APPM 251 Jazz Improvisation I

Semester course; 3 lecture hours. 3 credits. Prerequisite: MHIS 147. A study of basic compositional techniques that can be used in creating a musically effective improvised solo in the jazz medium.

APPM 252 Jazz Improvisation II

Semester course; 3 lecture hours. 3 credits. Prerequisite: APPM 251. Advanced melodic, harmonic and rhythmic improvisational techniques as applied to contemporary jazz compositions.

APPM 272 Jazz Piano for the Non-keyboard Player

Semester course; 2 laboratory hours. 1 credit. Prerequisites: APPM 174 and MHIS 147. Acquisition of jazz keyboard performance skills with emphasis on reading, harmonization and improvisation.

APPM 273 Keyboard Skills

Continuous courses; 2 laboratory hours. 1-1 credit. Prerequisite: completion of APPM 173 to enroll in APPM 174; completion of APPM 273 and permission of instructor to enroll in APPM 274. Open only to music majors. Initial placement in course sequence determined by proficiency audition. Acquisition of keyboard performance skills with emphasis on sight reading, keyboard harmony and improvisation. Proficiency exam through jury required. Graded PR for students who have successfully completed the course but did not pass the proficiency exam.

APPM 274 Keyboard Skills

Continuous courses; 2 laboratory hours. 1-1 credit. Prerequisite: completion of APPM 173 to enroll in APPM 174; completion of APPM 273 and permission of instructor to enroll in APPM 274. Open only to music majors. Initial placement in course sequence determined by proficiency audition. Acquisition of keyboard performance skills with emphasis on sight reading, keyboard harmony and improvisation. Proficiency exam through jury required. Graded PR for students who have successfully completed the course but did not pass the proficiency exam.

APPM 299 Master Class

Semester course; no credit. Course may be repeated without limit. Participation in weekly master classes in student's applied major area.

APPM 355 Orchestra

Semester course; 3 laboratory hours. 1 credit. May be repeated for a total of 8 credits. Open to music majors or by permission; audition required. Provides an opportunity to rehearse and perform works from the symphonic repertoire while improving ensemble skills.

APPM 356 Symphonic Winds

Semester course; 3 laboratory hours. 1 credit. May be repeated for a total of 8 credits. Open to music majors or by permission; audition required. Ensemble performs a variety of contemporary wind ensemble repertoire as well as standards. Ensemble performs multiple times throughout the semester and at off-

campus events. In addition to rehearsals, weekly one-hour sectionals are required.

APPM 357 University Band

Semester course; 2 laboratory hours. 1 credit. May be repeated for a total of 8 credits. Open to all students who play wind or percussion instruments. The class does not require an audition for participation. Ensemble preparation intended for a single performance each semester.

APPM 358 Commonwealth Singers

Semester course; 2 laboratory hours. 1 credit. May be repeated for a total of 8 credits. Open to music majors or by permission; audition required. Rehearsals focus on the development of individual and group vocal technique, musicianship and communication relevant to repertoire prepared.

APPM 359 Choral Arts Society

Semester course; 2 laboratory hours. 1 credit. May be repeated for a total of 8 credits. A large, nonauditioned chorale open to all university students with choral experience. Ensemble will prepare and perform a variety of choral literature each semester.

APPM 360 Jazz Orchestra

Semester course; 3 laboratory hours. 1 credit. May be repeated for a total of 8 credits. Open to music majors or by permission; audition required. Ensemble performs a range of contemporary and historical styles and performs multiple times throughout the semester. In addition to rehearsals, weekly one-hour sectionals are required.

APPM 361 Small Jazz Ensemble

Semester course; 2 laboratory hours. 1 credit. May be repeated for a total of 8 credits. Open to music majors or by permission; audition required. Jazz ensembles of typically five to nine players rehearse and prepare existing repertoire and student compositions. Independent problem-solving and ensemble-playing skills developed through weekly rehearsals and coaching.

APPM 362 Accompanying: Piano

Semester course; 2 laboratory hours. 1 credit. May be repeated for a total of 2 credits. For piano majors only. The development of skills in piano accompaniment of vocal and instrumental performance. Coaching and guidance will include harmonic voicing, sound coloring, balance issues, pedaling and score reduction.

APPM 363 Flute Choir

Semester course; 2 laboratory hours. 1 credit. May be repeated for a total of 8 credits. Open to music majors or by permission. Conducted ensemble rehearses and prepares repertoire.

APPM 364 Guitar Ensemble

Semester course; 2.5 laboratory hours. 1 credit. May be repeated for a total of 8 credits. Open to guitar music majors or by permission; audition required. Biweekly rehearsals prepare this ensemble of 20-25 guitarists for performances of repertoire from the Renaissance to newly composed and arranged works.

APPM 365 Aural Skills V-VI

Continuous courses; 2 laboratory hours. 1-1 credit. Prerequisites: MHIS 246; completion of APPM 365 to enroll in APPM 366. Open to music majors only. Advanced development of skills in melodic and

rhythmic dictation, harmonic identification and sight singing.

APPM 366 Aural Skills V-VI

Continuous courses; 2 laboratory hours. 1-1 credit. Prerequisites: MHIS 246; completion of APPM 365 to enroll in APPM 366. Open to music majors only. Advanced development of skills in melodic and rhythmic dictation, harmonic identification and sight singing.

APPM 367 Piano Ensemble

Semester course; 2 laboratory hours. 1 credit. May be repeated for a total of 8 credits. Open to music majors or by permission; audition required. Small chamber ensemble in which piano shares leading or equal role rehearses and prepares repertoire. Groups will rehearse weekly and receive at least three or four coaching sessions per semester.

APPM 368 Woodwind Ensemble

Semester course; 2 laboratory hours. 1 credit. May be repeated for a total of 8 credits. Open to music majors or by permission; audition required. Chamber ensembles of two to 13 players, involving woodwinds and often other instruments. Coached by various music faculty on a weekly basis.

APPM 369 Percussion Ensemble

Semester course; 2 laboratory hours. 1 credit. May be repeated for a total of 8 credits. Open to music majors or by permission; audition required. Small ensembles of three to six players rehearse primarily non-conducted repertoire for semester performances. Weekly rehearsals with coaching from instructor designed to address musicianship, chamber ensemble skills, rehearsal technique and familiarity with contemporary performance practices.

APPM 370 Large Ensembles

Semester course; 3 laboratory hours. 1 credit. Each section may be repeated up to eight times for credit. An audition is prerequisite for sections 1, 3 and 4. Sections: (1) orchestra, (2) University Band, (3) symphonic wind ensemble, 4) Commonwealth Singers, (5) Choral Arts Society.

APPM 371 String Chamber Music

Semester course; 2 laboratory hours. 1 credit. May be repeated for a total of 8 credits. Open to music majors or by permission; audition required. String chamber involving two to five players rehearse and prepare repertoire. Independent problem-solving and ensemble-playing skills are developed through weekly rehearsals and coaching.

APPM 372 Brass Ensemble

Semester course; 2 laboratory hours. 1 credit. May be repeated for a total of 8 credits. Open to music majors or by permission; audition required. Chamber ensembles of three to five players, involving various combinations of brass instruments. Coached by various music faculty on a weekly basis.

APPM 373 Advanced Keyboard Skills

Continuous courses; 2 laboratory hours. 1-1 credit. For piano majors only. Emphasis is on harmonization with correct style and voice-leading, reading figured bass and lead sheets, improvisation and reducing scores at the keyboard.

APPM 374 Advanced Keyboard Skills

Continuous courses; 2 laboratory hours. 1-1 credit. For piano majors only. Emphasis is on harmonization with correct style and voice-leading, reading figured bass and lead sheets, improvisation and reducing scores at the keyboard.

APPM 375 Score Reading

Continuous courses; 2 laboratory hours. 1-1 credit. Prerequisites: APPM 274; completion of APPM 375 to enroll in APPM 376. Acquisition of skill in reducing scores at the keyboard, beginning with simple three-part works and progressing to full instrumentation.

APPM 376 Score Reading

Continuous courses; 2 laboratory hours. 1-1 credit. Prerequisites: APPM 274; completion of APPM 375 to enroll in APPM 376. Acquisition of skill in reducing scores at the keyboard, beginning with simple three-part works and progressing to full instrumentation.

APPM 377 Vocal Chamber Ensemble

Semester course; 2 laboratory hours. 1 credit. May be repeated for a total of 3 credits. Open to music majors or by permission; audition required. Variable sized non-conducted ensembles receive weekly coaching in preparation for performances. Ensembles will seek to build proficiency in musicianship skills, reading ability, performance practices and interpretative technique in a variety of styles.

APPM 378 Womenâ€™s Chorus

Semester course; 2 laboratory hours. 1 credit. Repeatable to fulfill degree requirements. Open to music majors or by permission; audition required. Ensemble rehearses and prepares repertoire for performance. Womenâ€™s choir is open to female university students with previous choral experience.

APPM 381 Conducting

Semester course; 1 lecture and 2 laboratory hours. 2 credits. Prerequisite: MHIS 246. Development of fundamental gestural skills for conducting instrumental and choral ensembles including simple and compound meters, multimetric music and aleatoric music. Introduces basic score reading, aural analysis skills and terminology.

APPM 385 Opera Theatre

Semester course; 1 lecture and 4 studio hours. 2 credits. May be repeated for a total of 16 credits. Permission of instructor required. Explores aspects of opera through study, written research and fully staged public performances of operatic scenes and/or one-act operas.

APPM 390 Small Ensembles

Semester course; 2 or 3 laboratory hours. 0.5 or 1 credit. Each section may be repeated up to eight times for credit. Auditions required for all sections. Sections: (1) ensemble for new music, (2) the madrigalists, (3) collegium musicum, (4) women's chorus, (5) vocal ensembles, (6) piano ensembles, (7) accompanying, (8) percussion ensemble, (9) percussion lab ensemble, (10) woodwind ensembles, (11) brass ensembles, (12) chamber orchestra, (13) string ensembles, (14) guitar ensembles, (15) small jazz ensembles, (16) jazz orchestra I, (17) jazz orchestra II, (18) jazz orchestra III, (19) basketball pep band.

APPM 394 Junior Recital

No credit. For music majors only. Prerequisite: APPL 415 with a minimum grade of C. Corequisites: APPL

416 and APPM 299. Public presentation of a half-length recital.

APPM 463 Pedagogy

Semester course; 2 lecture hours. 2 credits. A study of the musical, physiological and psychological aspects of teaching instruments or voice.

APPM 464 Piano Pedagogy Practicum

Semester course; 1 lecture and 1 laboratory hour. 2 credits. Prerequisites: MHIS 304 and APPM 463 (piano). An advanced study of piano pedagogy with a supervised teaching component.

APPM 492 Senior Project: Portfolio Review

Semester course. 1 credit. Prerequisites: APPL 416 for performance majors or APPL 314 for B.A. degree students, senior standing and a minimum of 18 credits in 300- or 400-level courses. A capstone experience integrating resume preparation and professional development within the field of music. Documentation of creative activities and achievements accumulated during music studies is compiled for a portfolio review.

APPM 493 Music Internship

Semester course; Variable hours. 1-4 credits. May be repeated for a maximum of 4 credits. Prerequisites: open to music majors with junior standing, 3.0 GPA in major course work and minimum of 2.5 overall GPA, plus consent of coordinator and department chair. Provides full- or part-time professional field experience with approved organizations/individuals. Areas for the internship include (but are not limited to) music publication and production, arts administration and promotion, arts management, entertainment law, presentations and research, instrument repair, recording techniques, composition and arranging, and/or performance opportunities. Graded as S/U.

APPM 494 Senior Recital

No credit. For music majors only. Prerequisite: APPL 417 with a minimum grade of C. Corequisites: APPL 418 and APPM 299, with a minimum grade of C in each. Public presentation of a full-length recital.

Art Education

ARTE 250 Computer Technology in Art Education

Semester course; 2 lecture and 3 studio hours. 3 credits. For art education majors only. The use of computer as a tool for creating electronic imagery, as a filtering mechanism for traditional media and to develop teaching materials for the pre-K through 12th-grade classroom. The course includes an introduction to presentation technology, digital imaging and Web page design. Ethical and copyright issues related to new technologies will be addressed.

ARTE 301 Art for Elementary Teachers

Continuous courses; 1 lecture, 1 seminar and 2 studio hours. 3-3 credits. Prerequisite: completion of ARTE 301 to enroll in ARTE 302. The nature of art and its function in the lives of individuals and society is considered in addition to materials and methods for guiding the visual expression of children.

ARTE 302 Art for Elementary Teachers

Continuous courses; 1 lecture, 1 seminar and 2 studio hours. 3-3 credits. Prerequisite: completion of ARTE 301 to enroll in ARTE 302. The nature of art and its

function in the lives of individuals and society is considered in addition to materials and methods for guiding the visual expression of children.

ARTE 310 Foundations of Art Education

Semester course; 3 lecture hours. 3 credits. For art education majors only or by approval of the department chair. An examination of art education within the curricular structure of educational programs and the developmental growth of children. Students will explore the historical, philosophical and sociological foundations of art in education, including art education's development and current roles.

ARTE 311 Art Education Curriculum and Instructional Procedures

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: ARTE 310. For art education majors only. A study of the principles of learning, instruction and curriculum in art education programs. Students will develop teaching competencies through micro-teaching experiences, analysis of instructional methods and writing units of study.

ARTE 401 Art Education Elementary Materials and Practicum

Semester course; 3 lecture and 3 studio hours. 4 credits. Prerequisites: UNIV 200 or HONR 200, admission to the art teacher preparation program and completion of ARTE 311. For art education majors only or by the approval of the department chair. A preparatory experience with observation and participation in art programs in elementary grades prior to student teaching. This course explores art materials, techniques and teaching methods suitable for this level; and analyzes evaluation strategies appropriate for art.

ARTE 402 Art Education Secondary Materials and Practicum

Semester course; 3 lecture and 3 studio hours. 4 credits. Prerequisites: admission to the art teacher preparation program and completion of ARTE 311. For art education majors only or by approval of department chair. A preparatory experience with observation and participation in art programs in middle school, secondary school and nontraditional settings prior to student teaching. This course explores art materials and techniques suitable for these levels, examines developmental performance levels and analyzes evaluation methods appropriate for art. Writing intensive.

ARTE 404 Clinical Internship Seminar

Semester course; 1 seminar hour. 1 credit. Corequisites: TEDU 485 and 486. For art education majors only. Capstone experience. A seminar concurrent with clinical internship (student teaching) that gives students an opportunity to discuss and evaluate their progress in teaching assignments and other related activities.

ARTE 407 Photography in Art Education

Semester course; 1 lecture and 2 studio hours. 3 credits. A general introduction to the technical, theoretical and historical issues related to photography. Taught as a seminar and workshop teaching both digital and traditional camera functions, photographic terms, concepts, history, technique and alternative processes applicable to K-12 education.

ARTE 408 Two-dimensional Art Experiences

Semester course; 1 seminar and 4 studio hours. 3 credits. Open to art education majors only. Students will explore the two-dimensional traditional and emerging media that are relevant to teaching. The focus will be contemporary methods and conceptual approaches to visual meaning-making.

ARTE 409 Three-dimensional Art Experiences

Semester course; 1 seminar and 4 studio hours. 3 credits. Open to art education majors only. Students will explore the three-dimensional traditional and emerging media that are relevant to teaching. The focus will be contemporary methods and conceptual approaches to visual meaning-making.

ARTE 450 Art for the Exceptional Student

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: ARTE 311. For art education majors only. A study of the unique characteristics of exceptional students as related to involvement in the arts. The course examines disabled, aged, gifted, talented and other exceptional learners, and may include practicum and field experiences.

ARTE 491 Special Topics

Semester course; variable hours. Variable credit. May be repeated for a maximum of 9 credits with different content. A seminar and/or workshop offered on a variety of art education issues not included in the regular curriculum. See the Schedule of Classes for specific topics to be offered each semester.

ARTE 492 Independent Study

Semester course; variable hours. 1-6 credits per semester. May be repeated for a maximum total of 6 credits. Prerequisites: consent of department chair and instructor. Offered to art education majors only. This course will be limited to those few students who have demonstrated an exceptional level of ability and intense commitment to a particular area.

ARTE 493 Internship

Semester course; variable hours. 1-6 credits. May be repeated for a maximum total of 6 credits. Consent of department chair required. Offered to art education majors only. This service-learning course is designed to encourage students to seek internships with organizations that lead to research in art education and deepen engagement with diverse communities. Students must secure departmental approval for internships the semester prior to registration. International internships must register with the Education Abroad office.

ARTE 494 International Field Experience

Semester course; variable hours. 1-6 credits. Education Abroad application and consent of instructor required. Open to all students. This course is designed to facilitate student interactions with arts organizations in international settings that lead to research in art education and deepen engagement with diverse communities.

Art Foundation

ARTF 105 Survey of World Art

Continuous courses; 4 lecture hours. 4-4 credits. Prerequisite: completion of ARTF 105 to enroll in ARTF 106. A survey of the history and development of painting, sculpture, architecture and related visual arts of major world cultures, including European,

American, Oriental, African, Islamic and pre-Columbian. Offered at VCU Qatar.

ARTF 106 Survey of World Art

Continuous courses; 4 lecture hours. 4-4 credits. Prerequisite: completion of ARTF 105 to enroll in ARTF 106. A survey of the history and development of painting, sculpture, architecture and related visual arts of major world cultures, including European, American, Oriental, African, Islamic and pre-Columbian. Offered at VCU Qatar.

ARTF 107 Introduction to the Arts

Semester course; 1 lecture hour. 1 credit. For beginning students in the School of the Arts. Offered to art majors only. An orientation course designed to provide a comprehensive understanding of the role of the visual arts within the university and as a significant contributing factor in the creation of a meaningful human environment.

ARTF 111 Drawing Studio

Continuous courses; 1 lecture and 3 studio hours. 2-2 credits. Prerequisite: completion of ARTF 111 to enroll in ARTF 112. A foundation course with the emphasis on the formal and conceptual nature of drawing. This course is designed to challenge and develop the student's invention and imagination. Offered at VCU Qatar.

ARTF 112 Drawing Studio

Continuous courses; 1 lecture and 3 studio hours. 2-2 credits. Prerequisite: completion of ARTF 111 to enroll in ARTF 112. A foundation course with the emphasis on the formal and conceptual nature of drawing. This course is designed to challenge and develop the student's invention and imagination. Offered at VCU Qatar.

ARTF 115 Art History Survey

Continuous courses; 3 lecture hours. 3-3 credits. Prerequisite: completion of ARTF 115 to enroll in ARTF 116. A survey of the history and development of the visual arts within the contexts of history, geography, politics, religion, economics and the broad social and personal aspects of human culture. Offered at VCU Qatar.

ARTF 116 Art History Survey

Continuous courses; 3 lecture hours. 3-3 credits. Prerequisite: completion of ARTF 115 to enroll in ARTF 116. A survey of the history and development of the visual arts within the contexts of history, geography, politics, religion, economics and the broad social and personal aspects of human culture. Offered at VCU Qatar.

ARTF 121 Introduction to Drawing

Continuous courses; 1 lecture and 3 studio hours. 2-2 credits. Prerequisite: completion of ARTF 121 to enroll in ARTF 122. Not for art majors. An introduction to the fundamentals of freehand drawing with an emphasis on representational drawing skills, perception and traditional drawing materials. Does not fulfill Art Foundation Program requirements.

ARTF 122 Introduction to Drawing

Continuous courses; 1 lecture and 3 studio hours. 2-2 credits. Prerequisite: completion of ARTF 121 to enroll in ARTF 122. Not for art majors. An introduction to the fundamentals of freehand drawing with an emphasis on representational drawing skills,

perception and traditional drawing materials. Does not fulfill Art Foundation Program requirements.

ARTF 131 Drawing Studio

Semester course; 6 studio hours. 3 credits. Open only to first-year fine arts and design majors in the School of the Arts. Drawing A to Z, from pencil to perspective, from sumi ink to skywriting. An intensive drawing studio covering the historic principles of drawing and their place in contemporary practice. Provides an in-depth investigation of line, perspective, the figure, gesture, space, atmosphere, erasure, etc. Through the repeated physical activity of drawing, students will refine their intellectual powers of observation and visualization.

ARTF 132 Surface Research

Semester course; 6 studio hours. 3 credits. Open only to first-year fine arts and design majors in the School of the Arts. A studio-based course designed to cultivate a student's ability to create and understand two-dimensional imagery. Will include basic principles of design, color and visual organization in traditional, digital and lens-based media. Course content will explore the context of imagery in the larger culture and the potential of art and design.

ARTF 133 Space Research

Semester course; 6 studio hours. 3 credits. Open only to first-year fine arts and design majors in the School of the Arts. A comprehensive investigation of three-dimensional phenomena in fine art and design. Will cultivate a student's ability to think, perceive, visualize, design and build in three dimensions. Issues of understanding and envisioning space, objects, scale and the relationship of the body to the built environment are subjects of the course. Students will acquire a broad skill set of fabrication techniques and an inquiry into the possibility of 21st-century materials.

ARTF 134 Time Studio

Semester course; 6 studio hours. 3 credits. Open only to first-year fine arts and design majors in the School of the Arts. Brings together tenets of contemporary practice that have extended the fields of fine art and design. Time-based media such as film, video and sound are included in this mix. The historically underrepresented impulses of theatrically and performance will be explored. Students will use video as a primary tool, but will address larger issues of ephemerality, duration and the possibilities of the moving image.

ARTF 139 Project

Short course (5 weeks); variable hours. 1-2 credits. Open only to first-year fine arts and design majors in the School of the Arts. A seminar or studio on a selected issue, topic or skill in the fields of fine art and design. May be repeated up to maximum of 4 credits.

ARTF 150 Pre-Art Foundation Studio

Semester course; 6 studio and 2 lecture hours. 4 credits. For students in the Pre-Art Foundation Program in the School of the Arts. Offered to Pre-Art Foundation designees only. A beginning studio course emphasizing the fundamental issues of art and design, such as meaning, context, content and parameters, structure, materials, means of construction, form, space, and light. As the primary studio offering in the Pre-Art Foundation year, this course stresses the development of values that will become a basis for students' actions as professional artists and designers.

Introduces students to the values, habits, traditions and expectations of studio culture. Addresses the processes and methods involved in the identification, development and realization of ideas and concepts. Does not fulfill Art Foundation Program requirements.

ARTF 151 Foundation Studio

Continuous courses; 6 studio and 2 lecture hours. 4-4 credits. Prerequisite: completion of ARTF 151 to enroll in ARTF 152. For first-year students in the School of the Arts. Offered to art majors only. A foundation course with emphasis on fundamental issues of art and design such as meaning, context, content and parameters, structure, materials, means of construction, form, space, and light. As the primary studio offering in the first year, these courses stress the development of values that will become the basis for student's actions as professional artists and designers. Introduces students to the values, habits, traditions and expectations of studio culture.

ARTF 152 Foundation Studio

Continuous courses; 6 studio and 2 lecture hours. 4-4 credits. Prerequisite: completion of ARTF 151 to enroll in ARTF 152. For first-year students in the School of the Arts. Offered to art majors only. A foundation course with emphasis on fundamental issues of art and design such as meaning, context, content and parameters, structure, materials, means of construction, form, space, and light. As the primary studio offering in the first year, these courses stress the development of values that will become the basis for student's actions as professional artists and designers. Introduces students to the values, habits, traditions and expectations of studio culture.

ARTF 160 Pre-Art Foundation Drawing

Semester course; 6 studio and 2 lecture hours. 4 credits. For students in the Pre-Art Foundation Program in the School of the Arts. Offered to Pre-Art Foundation designees only. A beginning drawing course offering intense exposure to the basic skills of figure and perspective drawing. Traditional drawing media, the fundamentals of anatomy and the fundamentals of linear perspective are covered. Does not fulfill Art Foundation Program requirements.

ARTF 161 Figure Drawing I

Short course; 5 studio hours. 5 weeks. 1 credit. For beginning students in the School of the Arts. Offered to art majors only. A foundation course with emphasis on anatomical and figure drawings. Students work in black and white media. Students develop drawing skills as a means of observation and documentation.

ARTF 162 Perspective and Three-dimensional Line Drawing

Short course; 5 studio hours. 5 weeks. 1 credit. For beginning students in the School of the Arts. Offered to art majors only. A foundation course with emphasis on creating the illusion of three dimensions on a two-dimensional plane using black and white media and primarily line work. Introduces perspective and paraline drawing methods as a means of observation and documentation. Students become familiar with techniques and traditions that enable them to understand, articulate and communicate the characteristics of three-dimensional space.

ARTF 163 Two-dimensional Design Methods

Short course; 5 studio hours. 5 weeks. 1 credit. For beginning students in the School of the Arts. Offered

to art majors only. A foundation course with emphasis on two-dimensional content. Emphasizes critical and analytical skills, the creation and manipulation of visual systems, and the development of a fundamental design vocabulary that supports conceptual generation and development.

ARTF 164 Color Research Laboratory

Short course; 5 studio hours. 5 weeks. 1 credit. For beginning students in the School of the Arts. Offered to art majors only. A foundation course with emphasis on color theory, phenomena, characteristics, classification and the physics of color.

ARTF 171 Digital Laboratory

Short course; 5 studio hours. 5 weeks. 1 credit. For beginning students in the School of the Arts. Offered to art majors only. A foundation course with emphasis on the generation and manipulation of digital media that support conceptual development.

ARTF 172 Digital Photography

Short course; 5 studio hours. 5 weeks. 1 credit. Prerequisite: ARTF 171 Digital Lab. For beginning students in the School of the Arts. Offered to art majors only. A foundation course with emphasis on the generation, manipulation and printing of digital media.

ARTF 173 Three-dimensional Design Methods

Short course; 5 studio hours. 5 weeks. 1 credit. For beginning students in the School of the Arts. Offered to art majors only. A foundation course with emphasis on fundamental means of construction, materials exploration and structural investigations that support conceptual development.

ARTF 181 Figure Drawing II

Short course; 5 studio hours. 5 weeks. 1 credit. Prerequisite: ARTF 161 Figure Drawing I. For beginning students in the School of the Arts. Offered to art majors only. An advanced foundation course with emphasis on figure drawing. Students work in black and white, and in color media. Students develop drawing skills as a vehicle to document objects and experiences and as a tool for invention.

ARTF 182 Perspective and Three-dimensional Rendering

Short course; 5 studio hours. 5 weeks. 1 credit. Prerequisite: ARTF 162 Perspective and Three-dimensional Line Drawing. Offered to art majors only. A foundation course that emphasizes the introduction of light, shadow, shading and color into three-dimensional drawings. Introduces these drawing skills as a means of observation, documentation, analysis and invention.

ARTF 191 Topics in Foundation Studies

Short course; variable hours. 5 weeks. 1-4 credits. May not be repeated. Prerequisites: permission of the program director and instructor. A seminar or studio on a selected issue, topic or skill in the field of foundation studies.

Art History

ARTH 103 Survey of Western Art

Semester courses; 3 lecture hours. 3, 3 credits. First semester: Prehistoric through Gothic. Second semester: Italian Renaissance through Modern. Illustrated lectures and analytical practices will be

supported by the student visiting local museums and galleries to examine selected works of art.

ARTH 104 Survey of Western Art

Semester courses; 3 lecture hours. 3, 3 credits. First semester: Prehistoric through Gothic. Second semester: Italian Renaissance through Modern. Illustrated lectures and analytical practices will be supported by the student visiting local museums and galleries to examine selected works of art.

ARTH 207 Introduction to Non-Western Art

Semester course; 3 lecture hours. 3 credits. Art will be presented as an integral aspect of each culture from the areas of China, Japan, Africa, Oceania, Native America, and pre-Columbian Central and South America. Aesthetic appreciation will be enhanced through a presentation of various philosophies, customs and values. Illustrated lectures and analytical practices will be supported by the student visiting local museums and galleries to examine selected works of art.

ARTH 245 Survey of Asian Art

Semester course; 3 lecture hours. 3 credits. Introductory survey of the art of India, the Middle East, Southeast Asia, China, Korea and Japan. Illustrated lectures and analytical practices will be supported by the student visiting local museums and galleries to examine selected works of art.

ARTH 260 Islamic Art Survey

Semester course; 3 lecture hours. 3, 3 credits. Prerequisites: ARTH 103 or ARTF 105 or 115 and ARTH 104 or ARTF 106 or 116. First semester: seventh century to 13th century. Second semester: 14th century to the present. Illustrated lectures provide a survey of Islamic art and architecture. Students will visit local museums and galleries to examine selected works of art.

ARTH 261 Islamic Art Survey

Semester course; 3 lecture hours. 3, 3 credits. Prerequisites: ARTH 103 or ARTF 105 or 115 and ARTH 104 or ARTF 106 or 116. First semester: seventh century to 13th century. Second semester: 14th century to the present. Illustrated lectures provide a survey of Islamic art and architecture. Students will visit local museums and galleries to examine selected works of art.

ARTH 270 History of the Motion Picture

Semester courses; 3 lecture hours. 3, 3 credits. The history of development of the motion picture from its early beginnings to the present, with both technical and aesthetic consideration. Students engage in analysis and discussion after viewing selected films.

ARTH 271 History of the Motion Picture

Semester courses; 3 lecture hours. 3, 3 credits. The history of development of the motion picture from its early beginnings to the present, with both technical and aesthetic consideration. Students engage in analysis and discussion after viewing selected films.

ARTH 291 Special Topics

Semester course; 1-3 variable hours. 1-3 credits. May be repeated with different topics for a maximum of 9 credits. An in-depth study of a selected topic in art history not included in the curriculum. See the Schedule of Classes for specific topics to be offered each semester.

ARTH 300 Prehistoric and Ancient Art and Architecture

Semester course; 3 lecture hours. 3 credits. Prerequisites: ARTH 103 and UNIV 200 or HONR 200, both with a minimum grade of C. A survey of the artistic expressions of the major prehistoric and ancient cultures of Europe, the Near East, Egypt and the Aegean.

ARTH 301 Art and Architecture of Ancient North America

Semester course; 3 lecture hours. 3 credits. Prerequisites: ARTH 103 and UNIV 200 or HONR 200, both with a minimum grade of C. A survey of the major artistic traditions of ancient America, north of Mexico, including Woodlands, Mississippian, Plains, Eskimo, Northwest Coast and the Southwest.

ARTH 302 Museums in the 21st Century

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 200 or HONR 200 with a minimum grade of C. A survey of contemporary theories, issues and practices in the museum environment. Topics include museum identity and function, administration, museum ethics, collections maintenance and management, curatorial and exhibition issues, and education and public interaction.

ARTH 305 Classical Art and Architecture

Semester course; 3 lecture hours. 3 credits. Prerequisites: ARTH 103 and UNIV 200 or HONR 200, both with a minimum grade of C. A survey of the development of Greek, Etruscan and Roman architecture, sculpture, painting and the minor arts from their beginnings to the early fourth century A.D.

ARTH 310 Medieval Art and Architecture

Semester course; 3 lecture hours. 3 credits. Prerequisites: ARTH 103 and UNIV 200 or HONR 200, both with a minimum grade of C. Survey of Western art and architecture between A.D. 300 and 1400.

ARTH 311 Islamic Art and the West Before 1200

Semester course; 3 lecture hours. 3 credits. Prerequisites: ARTH 260 and 261. Explores the early development of Islamic and Christian artistic traditions with an emphasis on artistic contact and exchange.

ARTH 312 Islamic Art and the West From 1200 to 1600

Semester course; 3 lecture hours. 3 credits. Prerequisites: ARTH 260 and 261. Explores the artistic dynamics of the Renaissance with an emphasis on interactions between the Christian and Islamic worlds.

ARTH 315 Renaissance Art and Architecture

Semester course; 3 lecture hours. 3 credits. Prerequisites: ARTH 104 and UNIV 200 or HONR 200, both with a minimum grade of C. An examination of the Renaissance in Italy and Northern Europe. Painting, sculpture and architecture of the 14th, 15th and 16th centuries.

ARTH 317 History of Architecture

Semester courses; 3 lecture hours. 3, 3 credits. Prerequisites: ARTH 104 and UNIV 200 or HONR 200, both with a minimum grade of C. First semester: major architectural forms from ancient Egypt through Medieval period. Second semester: architecture in

Europe and America from the Renaissance to the present.

ARTH 318 History of Architecture

Semester courses; 3 lecture hours. 3, 3 credits. Prerequisites: ARTH 104 and UNIV 200 or HONR 200, both with a minimum grade of C. First semester: major architectural forms from ancient Egypt through Medieval period. Second semester: architecture in Europe and America from the Renaissance to the present.

ARTH 320 Baroque and Rococo Art and Architecture

Semester course; 3 lecture hours. 3 credits. Prerequisites: ARTH 104 and UNIV 200 or HONR 200, both with a minimum grade of C. The art and architecture of Italy and northern Europe between 1600 and 1750.

ARTH 321 Islamic Art and the West From 1600 to 1800

Semester course; 3 lecture hours. 3 credits. Prerequisites: ARTH 260 and 261. Explores the Counter-Reformation in light of the Ottoman expansion in Europe and the development of artistic forms that reflect the status quo of the Roman Catholic Church.

ARTH 325 19th-century Art and Architecture in Europe

Semester course; 3 lecture hours. 3 credits. Prerequisites: ARTH 104 and UNIV 200 or HONR 200, both with a minimum grade of C. Study of European art and architecture between 1770 and 1900.

ARTH 330 20th-century Art and Architecture

Semester course; 3 lecture hours. 3 credits. Prerequisites: ARTH 104 and UNIV 200 or HONR 200, both with a minimum grade of C. A survey of 20th-century art with emphasis on architecture, painting and sculpture.

ARTH 333 Modern Architecture

Semester course; 3 lecture hours. 3 credits. Prerequisites: ARTH 103, ARTH 104 and UNIV 200 or HONR 200. Open to School of the Arts majors only. An investigation of major architectural periods and achievements in commercial and residential designs from 1850 to the present; tracing the development of the International Style, traditional architecture, the evolution of the skyscraper, Art Nouveau and the works of Henry Hobson Richardson, Louis Sullivan and Frank Lloyd Wright.

ARTH 335 Pre-Columbian Art and Architecture

Semester course; 3 lecture hours. 3 credits. Prerequisites: ARTH 103 and UNIV 200 or HONR 200, both with a minimum grade of C. A study of the major artistic traditions of ancient America (i.e., Maya, Aztec and Inca). The course concentrates on Meso-America and the Andean Region.

ARTH 338 Colonial Art and Architecture of Latin America

Semester course; 3 lecture hours. 3 credits. Prerequisites: ARTH 104 and UNIV 200 or HONR 200, both with a minimum grade of C. A study of the major artistic traditions in Latin America from the 16th to the end of the 18th century.

ARTH 339 Modern and Contemporary Art and Architecture of Latin America

Semester course; 3 lecture hours. 3 credits.
Prerequisites: ARTH 104 and UNIV 200 or HONR 200, both with a minimum grade of C. A study of 19th- and 20th-century art in Latin America focusing on the major movements and artists of Mexico, the Caribbean, Central and South America.

ARTH 340 Art and Architecture of the United States

Semester course; 3 lecture hours. 3 credits.
Prerequisites: ARTH 104 and UNIV 200 or HONR 200, both with a minimum grade of C. A survey of painting, sculpture and architecture from the Colonial period to the present.

ARTH 341 Architecture of the United States

Semester course; 3 lecture hours. 3 credits.
Prerequisites: ARTH 103, ARTH 104 and UNIV 200 or HONR 200. Open to School of the Arts majors only. An in-depth investigation of major architectural developments from the Colonial period to the present, including an analysis of European prototypes.

ARTH 342/AFAM 342 African-American Art

Semester course; 3 lecture hours. 3 credits.
Prerequisites: ARTH 104 and UNIV 200 or HONR 200, both with a minimum grade of C. A study of the art forms produced by Americans of African origin from the 17th century to the present with an emphasis on contemporary trends in black art.

ARTH 343 Architecture in Richmond

Semester course; 3 lecture hours. 3 credits.
Prerequisites: ARTH 103, ARTH 104 and UNIV 200 or HONR 200. History and origins of Richmond-area architecture.

ARTH 345 The Art of India

Semester course; 3 lecture hours. 3 credits.
Prerequisites: ARTH 103, ARTH 104 and UNIV 200 or HONR 200. Open to School of the Arts majors only. The Indus Valley civilization through Maurya, Sunga, Kushana, Andhra, Gupta and Pallava periods.

ARTH 347 The Art of East Asia

Semester course; 3 lecture hours. 3 credits.
Prerequisites: ARTH 245 and UNIV 200 or HONR 200. Open to School of the Arts majors only. The art of Burma, Malaya, Thailand, Cambodia, Indochina and Indonesia.

ARTH 350/AFAM 413 African and Oceanic Art

Semester course; 3 lecture hours. 3 credits.
Prerequisite: UNIV 200 or HONR 200 with a minimum grade of C. A study of the architecture, painting, sculpture and civilizations of the major art-producing tribes of West Africa and Oceania from the 13th century to the present.

ARTH 357 Women, Art and Society

Semester course; 3 lecture hours. 3 credits.
Prerequisites: ARTH 103, ARTH 104 and UNIV 200 or HONR 200. Open to School of the Arts majors only. A re-examination of a variety of issues concerning women, art and society: the position assigned women within the history of art as it relates to historical place and the aesthetic values of the canon, the gendering of style, patronage, audience and gaze. Through a survey of images of and by women, as well as through an

analysis of art historical and critical texts, this course addresses the question: "How are the processes of sexual differentiation played out across the representations of art and art history?"

ARTH 358/AFAM 358 African Art and Architecture

Semester course; 3 lecture hours. 3 credits.
Prerequisite: UNIV 200 or HONR 200. A study of African art and architecture from prehistoric times to the present. Special emphasis is placed on form, content, function and meaning, as well as the impact of African art on modern and African-American art.

ARTH 359 Studies in Aesthetics, Theory and Criticism of Art

Semester course; 3 lecture hours. 3 credits. May be repeated with a different topic for a maximum of 9 credits. Prerequisites: ARTH 103, ARTH 104 and UNIV 200 or HONR 200. Open to School of the Arts majors only. An in-depth examination of selected topics. See the Schedule of Classes for specific topics to be offered each semester.

ARTH 361 The Human Condition: An Arts Perspective

Semester course; 3 lecture hours. 3 credits.
Prerequisite: UNIV 200 or HONR 200. Considers both the commonality of the human condition and differentiation among sociological and cultural experiences represented in selected artworks in the permanent collection of the Virginia Museum of Fine Arts.

ARTH 365 Modern and Contemporary Art I

Semester courses; 3 lecture hours. 3, 3 credits.
Prerequisites: ARTH 103, ARTH 104 and UNIV 200 or HONR 200. Open to School of the Arts majors only. First semester: an in-depth examination of art, theory and criticism from 1900-50. Second semester: an in-depth examination of art, theory and criticism since 1960.

ARTH 366 Modern and Contemporary Art II

Semester courses; 3 lecture hours. 3, 3 credits.
Prerequisites: ARTH 103, ARTH 104 and UNIV 200 or HONR 200. Open to School of the Arts majors only. First semester: an in-depth examination of art, theory and criticism from 1900-50. Second semester: an in-depth examination of art, theory and criticism since 1960.

ARTH 369 Studies in Museum Methods

Semester course; 3 lecture hours. 3 credits. May be repeated with a different topic for a maximum of 6 credits. Prerequisites: ARTH 103, ARTH 104 and 302. Open to School of the Arts majors only. An in-depth examination of selected topics. Topics include museum administration, museum ethics, collections maintenance and management, curatorial and exhibition issues, and education. See the Schedule of Classes for specific topics to be offered each semester.

ARTH 370 History of Animated Film

Semester course; 3 lecture hours. 3 credits.
Prerequisites: ARTH 104 and UNIV 200 or HONR 200. The history of animation as an art form, from early experimental to popular culture to independent animation. Design, structure and technique are considered.

ARTH 372 History of Photography

Semester course; 3 lecture hours. 3 credits.
Prerequisites: ARTH 103, ARTH 104 and UNIV 200 or HONR 200. Open to School of the Arts majors only. A survey of the photographic medium from its invention in the 1830s to the present.

ARTH 374 Studies in Film

Semester course; 3 lecture hours. 3 credits. May be repeated with a different topic for a maximum of 6 credits. Prerequisites: ARTH 103, ARTH 104 and UNIV 200 or HONR 200. Open to School of the Arts majors only. An in-depth examination of selected topics. See the Schedule of Classes for specific topics to be offered each semester.

ARTH 390 Art Historical Methods

Semester course; 3 lecture hours. 3 credits.
Prerequisites: ARTH 104 and UNIV 200 or HONR 200. Course further develops critical thinking and writing skills specific to art history through several short written assignments and a final extended written project.

ARTH 391 Special Topics

Semester course; 1-3 variable hours. 1-3 credits. May be repeated with different topics for a maximum of 9 credits. Prerequisites: ARTH 103, ARTH 104 and UNIV or HONR 200, all with a minimum grade of C. An in-depth study of a selected topic in art history not included in the curriculum. See the Schedule of Classes for specific topics to be offered each semester.

ARTH 415 Early Italian Renaissance Art and Architecture

Semester course; 3 lecture hours. 3 credits.
Prerequisite: ARTH 390 with a minimum grade of C. An investigation of painting, sculpture and architecture of the Duecento, Trecento and Quattrocento in Italy.

ARTH 417 The High Renaissance

Semester course; 3 lecture hours. 3 credits.
Prerequisite: ARTH 390 with a minimum grade of C. Intensive consideration of the great masters of Italian art in the early 16th century.

ARTH 425 Neoclassicism, Romanticism, Realism and Impressionism through Fin-de-Siecle

Semester courses; 3 lecture hours. 3, 3 credits.
Prerequisite: ARTH 390 with a minimum grade of C. First semester: a detailed analysis of European art during the first half of the 19th century with special emphasis on French and English painting. Consideration also will be given to artistic and cultural interrelationships marking the transition from the 18th to the 19th century. Second semester: a detailed analysis of European art during the latter 19th century. Consideration also will be given to artistic and cultural interrelationships heralding the transition to the 20th century.

ARTH 426 Neoclassicism, Romanticism, Realism and Impressionism through Fin-de-Siecle

Semester courses; 3 lecture hours. 3, 3 credits.
Prerequisite: ARTH 390 with a minimum grade of C. First semester: a detailed analysis of European art during the first half of the 19th century with special emphasis on French and English painting. Consideration also will be given to artistic and cultural interrelationships marking the transition from the 18th

to the 19th century. Second semester: a detailed analysis of European art during the latter 19th century. Consideration also will be given to artistic and cultural interrelationships heralding the transition to the 20th century.

ARTH 430 Modern Painting

Semester course; 3 lecture hours. 3 credits.

Prerequisite: ARTH 390 with a minimum grade of C. An analysis of the major movements in 20th-century painting.

ARTH 431 Modern Sculpture

Semester course; 3 lecture hours. 3 credits.

Prerequisite: ARTH 390 with a minimum grade of C. The evolution of 20th-century sculpture considering major movements and artists.

ARTH 439 Studies in 20th-century Art

Semester course; 3 lecture hours. 3 credits. May be repeated with a different topic for a maximum of 6 credits. Prerequisite: ARTH 390 with a minimum grade of C. An in-depth examination of selected art and issues of the period. See the Schedule of Classes for specific topics to be offered each semester.

ARTH 440/AFAM 440 Contemporary Art and Architecture of Africa

Semester course; 3 lecture hours. 3 credits.

Prerequisite: ARTH 390 with a minimum grade of C. A study of the impact on African art and architecture of Colonialism, urbanization and modernization. Special emphasis is placed on the search for a new identity by contemporary African artists.

ARTH 444 Studies in the Art of the United States

Semester course; 3 lecture hours. 3 credits. May be repeated with a different topic for a maximum of 6 credits. Prerequisite: ARTH 390 with a minimum grade of C. An in-depth examination of selected art and issues of the period. See the Schedule of Classes for specific topics to be offered each semester.

ARTH 449 Studies in Asian Art

Semester course; 3 lecture hours. 3 credits. May be repeated with a different topic for a maximum of 6 credits. Prerequisite: ARTH 390 with a minimum grade of C. An in-depth examination of selected art and issues of the period. See the Schedule of Classes for specific topics to be offered each semester.

ARTH 450 Art and Architecture of Mesoamerica

Semester course; 3 lecture hours. 3 credits.

Prerequisite: ARTH 390 with a minimum grade of C. An in-depth study of the artistic traditions of Mesoamerica (i.e., Maya, Aztec and Olmec).

ARTH 451 Art and Architecture of Andean America

Semester course; 3 lecture hours. 3 credits.

Prerequisite: ARTH 390 with a minimum grade of C. An in-depth study of the pre-Columbian art production of the Andean region (i.e., Chavin, Moche and Inca art).

ARTH 452 Studies in Pre-Columbian Art and Architecture

Semester course; 3 lecture hours. 3 credits. May be repeated with a different topic for a maximum of 6 credits. Prerequisite: ARTH 390 with a minimum

grade of C. An in-depth examination of selected art and issues of the period (Ancient America). See the Schedule of Classes for specific topics to be offered each semester.

ARTH 454 Studies in African and Oceanic Art

Semester course; 3 lecture hours. 3 credits. May be repeated with a different topic for a maximum of 6 credits. Prerequisite: ARTH 390 with a minimum grade of C. An in-depth examination of selected art and issues of the period. See the Schedule of Classes for specific topics to be offered each semester.

ARTH 461 Art and Architecture in Latin America, 1915 to the Present

Semester course; 3 lecture hours. 3 credits.

Prerequisite: ARTH 390 with a minimum grade of C. This course studies the finest expressions of modern Latin American art within the context of the arrival of Modernism in art, improved communications and travel, the growth of the middle class, population explosion, industrialization, urbanization, movements for reform and revolution, and the struggle against economic and cultural dependence and homogenization. The course is hemispheric in scope but devotes special attention to Mexico, Brazil and Argentina.

ARTH 465 Islamic Art and the West From 1800 to 1900

Semester course; 3 lecture hours. 3 credits.

Prerequisites: ARTH 260, ARTH 261 and ARTH 390. Examines the art and architecture of the Islamic world during the age of European colonialism.

ARTH 466 Modern and Contemporary Art in the Middle East

Semester course; 3 lecture hours. 3 credits.

Prerequisites: ARTH 260, ARTH 261 and ARTH 390. Focuses on art and architecture in the Middle East in the 20th and 21st centuries. Issues considered include the lives and work of selected artists, architects and designers; artistic media and themes; collecting; and the art market.

ARTH 489 Topics in Advanced Art History

Semester course; 3 lecture hours. 3 credits. May be repeated with a different topic for a maximum of 9 credits. Prerequisite: ARTH 390 with a minimum grade of C. An in-depth study of a selected topic in art history not included in the curriculum. See the Schedule of Classes for specific topics to be offered each semester.

ARTH 490 Senior Seminar in Art History

Semester course; 3 lecture hours. 3 credits.

Prerequisite: ARTH 390 with a minimum grade of C. A study of a specific topic, artist, movement or style in a seminar format. Students will produce an extended research project to fulfill the seminar requirements. Fulfills School of the Arts writing intensive requirement.

ARTH 493 Museum Internship

Semester course; 9 to 18 studio hours. 3 to 6 credits. May be repeated with different topics for a maximum of 12 credits. Prerequisites: ARTH 302 and 390, both with a minimum grade of C. Restricted to art history majors only. Fieldwork in a local or regional museum. Topics include museum administration, museum ethics, collections maintenance and management, curatorial and exhibition issues, and education.

ARTH 497 Directed Research Project

Semester course; 3 credits. May be repeated for a maximum of 6 credits. Prerequisite: ARTH 390 with a minimum grade of C. Advanced individual work on a subject to be formulated in writing by the student and the instructor.

Arts

Unless otherwise indicated, courses must be taken in numerical sequence.

ARTS 001 Open Studio Workshop

Semester course; hours to be arranged. No credit.

ARTS 190 Advanced Workshop, Drawing

Semester course; 1 lecture and 6 studio hours. 3 credits. Must be taken concurrently with ARTS 191 and 192. Special summer workshop in drawing for the freshman applicant whose work shows potential worthy of consideration for advanced placement in September. Students are admitted only by invitation of the dean of the School of the Arts.

ARTS 191 Advanced Workshop, Design

Semester course; 1 lecture and 9 studio hours. 4 credits. Must be taken concurrently with ARTS 190 and 192. Special summer workshop in design for the freshman applicant whose work shows potential worthy of consideration for advanced placement in September. Students are admitted only by invitation of the dean of the School of the Arts.

ARTS 192 Advanced Workshop, Art History

Semester course; 2 lecture hours. 2 credits. Must be taken concurrently with ARTS 190 and 191. Special summer workshop in art history for the freshman applicant whose work shows potential worthy of consideration for advanced placement in September. Students are admitted only by invitation of the dean of the School of the Arts.

ARTS 291 Special Topics

Semester course; variable hours. .5-4 credits. May be repeated with different topics for a maximum of 6 credits. Prerequisite: approval of School of the Arts dean. Open only to School of the Arts students. Topical course offering a variety of subjects not available through an individual department. See the Schedule of Classes for specific topics to be offered.

ARTS 350 The Creative Economy

Semester course; 3 lecture hours. 3 credits. Examines the contribution of creative ideas to the world economy with a focus on where, how and why creative ideas are produced and consumed.

ARTS 351 Piloting the Enterprise

Semester course; 3 lecture hours. 3 credits. Introduces the language of the creative enterprise, focusing on intellectual property, contracts and negotiations, tracking business performance, and using financial data to improve decision-making.

ARTS 352 Idea Accelerator

Semester course; 3 lecture hours. 3 credits. Exposes students to the processes and methodologies used to transform ideas and opportunities into sustainable business models. Students evaluate business case studies, engage industry professionals and investigate the commercial potential of their creative ideas.

ARTS 353 Creative Disruption

Semester course; 2 lecture and 3 studio hours. 3 credits. Course may be repeated for a maximum of 6 credits. Prerequisite: ARTS 352 or permission of the instructor. Provides a low-risk educational environment for students to develop their own ventures, including a product/service business model, legal considerations, financial and marketing plans and media presence (Web, mobile, social). Students work with a network of mentors from the university and industry.

ARTS 370 Topics in Art

Semester courses; 3 lecture or 9 studio hours (or combinations thereof). 3, 3 credits. An in-depth study of a selected topic in art. See the Schedule of Classes for specific topics to be offered each semester.

ARTS 371 Topics in Art

Semester courses; 3 lecture or 9 studio hours (or combinations thereof). 3, 3 credits. An in-depth study of a selected topic in art. See the Schedule of Classes for specific topics to be offered each semester.

ARTS 375 Message Therapy

Semester course; 3 lecture hours. 3 credits. Open to arts majors only. Students will learn the skills to craft powerful communication and attract/hold attention and interest. The course offers strategies on how to connect with an audience and effectively communicate about artistic work, promote an event/person/product and tell a story.

ARTS 391 Special Topics

Semester course; variable hours. 1-4 credits. May be repeated with different topics for a maximum of 6 credits. Prerequisite: approval of School of the Arts dean. Open only to School of the Arts students. Topical course offering a variety of subjects not available through an individual department. See the Schedule of Classes for specific topics to be offered.

ARTS 392 Independent Study

Semester courses; 3-18 studio hours. 1-6 credits. Prerequisites: consent of department head and instructor. The student must be enrolled in a regularly scheduled 300-level studio course. Offered to School of the Arts majors only. This course will be limited to those few students who have demonstrated an unusual level of ability and intense commitment to a particular area.

ARTS 430 Guided Study Afield

1-9 credits. Prerequisite: permission of instructor required. Designed to enhance the student's knowledge by providing first-hand experience with the most significant contribution of aesthetic import within the geographic areas traveled.

ARTS 491 Special Topics

Semester course; variable hours. 1-4 credits. May be repeated with different topics for a maximum of 6 credits. Prerequisite: approval of School of the Arts dean. Open only to School of the Arts students. Topical course offering a variety of subjects not available through an individual department. See the Schedule of Classes for specific topics to be offered.

ARTS 492 Independent Study

Semester courses; 3-18 studio hours. 1-6 credits. Prerequisites: consent of department head and instructor. The student must be enrolled in a regularly scheduled 300-level studio course. Offered to School

of the Arts majors only. This course will be limited to those few students who have demonstrated an unusual level of ability and intense commitment to a particular area.

ARTS 493 Internship

Semester course; variable hours. 1-6 credits. (30-40 work hours per credit.) May be repeated for a maximum of 9 credits. Prerequisites: junior standing in the School of the Arts and permission of department chair. A practicum that provides students with valuable hands-on experience. Internship details are to be worked out and agreed upon by supervising professor, department chair and internship employer. A grade of PR will be assigned for an internship that extends past the grading period.

Cinema**CINE 100 Visual Storytelling**

Semester course; 1 lecture and 2 studio hours. 2 credits. Screenplay and mise en scene course examines the relationship of the performer and narrative to the cinematic frame without the use of an edit to disrupt the time/space relations in the shot. The student will write seven short scripts to explore the classical mise en scene concept and then produce, shoot or direct a final scene as part of a production team.

CINE 101 Visual Storytelling

Semester course; 1 lecture and 2 studio hours. 2 credits. Screenplay and mise en scene course examines the relationship of the performer and narrative to the cinematic frame with the use of linkage editing. The student will write a new script based on a classic scene and, working with performers, will block, shoot and edit their scene. The editing will consist of no more than four cuts.

CINE 200 Cinema Form and Concept I

Semester course; 2 lecture and 2 studio hours. 2 credits. Open only to B.A. in Film majors or with permission of instructor. Concepts, issues and processes involved in feature and short-form narrative filmmaking.

CINE 201 Cinema Form and Concept II

Semester course; 2 lecture and 2 studio hours. 2 credits. Open only to B.A. in Film majors or with permission of instructor. Concepts, issues and processes involved in feature and short-form narrative screenwriting and filmmaking.

CINE 300 Cinema Form and Concept III

Semester course; 2 lecture and 1 studio hours. 2 credits. Prerequisite: UNIV 200 or HONR 200. Open only to B.A. in Film majors or with permission of instructor. Concepts, issues and processes involved in feature and short-form narrative filmmaking including screenplay treatments and storyboards.

CINE 301 Cinema Form and Concept IV

Semester course; 2 lecture and 1 studio hours. 2 credits. Open only to B.A. in Film majors or with permission of instructor. Concepts, issues and processes involved in feature and short-form narrative filmmaking including the roles of dialogue and light.

CINE 390 Digital Cinema Production Intensive I

Semester course; 30 lecture and 10 studio hours. Additional evening and weekend hours for location

filming and postproduction. 15 credits. Prerequisites: CINE 200 and 201 or permission of instructor. Open only to B.A. in Film majors or with permission of instructor. Production and postproduction of narrative short films using digital technology for camera, editing and sound, with an emphasis on the relationships among production crew roles and departments.

CINE 392 Independent Study in Film

Semester course; variable hours. 1-3 credits. May be repeated for a maximum total of 6 credits. Prerequisites: junior standing as a major in film and approval of department chair and instructor. Individual instruction and supervision of a special project.

CINE 401 Advanced Cinema Production

Semester course; 2 lecture and 4 studio hours. 4 credits. Prerequisite: CINE 390 or permission of instructor. Open to junior and senior B.A. in Film majors. Lecture and workshop in the production, theory, business and historical context of film.

CINE 490 Digital Cinema Production Intensive II

Semester course; 30 lecture hours and 10 studio hours. Additional evening and weekend hours for location filming and postproduction. 15 credits. Prerequisites: CINE 300, 301 and 390 or permission of instructor. Open only to B.A. in Film majors or with permission of instructor. Advanced production and postproduction of narrative short films using digital technology for camera, editing and sound, with the development of budgets, production schedules and rehearsals with performers.

CINE 491 Special Topics in Cinema

Semester course; 3 lecture hours. 3 credits. May be repeated for 6 credits. Prerequisites: ARTH 270 and 271 or permission of instructor. An in-depth examination of selected topics. See the Schedule of Classes for specific topics to be offered each semester.

CINE 493 Film Internship

Semester course; variable hours. 3 credits. May be repeated up to a maximum of 6 credits. Open only to B.A. in Film majors or with permission of instructor. Supervised work experience related to the film industry.

CINE 495 Cinema as Art

Semester course; 3 lecture hours. 3 credits. Prerequisites: ARTH 270 and 271 or permission of instructor. An analysis of cinema as art, image, narrative and philosophy.

CINE 496 Advanced Screenwriting Seminar

Semester course; 3 lecture hours. 3 credits. Prerequisite: CINE 390. Open to junior and senior B.A. in Film majors. A study of the screenwriting process and writers on the subject including Aristotle, Joseph Campbell, David Mamet and Lajos Egri.

CINE 497 Expanded Cinema

Semester online course; 3 lecture hours. 3 credits. Open to junior and senior B.A. in Film majors or with permission of instructor. A lecture and workshop exploring film techniques that push the boundaries of conventional narratives through structure, content and ideas. Students examine filmmakers as film theorists and multimedia artists as filmmakers. Films studied range from feature narratives to short experimental films of all styles and genres.

Communication Arts

COAR 200 Visual Studies: Drawing

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: ARTF 131. A course in drawing from direct observation of specific references: visual analysis, surface light and color, structure, and context. Various painting and drawing media will be explored. Assignments will incorporate applicable references to the history of art and contemporary developments. Formerly CARD 200.

COAR 201 Drawing Studies: The Figure Observed

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: successful completion of the Art Foundation Program. Students will study and explore how to draw from direct observation using the figure as the primary means to understand proportion, volume and spatial relationships. Class will include skeletal structure, basic anatomy and physical aspects of the figure. Various drawing and painting media will be explored. Specific assignments will be informed by the reference and use of the figure in the history of art and contemporary developments. Formerly CARD 206.

COAR 202 Drawing Studies: The Figure in Context

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: COAR 201. Drawing from direct observation using the figure as the primary means to understand proportion, volume and spatial relationships. Specific problems will include the figure as a dynamic element in different lighting, spatial and conceptual contexts. Various drawing and painting media will be explored. Assignments will incorporate applicable references to the history of art and contemporary developments. Formerly CARD 224.

COAR 210 Visual Studies: Design

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: ARTF 132 and 133. A course in which an understanding of the relationship between form and communication is developed. The student will develop an awareness and appreciation for visual imagery as a tool for the transmission of information and ideas. Formerly CARD 203.

COAR 211 Fundamentals of Typography

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: ARTF 132. An introduction to the study of typography as used in communication arts. Course will include the study of hand-drawn and digital letterforms and their context. Formerly CARD 215.

COAR 230 Introduction to Computer Techniques

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: successful completion of the Art Foundation Program. An introductory workshop in microprocessor hardware operations, software procedures and Internet communication necessary for contemporary communication arts and design practice. Formerly CARD 207.

COAR 231 Basic Communication Arts Software

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: ARTF 134. A course in basic

hardware operation and software necessary for contemporary communication arts practice. Explores the differences between vector (grid/pixel) and raster (mathematical) -based programs and how different programs are interrelated. Students will learn the basics of file size, color modes and file sharing. Formerly CARD 240.

COAR 300 Illustration: Drawing and Painting

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: COAR 202. Explores and addresses formal, conceptual and technical considerations and issues involved in the use of drawing and painting. Various drawing and painting media will be explored. Formerly CARD 321.

COAR 301 Drawing Studies: The Figure (Intermediate)

Semester course; 2 lecture and 3 studio hours. 3 credits. May be repeated for up to 6 credits. Prerequisite: COAR 201. Drawing from direct observation at the intermediate level using the figure as the primary means to understand proportion, volume and spatial relationships. Various drawing and painting media will be explored.

COAR 302 Print Media

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: COAR 202. An intermediate course in the use of printing processes and techniques to develop communicative imagery. Assignments will incorporate applicable references to the history of art and contemporary developments. Formerly CARD 352.

COAR 303 Color Theory and Practice

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: COAR 300. An intermediate course in the application of color theory to specific illustrative problems. A number of color theories, both historical and contemporary, will be studied and applied. Formerly CARD 325.

COAR 304 Illustration Media and Techniques

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: COAR 200 and 202. Explores various mixed-media techniques, including both two- and three-dimensional approaches to illustrative problems. Formerly CARD 322.

COAR 305 Figure in Illustration I

Semester course; 3 lecture and 3 studio hours. 4 credits. Prerequisite: COAR 206. An introduction to the visual representation of the human form as it applies to illustration. Formerly CARD 323.

COAR 307 The Face

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: COAR 200 and COAR 202. Employing a variety of drawing media, students will explore the nuances of the human face as a subject. This course focuses on both process and the realization of final projects.

COAR 311 Type and Image

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: COAR 211. An advanced course that explores graphic design as a means to express and communicate ideas. Assignments will incorporate applicable references to the history of art and contemporary developments. Formerly CARD 348.

COAR 312 Art Direction

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: COAR 210, 211 and 231. An introduction to the integrated activities of strategy, conceptual development and design. Formerly CARD 341.

COAR 313 Art Direction II

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: COAR 312. Concept, layout and design of a corporate advertising campaign based on the evaluation of research, market analysis and planning. Formerly CARD 342.

COAR 314 Advertising Concepts I

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: COAR 312. Focuses on creative thinking and the development of concepts and ideas in problems of art direction. Formerly CARD 343.

COAR 320 Concept Drawing

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: COAR 202. Explores the use of drawing as a tool to communicate concepts. Various painting and drawing media will be explored. Assignments will incorporate applicable references to the history of art and contemporary developments. Formerly CARD 326.

COAR 321 Sequential Imaging

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: junior standing in communication arts. Sequential imagery as applied to books, graphic novel and film storyboarding. Various painting and drawing media will be explored. Assignments will incorporate applicable references to the history of art and contemporary developments. Formerly CARD 420.

COAR 325 Botanical Drawing

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: COAR 300. This course explores plant life from direct observation and analytical drawing. Students examine the major divisions and structures of plants and how to depict their unique form.

COAR 326 Imagery for Science Fiction and Fantasy

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: COAR 300 and 320. This course focuses on assignments for science fiction/fantasy subject matter and its various commercial applications.

COAR 327 Comics and Graphic Novels

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: COAR 300 and 320. This course explores the possibilities of visual storytelling as it relates to comics and graphic novels (the latter being loosely defined as a longer, more in-depth and mature form of comics).

COAR 331 Photographic Principles in Visual Communications

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: COAR 231. A studio course that explores the use of the camera, from pinhole photography to digital imaging, as a tool in visual communications. Formerly CARD 331.

COAR 332 Digital Drawing

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: COAR 231. An intermediate course exploring the use of computer and peripheral devices in the creation of raster (grid/pixel) and vector (mathematical)-based drawing. Formerly CARD 327.

COAR 333 Web Page Design

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: permission of instructor and COAR 231. A course developing the design of websites. Emphasis is placed on the visual design, navigation, development, communication and authoring of websites. Formerly CARD 308.

COAR 340 Anatomy for Medical Illustration

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: COAR 201. An advanced investigation of the human organ systems. In addition to assigned readings, students will execute a series of anatomical drawings. Formerly CARD 306.

COAR 341 Scientific Illustration

Semester course; 2 lecture and 3 studio hours. 3 credits. Corequisite: COAR 202. An introductory course in the development of accurate representational imagery for recording scientific observations and ideas. Formerly CARD 328.

COAR 351 Origins of Visual Communications

Semester course; 3 lecture hours. 3 credits. Prerequisite: successful completion of the Art Foundation Program. A history of visual communications and design from prehistoric times to the 20th century. Formerly CARD 351.

COAR 352 History of Visual Communications I

Semester course; 3 lecture hours. 3 credits. Prerequisites: ARTH 103 and 104. An examination of the historical developments in visual communications from cave paintings to modernism.

COAR 353 History of Visual Communications II

Semester course; 3 lecture hours. 3 credits. Prerequisites: ARTH 103 and 104. An examination of the historical developments in visual communications from modernism to the contemporary era.

COAR 354 Theoretical and Philosophical Aspects of Contemporary Communication Arts and Design

Semester course; 3 lecture hours. 3 credits. A study of current theoretical and philosophical issues having an impact on the understanding of communication arts and design. Formerly CARD 354.

COAR 391 Communication Arts Topics

Semester course; variable hours. 1-3 credits per semester. May be repeated for a maximum of 9 credits. Topical lectures in design issues and visual communications. Formerly CARD 391.

COAR 392 Research/Individual Study

Semester course; 1-2 lecture and 3-6 studio hours. 2-4 credits. May be repeated for a total of 6 credits. Enrollment requires permission of instructor, approval of faculty adviser and chair. The structuring, research, execution and presentation of an independent project in visual communications under the direction of a faculty adviser. The student will be encouraged to

become a self-generating problem seeker and solver with the ability to carry out self-stated goals.

COAR 401 Drawing Studies: The Figure (Advanced)

Semester course; 2 lecture and 3 studio hours. 3 credits. May be repeated for up to 12 credits. Prerequisite: COAR 301 or permission of instructor. Drawing from direct observation at an advanced level using the figure as the primary means to understand proportion, volume and spatial relationships. Various drawing and painting media will be explored. Formerly CARD 430.

COAR 407 Senior Project

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: COAR 300 and 320 and senior status in communication arts. An advanced course in the conceptualization, execution, realization and documentation of a portfolio project. Students will be required to create and structure a major project that will develop and test their conceptual, contextual and technical abilities. Project work will be exhibited, documented or printed. Various drawing, painting and mixed media will be explored. Assignments will incorporate applicable references to the history of art and contemporary developments. Formerly CARD 407.

COAR 412 Art Direction III

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: COAR 313. An advanced exploration of art direction based on positioning of the corporation that carries over several different channels of communication. Formerly CARD 441.

COAR 413 Art Direction IV

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: COAR 313. An advanced course in art direction including the development of integrated business advertising plans. Formerly CARD 442.

COAR 414 Advertising Concepts II

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: COAR 314. An advanced course in art direction focusing on the successful integration of strategy and creativity. Formerly CARD 443.

COAR 415 Art Direction for Nonprofit Organizations

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: COAR 313. Advanced concept, layout and design under the delimitations of precise environmental or social agendas and limited budgets. Formerly CARD 444.

COAR 420 Graphic Essay

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: UNIV 200 or HONR 200 and COAR 320. An advanced course that explores the relationship between text and image, and their potential as tools to enable us to create and communicate effectively. Assignments will incorporate applicable references to the history of art and literature. Formerly CARD 424.

COAR 421 Imagery for Children

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: COAR 300 and 320. An advanced course developing both fiction and nonfiction illustrations intended for the preschool and

elementary school children's publishing market. Formerly CARD 427.

COAR 422 Editorial Illustration II

Semester course; 3 lecture and 3 studio hours. 4 credits. Prerequisites: COAR 300 and 320. An advanced course developing the student's skill at interpreting an author's manuscript. The major emphasis is given to illustrations appearing in books and magazines. Formerly CARD 423.

COAR 423 Illustration for Business Communications

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: COAR 300 and 320. An advanced course developing illustrations appropriate for business communications. Formerly CARD 421.

COAR 424 Experimental Illustration

Semester course; 3 lecture and 3 studio hours. 4 credits. Prerequisites: COAR 300 and 320. An advanced course encouraging the student to discover unusual techniques and to develop innovative solutions. Stresses experimentation with novel media and surfaces. Formerly CARD 425.

COAR 432 3-D Image and Movement

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: COAR 331 and 332. Course addresses current technological tools to explore the relationship between image, object and movement.

COAR 433 Game Design, Theory and Practice

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: COAR 332 or permission of instructor. Students will study the history, theory and design of games, gaming concepts and narrative from past to present.

Effective Spring 2015

COAR 433 Game Design, Theory and Practice Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: COAR 432. Students will study the history, theory and design of games, gaming concepts and narrative from past to present.

COAR 435 Organic 3-D Modeling for Concept Design

Effective Fall 2015

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: COAR 432. A focus on the use of high polygraph 3-D graphics software as tools to create highly detailed computer models for concept design, movies, broadcast media and games.

COAR 441 Scientific Illustration II

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: COAR 341. An advanced course in the development and creation of accurate documentation and representation of scientific information and imagery including plant taxonomy, insect morphology, and physiological and pathological processes. Formerly CARD 329.

COAR 450 Business of Communication Arts

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 200 or HONR 200. The study of business management with an emphasis on ethics and the standards of fair practice including financial and contractual guidelines. Formerly CARD 358.

COAR 462 Projects in Illustration

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: senior standing in communications arts and permission of the instructor. An advanced-level course in conceptualization, execution, realization and documentation as realized through a series of projects in illustration. Students will be required to create, acquire and structure projects that will test their conceptual and technical abilities. Project work will be exhibited, documented or printed. Various drawing, painting and mixed media will be explored. Assignments will incorporate applicable references to the history of art and contemporary developments. Formerly CARD 440.

COAR 463 Communication Arts Honors Studio

Semester course; 2 lecture and 3 studio hours. 3 credits. May be repeated for up to 12 credits. Prerequisites: junior standing in communication arts, 3.0 GPA and permission of the CA faculty. An advanced course for selected students. Expectations include to work on individual and group projects at a professional level. Formerly CARD 447.

COAR 464 Senior Portfolio

Semester course; 4 lecture and 6 studio hours. 6 credits. Prerequisite: COAR 450. An advanced course in the conceptualization, realization and documentation of a portfolio project. It is a capstone experience integrating professional development of the portfolio, promotional materials and resume preparation within the field of communication arts. Assignments will incorporate applicable references to the history of art and contemporary developments.

COAR 491 Studio Topics in Communication Arts

Semester course; 2 lecture and 3 studio hours. 3 credits. May be repeated for credit. Topical studio focusing on research and experimentation in specialized visual communication media. Formerly CARD 491.

COAR 492 Communication Arts Internship

Semester course; 1-3 credits. May be repeated for a maximum of 12 credits. Prerequisites: senior standing, 3.0 GPA or permission of the chair. Supervised pragmatic work experiences. Training is provided under the direction and supervision of qualified professional practitioners.

Craft and Material Studies**CRAF 201 Metalsmithing**

Continuous courses; 2 lecture and 6 studio hours. 4-4 credits. Prerequisite: successful completion of the Art Foundation Program; completion of CRAF 201 to enroll in CRAF 202. Investigation of metal forming processes such as forging, raising and construction. Research in contemporary and historical metal forms.

CRAF 202 Metalsmithing

Continuous courses; 2 lecture and 6 studio hours. 4-4 credits. Prerequisite: successful completion of the Art Foundation Program; completion of CRAF 201 to enroll in CRAF 202. Investigation of metal forming processes such as forging, raising and construction. Research in contemporary and historical metal forms.

CRAF 211 Jewelry

Semester course; 2 lecture and 6 studio hours. 4 credits. Prerequisite: successful completion of the Art Foundation Program. Investigation of basic jewelry making processes such as construction, chasing, surface embellishment and basic stone setting. Research in contemporary and historical jewelry forms.

CRAF 221 Woodworking Techniques

Semester course; 2 lecture and 6 studio hours. 4 credits. Prerequisite: successful completion of the Art Foundation Program. Introduction to techniques of woodworking. Includes the use of hand tools; hand and machine joinery; shaping and carving; finishing; and techniques involving jigs and fixtures. Students participate in studio work.

CRAF 240 Introduction to Ceramics

Semester course; 2 lecture and 6 studio hours. 4 credits. Prerequisite: successful completion of the Art Foundation Program. Introduction to beginning processes of wheel throwing and hand-built construction techniques, design, aesthetics and the creative development of clay objects examining cultural, historical and personal modes of expression. Demonstrations and slide presentations are given for assignments along with handouts to assist in illustrating techniques and processes. Students will be introduced to various ceramic aesthetics in contemporary, social and historical context.

CRAF 241 Ceramics: Handbuilding

Semester course; 2 lecture and 6 studio hours. 4 credits. Prerequisite: successful completion of the Art Foundation Program. Basic construction techniques for fabricating ceramic objects. Includes mold-making, slip casting and press-molding as well as the use and application of low-fire slips, underglazes, glazes and the firing of these objects in kilns.

CRAF 242 Ceramics: Wheelthrowing

Semester course; 2 lecture and 6 studio hours. 4 credits. Prerequisite: successful completion of the Art Foundation Program. Introduction to the use of the potter's wheel. The objective is to develop the skill, dexterity and coordination required to use the wheel as one tool of the ceramic forming process. Includes the properties and uses of high-fire clays and glazes. Students participate in kiln firings.

CRAF 250 Introduction to Glass Fabrication

Semester course; 2 lecture and 6 studio hours. 4 credits. Prerequisite: successful completion of the Art Foundation Program. An introduction and investigation into the physical and associative material properties of glass. Students will explore a variety of methodologies for hot, cold and casting glass fabrication. The history and modern application of each technique will be covered through lectures, demonstrations and studio work.

CRAF 251 Introduction to Glassworking

Semester courses; 2 lecture and 6 studio hours. 4, 4 credits. Prerequisite: successful completion of the Art Foundation Program. An investigation of techniques, tools, equipment and materials involved in hot and cold glassworking processes. First semester covers basic molten-glass furnace techniques such as blowing and casting, mold-making and Pate de Verre (fusing crushed glass in a mold). Second semester explores

colored glass fusing, use of enamels and glazes, mold-making for slumped forms and stained glass.

CRAF 252 Introduction to Glassworking

Semester courses; 2 lecture and 6 studio hours. 4, 4 credits. Prerequisite: successful completion of the Art Foundation Program. An investigation of techniques, tools, equipment and materials involved in hot and cold glassworking processes. First semester covers basic molten-glass furnace techniques such as blowing and casting, mold-making and Pate de Verre (fusing crushed glass in a mold). Second semester explores colored glass fusing, use of enamels and glazes, mold-making for slumped forms and stained glass.

CRAF 253 Introduction to Glassworking: Lampworking

Semester course; 2 lecture and 6 studio hours. 4 credits. Prerequisite: successful completion of the Art Foundation Program. An investigation of techniques, tools, equipment and materials involved in glass lampworking processes. The course covers basic melting, shaping and blowing with a glass torch working process.

CRAF 260 Introduction to Textiles

Semester course; 2 lecture and 6 studio hours. 4 credits. Prerequisite: successful completion of the Art Foundation Program. An introduction to basic textile techniques, tools and materials. This course introduces dyeing, weaving, felt-making, embroidery, sewing and related techniques. The history and modern application of each technique will be covered through lectures, demonstrations and studio work.

CRAF 261 Beginning Textiles

Semester courses; 2 lecture and 6 studio hours. 4, 4 credits. Prerequisite: successful completion of the Art Foundation Program. An introduction to basic textile techniques, tools and materials. CRAF 261 introduces tapestry, feltmaking, basketry and related techniques. CRAF 262 focuses on embroidery, silk painting, piecing and quilting, and related techniques. The history and modern application of each technique will be examined through lectures, demonstrations and studio work.

CRAF 262 Beginning Textiles

Semester courses; 2 lecture and 6 studio hours. 4, 4 credits. Prerequisite: successful completion of the Art Foundation Program. An introduction to basic textile techniques, tools and materials. CRAF 261 introduces tapestry, feltmaking, basketry and related techniques. CRAF 262 focuses on embroidery, silk painting, piecing and quilting, and related techniques. The history and modern application of each technique will be examined through lectures, demonstrations and studio work.

CRAF 282 Sophomore Seminar

Semester course; 3 lecture hours. 3 credits. Prerequisite: successful completion of the Art Foundation Program. Introduction to the fields within the Department of Craft and Material Studies, critique practices, planning for arts career and writing within the field.

CRAF 301 Advanced Metal Fabrication: Forming

Semester course; 2 lecture and 6 studio hours. 4 credits. May be repeated for a maximum of 12 credits. Prerequisite: CRAF 211 with a minimum grade of C.

This course introduces students to various metal forming techniques. While cultivating respect for craft, the underlying theme of the course explores form as a means of expression for both functional and nonfunctional work. It is designed to develop skill, craftsmanship and sensitivity to design in working with metal. The history and modern application of each technique will be covered through lectures, demonstrations and studio work.

CRAF 302 Advanced Metal Fabrication: Mechanisms

Semester course; 2 lecture and 6 studio hours. 4 credits. May be repeated for a maximum of 12 credits. Prerequisite: CRAF 211 with a minimum grade of C. This course introduces students to various fabrication techniques, findings and mechanisms related to the production of jewelry and small-scale objects. It is designed to develop skill, craftsmanship and sensitivity to design in working with metal. The history and modern application of each technique will be covered through lectures, demonstrations and studio work.

CRAF 303 Advanced Metal Fabrication: Surface Techniques

Semester course; 2 lecture and 6 studio hours. 4 credits. May be repeated for a maximum of 12 credits. Prerequisite: CRAF 211 with a minimum grade of C. This course introduces students to various surface treatments employed in the production of jewelry and metal objects. It is designed to develop skill, craftsmanship and sensitivity to design in working with metal. While cultivating respect for craft, the underlying theme of the course explores form as a means of expression for both functional and nonfunctional work. The history and modern application of each technique will be covered through lectures, demonstrations and studio work.

CRAF 304 Advanced Metal Fabrication: Casting and Stone Setting

Semester course; 2 lecture and 6 studio hours. 4 credits. May be repeated for a maximum of 12 credits. Prerequisite: CRAF 211 with a minimum grade of C. This course introduces students to casting and stone setting techniques employed in the production of jewelry and metal objects. It is designed to develop skill, craftsmanship and sensitivity to design in working with metal. While cultivating respect for craft, the underlying theme of the course explores form as a means of expression for both functional and nonfunctional work. The history and modern application of each technique will be covered through lectures, demonstrations and studio work.

CRAF 320 Furniture Design

Semester course; 2 lecture and 6 studio hours. 4 credits. May be repeated for a maximum of 8 credits. Prerequisite: CRAF 221 with a minimum grade of C. The course explores the development of ideas through drawings, mock-ups and the planning and execution of a small furniture object utilizing basic and specialized woodworking techniques.

CRAF 321 Advanced Woodworking and Furniture Design

Semester course; 2 lecture and 6 studio hours. 4 credits. May be repeated for a maximum of 12 credits. Prerequisite: CRAF 320 with a minimum grade of C. Advanced design and construction investigation of varied materials and machine processes.

CRAF 322 Advanced Woodworking and Furniture Design

Semester course; 2 lecture and 6 studio hours. 4 credits. May be repeated for a maximum of 12 credits. Prerequisite: CRAF 320 with a minimum grade of C. Advanced design and construction investigation of varied materials and machine processes.

CRAF 341 Advanced Ceramics

Semester courses; 2 lecture and 6 or 12 studio hours. 4 or 6 credits. Each of the courses may be repeated for up to a maximum of 12 credits. Prerequisite: CRAF 240 with a minimum grade of C. Advanced problems in the design and production of functional and nonfunctional ceramic products.

CRAF 342 Advanced Ceramics

Semester courses; 2 lecture and 6 or 12 studio hours. 4 or 6 credits. Each of the courses may be repeated for up to a maximum of 12 credits. Prerequisite: CRAF 240 with a minimum grade of C. Advanced problems in the design and production of functional and nonfunctional ceramic products.

CRAF 351 Intermediate Glass Fabrication/Hot

Semester course; 2 lecture and 6 studio hours. 4 credits. May be repeated for a maximum of 12 credits. Prerequisite: CRAF 250 with a minimum grade of C. A deeper and broader delving into hot and cold glass fabrication techniques, with an introduction to the utilization and application of color processes will be explored.

CRAF 352 Intermediate Glass Fabrication/ Kiln Forming

Semester course; 2 lecture and 6 studio hours. 4 credits. May be repeated for a maximum of 12 credits. Prerequisite: CRAF 250 with a minimum grade of C. A deeper exploration of warm glass (kiln forming) processes that will involve advanced mold-making techniques.

CRAF 353 Glassworking: Lampworking

Semester course; 2 lecture and 6 studio hours. 4 credits. May be repeated for up to a maximum of 12 credits. Prerequisite: CRAF 251, 252 or 253, with a minimum grade of C. Provides an opportunity for further investigation, specialization and technical mastery in glass lampworking design.

CRAF 354 Intermediate Glass Fabrication

Semester course; 2 lecture and 6 studio hours. 4 credits. May be repeated for a maximum of 12 credits. Prerequisite: CRAF 351 or 352 with a minimum grade of C. A deeper and broader delving into hot and cold glass fabrication techniques, with an introduction to the utilization and application a multigenerational approach to image realization will be extensively investigated.

CRAF 361 Intermediate Textiles: Tapestry/ Weaving

Semester course; 2 lecture and 6 studio hours. 4 credits. May be repeated for a maximum of 12 credits. Prerequisite: CRAF 260 with a minimum grade of C. An introduction to the floor loom with an emphasis on tapestry weaving. Concentrated studio work in contemporary and traditional loom techniques along with continuing individual investigation of other textile techniques.

CRAF 362 Intermediate Textiles: Pattern Weaving

Semester course; 2 lecture and 6 studio hours. 4 credits. May be repeated for a maximum of 12 credits. Prerequisite: CRAF 260 with a minimum grade of C. An introduction to the floor loom with an emphasis on pattern weaving. Concentrated studio work in contemporary and traditional loom techniques along with continuing individual investigation of other textile techniques.

CRAF 363 Fabric Design I

Semester course; 2 lecture and 6 studio hours. 4 credits. May be repeated for a maximum of 12 credits. Prerequisite: CRAF 260 with a minimum grade of C. Exploration of dye and pigment techniques for fabric along with pattern development and conceptual use of fabric.

CRAF 364 Fabric Design II

Semester course; 2 lecture and 6 studio hours. 4 credits. May be repeated for a maximum of 12 credits. Prerequisite: CRAF 260 with a minimum grade of C. Exploration of dye and pigment techniques for fabric along with pattern development and conceptual use of fabric.

CRAF 367 Tapestry

Semester courses; 2 lecture and 6 studio hours. 4, 4 credits. Prerequisite: permission of instructor. Origins of tapestry forms and execution of techniques.

CRAF 368 Tapestry

Semester courses; 2 lecture and 6 studio hours. 4, 4 credits. Prerequisite: permission of instructor. Origins of tapestry forms and execution of techniques.

CRAF 369 Ancient Peruvian Textile Techniques

Semester course; 2 lecture and 6 or 12 studio hours. 4 credits. Prerequisite: permission of instructor. An examination of textile techniques perfected in ancient Peru and their application to contemporary fiber work. Pre-Columbian cultures will be studied to understand textile development. Course includes student duplication of techniques to better understand "structure" and the production of a personal object(s) utilizing these techniques and information.

CRAF 382 Junior Seminar

Semester course; 3 lecture hours. 3 credits. Prerequisites: CRAF 282 and UNIV 200 or HONR 200. Continued investigation of the craft field, critique practices, planning for careers through the lens of creativity and exploration, and a continuation of writing in the field.

CRAF 401 Advanced Metalsmithing or Jewelry

Semester courses; 2 lecture and 6 or 12 studio hours. 4 or 6 credits. Each of the courses may be repeated up to a maximum of 12 credits. Prerequisite: CRAF 211 with a minimum grade of C. These courses offer opportunity for specialization and development of techniques.

CRAF 402 Advanced Metalsmithing or Jewelry

Semester courses; 2 lecture and 6 or 12 studio hours. 4 or 6 credits. Each of the courses may be repeated up to a maximum of 12 credits. Prerequisite: CRAF 211 with a minimum grade of C. These courses offer

opportunity for specialization and development of techniques.

CRAF 409 Summer Metal and Jewelry Workshop

Semester course; 3, 6 or 9 studio hours. 1, 2 or 3 credits. May be repeated for credit. Prerequisite: permission of instructor. Exploration of specific metal processes and techniques such as fabrication, forging, forming, casting, enameling and electroforming. See the Schedule of Classes for specific topics to be offered each semester.

CRAF 421 Advanced Woodworking and Furniture Design

Semester courses; 2 lecture and 6 or 12 studio hours. 4 or 6 credits. Each of the courses may be repeated for up to a maximum of 12 credits. Prerequisite: CRAF 320 with a minimum grade of C. Advanced design and construction investigation of varied materials and machine processes.

CRAF 422 Advanced Woodworking and Furniture Design

Semester courses; 2 lecture and 6 or 12 studio hours. 4 or 6 credits. Each of the courses may be repeated for up to a maximum of 12 credits. Prerequisite: CRAF 320 with a minimum grade of C. Advanced design and construction investigation of varied materials and machine processes.

CRAF 429 Summer Woodworking Workshop

Semester course; 3, 6 or 9 studio hours. 1, 2 or 3 credits. May be repeated for credit. Prerequisite: permission of instructor. Exploration of specific woodworking processes and techniques such as joinery methods, laminate bending, steambending, etc. See the Schedule of Classes for specific topics to be offered each semester.

CRAF 441 Advanced Ceramics

Semester courses; 2 lecture and 6 or 12 studio hours. 4 or 6 credits. Each of the courses may be repeated for up to a maximum of 12 credits. Prerequisite: CRAF 240 with a minimum grade of C. Advanced problems in the design and production of functional and nonfunctional ceramic products.

CRAF 442 Advanced Ceramics

Semester courses; 2 lecture and 6 or 12 studio hours. 4 or 6 credits. Each of the courses may be repeated for up to a maximum of 12 credits. Prerequisite: CRAF 240 with a minimum grade of C. Advanced problems in the design and production of functional and nonfunctional ceramic products.

CRAF 446 Glaze Technology

Semester course; 3 lecture hours. 3 credits. Prerequisite: permission of instructor. Development, formulation and application of ceramic glazes. The technology includes high, medium and low firing ranges as well as color and analysis of glaze materials.

CRAF 447 Ceramic Technology: Clay, Claybodies and Slips

Semester course; 3 lecture hours. 3 credits. Prerequisite: permission of instructor. Study of clay from geological origins to practical application. Course includes development and application of clay bodies in different firing ranges, englobes and slips.

CRAF 448 Ceramic Workshop

Semester courses; 9 studio hours. 3, 3 credits. Prerequisite: permission of instructor. Exploration in specific ceramic techniques such as raku, salt glaze, primitive firing and low temperature glazing.

CRAF 449 Ceramic Workshop

Semester courses; 9 studio hours. 3, 3 credits. Prerequisite: permission of instructor. Exploration in specific ceramic techniques such as raku, salt glaze, primitive firing and low temperature glazing.

CRAF 451 Glassworking

Semester courses; 2 lecture and 6 or 12 studio hours. 4 or 6 credits. Each of the courses may be repeated for up to a maximum of 12 credits. Prerequisite: CRAF 251 or 252, with a minimum grade of C. Opportunity for further investigation and specialization in glassworking design and technical mastery.

CRAF 452 Glassworking

Semester courses; 2 lecture and 6 or 12 studio hours. 4 or 6 credits. Each of the courses may be repeated for up to a maximum of 12 credits. Prerequisite: CRAF 251 or 252, with a minimum grade of C. Opportunity for further investigation and specialization in glassworking design and technical mastery.

CRAF 455 Glass Through Time

Semester course; 2 lecture and 1 studio hours. 3 credits. Prerequisite: permission of instructor. This class will be an in-depth examination of the application and utilization of the material glass throughout time. An inquiry into present and future artistic and architectural applications of the material will be explored.

CRAF 456 Survey of Glass

Semester courses; 3 lecture hours. 3, 3 credits. Prerequisite: permission of instructor. An examination of significant technological developments in glass from the past to present. First semester: ancient to 16th century. Second semester: 17th century to contemporary. Illustrated lectures.

CRAF 459 Summer Glassworking Workshop

Semester course; 3, 6 or 9 studio hours. 1, 2 or 3 credits. May be repeated for credit. Prerequisite: permission of instructor. Exploration of specific glassworking processes, such as forming molten glass, casting and coldworking techniques. See the Schedule of Classes for specific topics to be offered each semester.

CRAF 461 Advanced Textile Studio

Semester courses; 2 lecture and 6 or 12 studio hours. 4 or 6 credits for each course. Each course may be repeated for a maximum of 12 credits. Prerequisite: CRAF 362 with a minimum grade of C. Emphasis on investigation of advanced technical skills along with development of a personal style.

CRAF 462 Advanced Textile Studio

Semester courses; 2 lecture and 6 or 12 studio hours. 4 or 6 credits for each course. Each course may be repeated for a maximum of 12 credits. Prerequisite: CRAF 362 with a minimum grade of C. Emphasis on investigation of advanced technical skills along with development of a personal style.

CRAF 463 Advanced Fabric Design

Semester courses; 2 lecture and 6 studio hours. 4, 4 credits. Prerequisite: CRAF 364 with a minimum

grade of C. Development of a personal direction with advance examination of dye applications.

CRAF 464 Advanced Fabric Design

Semester courses; 2 lecture and 6 studio hours. 4, 4 credits. Prerequisite: CRAF 364 with a minimum grade of C. Development of a personal direction with advance examination of dye applications.

CRAF 480 Senior Studio/Critique Course

Semester course; 2 lecture and 6 studio hours. 4 credits. Prerequisites: completed 12 credits from CRAF 301-364 with a minimum grade of C. Corequisite: enrolment in 3 credits from CRAF 301-364. Focuses on the development of independent interests aimed at creating a cohesive series/body of work.

CRAF 481 Senior Studio/Critique Course

Semester course; 2 lecture and 6 studio hours. 4 credits. Prerequisite: CRAF 480 with a minimum grade of C. The course will focus on the continuation of creating a cohesive series/body of work begun during CRAF 480.

CRAF 482 Senior Seminar

Semester course; 3 lecture hours. 3 credits. Prerequisites: senior standing in the major and CRAF 382. Capstone course focusing on the continued investigation of the craft field with emphasis on the student's media area(s) of focus and professional practices.

CRAF 491 Topics in Craft/Material Studies

Semester course; 1-3 credits. May be repeated for a maximum of 9 credits. Prerequisite: permission of instructor. A seminar or workshop on a selected issue or topic in the field of crafts. See the Schedule of Classes for specific topics to be offered each semester.

CRAF 492 Independent Study

Semester course; 1-3 credits. May be repeated for a maximum of 6 credits. Prerequisites: senior standing in the major and permission of the instructor. The student will pursue advanced, individually directed study on a subject to be formulated in writing by the student and instructor.

CRAF 493 Fieldwork

Semester courses; 135 clock hours. 3 credits. Prerequisites: senior standing in the major and permission of department chair. Opportunity for practical work experiences. Senior students are placed with professionals who offer supervised work or research experience appropriate to their major interests. Participation requires the approval of both the department chair and field supervisor. Students must work 135 clock hours and maintain a daily log of their experiences. Field supervisor will plan student's work and evaluate performance.

CRAF 494 Fieldwork

Semester course; 270 clock hours. 6 credits. Prerequisites: senior standing in the major and permission of department chair. Opportunity for practical work experiences. Senior students are placed with professionals who offer supervised work or research experience appropriate to their major interests. Participation requires the approval of both the department chair and field supervisor. Students must work 270 clock hours and maintain a daily log of their experiences. Field supervisor will plan student's work and evaluate performance.

Dance and Choreography

DANC 101 Modern Dance Technique I and Workshop

Continuous courses; 1 lecture and 6 studio hours. 3-3 credits. These courses may be repeated for a maximum total of 12 credits on the recommendation of the chair. Prerequisites: completion of DANC 101 to enroll in DANC 102. Dance major or departmental approval. Fundamental study and training in principles of modern dance technique. Emphasis is on body alignment, spatial patterning, flexibility, strength and kinesthetic awareness. Course includes weekly group exploration of techniques related to all areas of dance.

DANC 102 Modern Dance Technique I and Workshop

Continuous courses; 1 lecture and 6 studio hours. 3-3 credits. These courses may be repeated for a maximum total of 12 credits on the recommendation of the chair. Prerequisites: completion of DANC 101 to enroll in DANC 102. Dance major or departmental approval. Fundamental study and training in principles of modern dance technique. Emphasis is on body alignment, spatial patterning, flexibility, strength and kinesthetic awareness. Course includes weekly group exploration of techniques related to all areas of dance.

DANC 103 Survey of Dance History

Continuous courses; 3 lecture hours. 3-3 credits. Prerequisites: completion of DANC 103 to enroll in DANC 104. Dance major or departmental approval. First semester: dance from ritual to the contemporary ballet and the foundations of the Western aesthetic as it relates to dance, and the development of the ballet. Second semester: Western concert dance from the aesthetic dance of the late 1800s to contemporary modern dance. These courses are the first two of a three-course sequence that fulfills one of the general education writing intensive requirements for dance majors.

DANC 104 Survey of Dance History

Continuous courses; 3 lecture hours. 3-3 credits. Prerequisites: completion of DANC 103 to enroll in DANC 104. Dance major or departmental approval. First semester: dance from ritual to the contemporary ballet and the foundations of the Western aesthetic as it relates to dance, and the development of the ballet. Second semester: Western concert dance from the aesthetic dance of the late 1800s to contemporary modern dance. These courses are the first two of a three-course sequence that fulfills one of the general education writing intensive requirements for dance majors.

DANC 105 Improvisation

Continuous courses; 1 lecture and 2 studio hours. 2-2 credits. Prerequisite: completion of DANC 105 to enroll in DANC 106. An exploration of spontaneous body movement with the purpose of increasing body awareness, movement invention and movement creativity.

DANC 106 Improvisation

Continuous courses; 1 lecture and 2 studio hours. 2-2 credits. Prerequisite: completion of DANC 105 to enroll in DANC 106. An exploration of spontaneous body movement with the purpose of increasing body awareness, movement invention and movement creativity.

DANC 107 Music and Dance Forms

Semester course; 1 lecture and 2 studio hours. 2 credits. Prerequisites: DANC 101 and 105, or permission of instructor. An exploration of the various traditional and nontraditional concepts of music that are used in collaboration with dance. Course includes lecture, reading, listening and movement assignments. Focus will be on the dancer's understanding and use of music through movement analysis and improvisation.

DANC 111 Ballet Technique I

Continuous courses; 1 lecture and 2 studio hours. 2-2 credits. Prerequisites: completion of DANC 111 to enroll in DANC 112. Corequisites: DANZ 111-112. Dance major or departmental approval. These courses may be repeated for a maximum total of 8 credits on the recommendation of the chair. Fundamental study of the principles of ballet technique.

DANC 112 Ballet Technique I

Continuous courses; 1 lecture and 2 studio hours. 2-2 credits. Prerequisites: completion of DANC 111 to enroll in DANC 112. Corequisites: DANZ 111-112. Dance major or departmental approval. These courses may be repeated for a maximum total of 8 credits on the recommendation of the chair. Fundamental study of the principles of ballet technique.

DANC 114 Summer Dance Workshop

Semester courses; variable hours. 1 or 3 credits per semester. May be repeated for credit. Flexible course offerings in dance technique, improvisation, composition, rhythmic training and repertory. See the Schedule of Classes for specific topics to be offered each semester.

DANC 121/AFAM 121, 122 Tap Technique I

Semester courses; 1 lecture and 2 studio hours. 2, 2 credits. Beginning study and training in the principles of tap technique with emphasis upon style, body alignment, spatial patterning, flexibility, strength and kinesthetic awareness to move the body in the style required for tap dancing.

DANC 122/AFAM 121, 122 Tap Technique I

Semester courses; 1 lecture and 2 studio hours. 2, 2 credits. Beginning study and training in the principles of tap technique with emphasis upon style, body alignment, spatial patterning, flexibility, strength and kinesthetic awareness to move the body in the style required for tap dancing.

DANC 126/AFAM 126, 127 African-Caribbean Dance I

Semester courses; 1 lecture and 2 studio hours. 2, 2 credits. Dance based on the movements and rhythms of Africa and the Caribbean.

DANC 127/AFAM 126, 127 African-Caribbean Dance I

Semester courses; 1 lecture and 2 studio hours. 2, 2 credits. Dance based on the movements and rhythms of Africa and the Caribbean.

DANC 133 Introduction to Ballet Technique I

Semester course; 1 lecture and 2 studio hours. 2 credits. This course may be repeated for a maximum total of 4 credits on the recommendation of the chair. For nonmajors. Introductory study of the principles of ballet technique.

DANC 134 Introduction to Ballet Technique II

Semester course; 1 lecture and 2 studio hours. 2 credits. Prerequisite: DANC 133 or permission of instructor. For nonmajors. This course may be repeated for a maximum total of 4 credits on the recommendation of the chair. Further introductory study of the principles of ballet technique.

DANC 141 Ballroom Dancing

Semester courses; 2 studio hours. 1, 1 credit. A study of basic ballroom dance steps and practice in their performance.

DANC 142 Ballroom Dancing

Semester courses; 2 studio hours. 1, 1 credit. A study of basic ballroom dance steps and practice in their performance.

DANC 151/AFAM 151, 152 Jazz Dance Technique I

Semester courses; 1 lecture and 2 studio hours. 2, 2 credits. Prerequisite: DANC 102 or permission of instructor. Study and training in the principles and concepts of jazz technique. Emphasis on body alignment, flexibility, balance, rhythmic awareness and mastery of isolated movements of body parts. The course includes the exploration of the relationship between jazz music and jazz dance.

DANC 152/AFAM 151, 152 Jazz Dance Technique I

Semester courses; 1 lecture and 2 studio hours. 2, 2 credits. Prerequisite: DANC 102 or permission of instructor. Study and training in the principles and concepts of jazz technique. Emphasis on body alignment, flexibility, balance, rhythmic awareness and mastery of isolated movements of body parts. The course includes the exploration of the relationship between jazz music and jazz dance.

DANC 161 Rehearsal and Performance

Semester course; hours to be arranged. 1-3 credits. Prerequisite: audition. May be repeated for a maximum of 4 credits. Dance rehearsals and production of work for a dance concert.

DANC 162 Rehearsal and Performance

Semester course; hours to be arranged. 1-3 credits. Prerequisite: audition. May be repeated for a maximum of 4 credits. Dance rehearsals and production of work for a dance concert.

DANC 171 T'ai Chi

Semester courses; 1 lecture and 2 studio hours. 2 credits. Study and practice of T'ai Chi, a Chinese exercise form, which is designed to bring one to full potential through balancing, aligning and breathing exercises. The short Yang form, based on Taoist principles, strengthens the body while allowing for deep relaxation to take place. Application of T'ai Chi to creative dance techniques is explored as a springboard for improvisation.

DANC 172 T'ai Chi

Semester courses; 1 lecture and 2 studio hours. 2 credits. Study and practice of T'ai Chi, a Chinese exercise form, which is designed to bring one to full potential through balancing, aligning and breathing exercises. The short Yang form, based on Taoist principles, strengthens the body while allowing for deep relaxation to take place. Application of T'ai Chi

to creative dance techniques is explored as a springboard for improvisation.

DANC 183 Introduction to Modern Dance Technique

Semester course; 1 lecture and 2 studio hours. 2 credits. May be repeated for a maximum of 4 credits. For non-dance majors. Experiential introduction to basic movement principles, body alignment and the elements of modern dance.

DANC 184 Introduction to Modern Dance Technique

Semester course; 1 lecture and 2 studio hours. 2 credits. Prerequisite: DANC 183 or by audition on first day of class. May be repeated for a maximum of 4 credits. For non-dance majors. Experiential introduction to basic movement principles, body alignment and the elements of modern dance.

DANC 201 Modern Dance Technique II and Workshop

Continuous courses; 1 lecture and 6 studio hours. 3-3 credits. These courses may be repeated for a maximum of 12 credits on the recommendation of the chair. Prerequisites: dance major and DANC 102, or departmental approval; completion of DANC 201 to enroll in DANC 202. Further study and training in the principles of modern dance technique on an intermediate level with the expectation of better coordination of all elements into a sense of dance. Course includes weekly group exploration of techniques related to all areas of dance.

DANC 202 Modern Dance Technique II and Workshop

Continuous courses; 1 lecture and 6 studio hours. 3-3 credits. These courses may be repeated for a maximum of 12 credits on the recommendation of the chair. Prerequisites: dance major and DANC 102, or departmental approval; completion of DANC 201 to enroll in DANC 202. Further study and training in the principles of modern dance technique on an intermediate level with the expectation of better coordination of all elements into a sense of dance. Course includes weekly group exploration of techniques related to all areas of dance.

DANC 205 Composition

Continuous courses; 2 lecture and 2 studio hours. 3-3 credits. Prerequisites: dance major and DANC 105 and 107, or departmental approval; completion of DANC 205 to enroll in DANC 206. An introduction to the basic elements of choreography.

DANC 206 Composition

Continuous courses; 2 lecture and 2 studio hours. 3-3 credits. Prerequisites: dance major and DANC 105 and 107, or departmental approval; completion of DANC 205 to enroll in DANC 206. An introduction to the basic elements of choreography.

DANC 207 Studies in Music for Dance

Semester course; 3 lecture hours. 3 credits. Prerequisites: dance major and DANC 107, or departmental approval. Study of the history, theory and aesthetics of music as it relates to dance. Course includes lecture, listening, reading, discussion, writing and oral presentations.

DANC 211 Ballet Technique II

Continuous courses; 1 lecture and 2 studio hours. 2-2 credits. This course may be repeated for a maximum total of 8 credits on the recommendation of the chair. Prerequisites: dance major and DANC 112, or departmental approval; completion of DANC 211 to enroll in DANC 212. Intermediate-level study, training and practice of ballet technique.

DANC 212 Ballet Technique II

Continuous courses; 1 lecture and 2 studio hours. 2-2 credits. This course may be repeated for a maximum total of 8 credits on the recommendation of the chair. Prerequisites: dance major and DANC 112, or departmental approval; completion of DANC 211 to enroll in DANC 212. Intermediate-level study, training and practice of ballet technique.

DANC 214 Summer Dance Workshop

Semester courses; variable hours. 1 or 3 credits per semester. May be repeated for credit. Flexible course offerings in dance technique, improvisation, composition, rhythmic training and repertory. See the Schedule of Classes for specific topics to be offered each semester.

DANC 221 Tap Technique II

Semester courses; 1 lecture and 2 studio hours. 2, 2 credits. Prerequisite: Audition or permission of instructor. Further study and training in the principles of tap technique.

DANC 222 Tap Technique II

Semester courses; 1 lecture and 2 studio hours. 2, 2 credits. Prerequisite: Audition or permission of instructor. Further study and training in the principles of tap technique.

DANC 243 Dynamic Alignment

Semester course; 1 lecture and 2 studio hours. 2 credits. Study of the basic principles of mechanical balance and postural alignment. Practice in the application of the major theories of alignment and techniques of realignment. Corrective exercises, breathing techniques, relaxation, guided imagery, self-awareness exercises and body image work will be learned and practiced.

DANC 251 Jazz Technique II

Semester courses; 1 lecture and 2 studio hours. 2, 2 credits. Prerequisites: DANC 151, 152, or permission of instructor. An in-depth study of movement styles and qualities in jazz dance. Advanced work on integrating music and movement with focus upon chronology of jazz music and corresponding dance forms.

DANC 252 Jazz Technique II

Semester courses; 1 lecture and 2 studio hours. 2, 2 credits. Prerequisites: DANC 151, 152, or permission of instructor. An in-depth study of movement styles and qualities in jazz dance. Advanced work on integrating music and movement with focus upon chronology of jazz music and corresponding dance forms.

DANC 253 Pilates

Semester course; 2-4 laboratory hours. 1-2 credits. Students engage in a physical practice: matwork of the Pilates system, built on the work of Joseph H. Pilates. The practice is designed to improve muscular-skeletal performance, strength, flexibility and endurance, while focusing on core stability, restoring the optimal curves

of the spine, relieving tension and enhancing self-confidence. Basic muscular anatomy and kinesiology will also be integrated into instruction and cuing for greater body awareness.

DANC 254 Yoga

Semester course; 2-6 laboratory hours. 1-3 credits. Students engage in a physical practice based on yoga, taught from an experiential, philosophical and anatomic perspective, with an emphasis on dynamic flow that links breath and movement.

DANC 255 Hip Hop Dance

Semester courses; 1 lecture and 2 studio hours. 2, 2 credits. Prerequisite: dance major or permission of instructor. Intermediate-level dance technique class that draws on the hip hop aesthetic to create a movement experience that emphasizes individual style, rhythmic awareness and physical prowess.

DANC 256 Hip Hop Dance

Semester courses; 1 lecture and 2 studio hours. 2, 2 credits. Prerequisite: dance major or permission of instructor. Intermediate-level dance technique class that draws on the hip hop aesthetic to create a movement experience that emphasizes individual style, rhythmic awareness and physical prowess.

DANC 260 Dance Production Workshop

Semester course; 2 lecture hours. 2 credits. Prerequisite: dance major or permission of instructor. An introduction to the basic principles of dance lighting and technical theatre through lecture, practical demonstration and discussion.

DANC 261 Rehearsal and Performance

Semester course; hours to be arranged. 1-3 credits. Prerequisite: audition. May be repeated for a maximum of 4 credits. Dance rehearsals and production of work for a major dance concert.

DANC 262 Rehearsal and Performance

Semester course; hours to be arranged. 1-3 credits. Prerequisite: audition. May be repeated for a maximum of 4 credits. Dance rehearsals and production of work for a major dance concert.

DANC 291 Topics in Dance

Semester course; 1-4 credits. May be repeated for a maximum of 8 credits. Prerequisite: permission of instructor. A seminar or workshop on a selected issue or topic in the field of dance. See the Schedule of Classes for specific topics to be offered each semester.

DANC 293 Professional Performance: Trainee Level First Year

Continuous course; 7 credits per semester. Prerequisite: official trainee status with an approved professional dance company and permission of the chair. Training, rehearsal and performance as a trainee with a professional dance company approved by VCU Dance.

DANC 294 Professional Performance: Trainee Level First Year

Continuous course; 7 credits per semester. Prerequisite: official trainee status with an approved professional dance company and permission of the chair. Training, rehearsal and performance as a trainee with a professional dance company approved by VCU Dance.

DANC 301 Modern Dance Technique III and Workshop

Continuous courses; 1 lecture and 6 studio hours. 3-3 credits. These courses may be repeated for a maximum of 12 credits on the recommendation of the chair. Prerequisites: dance major and DANC 202, or departmental approval; completion of DANC 301 to enroll in DANC 302. Advanced study and training in principles of modern dance technique. Movement studies demanding greater strength and flexibility. Spatial patterns demanding increased coordination, kinesthetic awareness and aesthetic sensitivity. Course includes weekly group exploration of techniques related to all areas of dance.

DANC 302 Modern Dance Technique III and Workshop

Continuous courses; 1 lecture and 6 studio hours. 3-3 credits. These courses may be repeated for a maximum of 12 credits on the recommendation of the chair. Prerequisites: dance major and DANC 202, or departmental approval; completion of DANC 301 to enroll in DANC 302. Advanced study and training in principles of modern dance technique. Movement studies demanding greater strength and flexibility. Spatial patterns demanding increased coordination, kinesthetic awareness and aesthetic sensitivity. Course includes weekly group exploration of techniques related to all areas of dance.

DANC 303 Choreography/Performance

Continuous courses; 2 lecture and 2 studio hours. 3-3 credits. Prerequisites: dance major, DANC 205-206 and 207, and successful completion of the sophomore readmittance evaluation; completion of DANC 303 to enroll in DANC 304. The craft of choreography and performing techniques are explored extensively as students develop solo and group pieces while rotating in the roles of choreographer/director and performer.

DANC 304 Choreography/Performance

Continuous courses; 2 lecture and 2 studio hours. 3-3 credits. Prerequisites: dance major, DANC 205-206 and 207, and successful completion of the sophomore readmittance evaluation; completion of DANC 303 to enroll in DANC 304. The craft of choreography and performing techniques are explored extensively as students develop solo and group pieces while rotating in the roles of choreographer/director and performer.

DANC 307 Music and Dance Forms for Trainees

Semester course; 1 lecture and 2 studio hours. 2 credits. Prerequisites: DANC 105 and 394, or permission of instructor. An exploration of the various traditional and nontraditional concepts of music that are used in collaboration with dance. Course includes lecture, reading, listening and viewing of choreography with writing and movement assignments.

DANC 311 Ballet Technique III

Continuous courses; 1 lecture and 2 studio hours. 2-2 credits. This course may be repeated for a maximum of 12 credits on the recommendation of the chair. Prerequisites: dance major and DANC 212, or departmental approval; completion of DANC 311 to enroll in DANC 312. Advanced training, study and practice of ballet technique focusing on the refinement and performance skills.

DANC 312 Ballet Technique III

Continuous courses; 1 lecture and 2 studio hours. 2-2 credits. This course may be repeated for a maximum of 12 credits on the recommendation of the chair. Prerequisites: dance major and DANC 212, or departmental approval; completion of DANC 311 to enroll in DANC 312. Advanced training, study and practice of ballet technique focusing on the refinement and performance skills.

DANC 313 Dance in World Cultures

Semester course; 2 lecture and 2 studio hours. 3 credits. Prerequisite: DANC 103-104 and UNIV 200 or HONR 200, or permission of instructor. This course is the third in a sequence that fulfills one of the general education writing intensive requirements for dance majors. Students learn and participate in dance styles of various world cultures as they study cultural traditions and how they are expressed in movement. No dance experience necessary. This course will include lectures, readings, research and discussion. Students will engage in the viewing and discussion of films, videos and dance concerts.

DANC 314 Summer Dance Workshop

Semester courses; variable hours. 1 or 3 credits per semester. May be repeated for credit. Flexible course offerings in dance technique, improvisation, composition, rhythmic training and repertory. See the Schedule of Classes for specific topics to be offered each semester.

DANC 315 Contact Improvisation

Semester courses; 1 lecture and 2 studio hours. 2 credits. Prerequisites: DANC 101, 102, or permission of instructor. Exploration of the technique of partnering and the exchange of weight in an improvisational format. Emphasis is on a shared process that explores gravity, lifting, and the give and take of body weight.

DANC 316 Contact Improvisation

Semester courses; 1 lecture and 2 studio hours. 2 credits. Prerequisites: DANC 101, 102, or permission of instructor. Exploration of the technique of partnering and the exchange of weight in an improvisational format. Emphasis is on a shared process that explores gravity, lifting, and the give and take of body weight.

DANC 317 Anatomy for the Dancer

Semester course; 2 laboratory hours. 1 credit. Prerequisite: dance major and UNIV 200 or HONR 200. A Web-based, self-study course designed for dance students. Integrates the study of anatomy with dance terminology, skills and concepts. Covers basic knowledge of skeletal, muscular and nervous systems of the body and applies this information to principles important to dance.

DANC 318 Dance Science

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisites: dance major and DANC 317. A team-taught lecture and laboratory course that applies anatomical and basic kinesiological concepts to dance technique. Students will analyze and assess dance movement using scientific principles as well as study the interplay between the aesthetic qualities and biomechanics of dance technique, and the role of this study in injury prevention.

DANC 319 Video/Choreography Workshop

Semester courses; 2 lecture and 2 studio hours. 3, 3 credits. Prerequisites: experience in movement, performance and/or video/film, or permission of instructor. Students gain practical skills as well as basic theoretical foundation in the principles of working with video and choreography.

DANC 320 Video/Choreography Workshop

Semester courses; 2 lecture and 2 studio hours. 3, 3 credits. Prerequisites: experience in movement, performance and/or video/film, or permission of instructor. Students gain practical skills as well as basic theoretical foundation in the principles of working with video and choreography.

DANC 343 Body Imagery

Semester course; 2-6 studio hours. 1-3 credits. May be repeated for a maximum total of 6 credits. Prerequisite: permission of instructor. The study of body/mind imagery as a source of exploration that includes movement qualities, dynamics and vocabularies. Students gain insight into their inner resources as a base for outer expression.

DANC 360 Lighting Design for Dance

Semester course; 3 lecture hours. 3 credits. Prerequisite: DANC 260 or permission of instructor. Open to qualified School of the Arts majors only. A study in the art of lighting design as it evolves from the choreographer/designer collaboration. The basic techniques of drafting, use of color and composition of space related to light and movement.

DANC 361 Rehearsal and Performance

Semester course; hours to be arranged. 1-3 credits. Prerequisite: audition. May be repeated for a maximum of 9 credits. Dance rehearsals and production of work for a major dance concert.

DANC 362 Rehearsal and Performance

Semester course; hours to be arranged. 1-3 credits. Prerequisite: audition. May be repeated for a maximum of 9 credits. Dance rehearsals and production of work for a major dance concert.

DANC 371 Repertory

Semester course; 2 lecture and 2 studio hours. 3 credits. Prerequisite: audition. May be repeated for a maximum of 9 credits. Study and rehearsal of roles in choreography produced by the faculty and/or guest artists, with the objective of achieving a performance level.

DANC 372 Repertory

Semester course; 2 lecture and 2 studio hours. 3 credits. Prerequisite: audition. May be repeated for a maximum of 9 credits. Study and rehearsal of roles in choreography produced by the faculty and/or guest artists, with the objective of achieving a performance level.

DANC 393 Professional Performance: Trainee Level Second Year

Continuous course; 8 credits per semester. Prerequisite: official apprentice status with an approved professional dance company and permission of the chair. Training, rehearsal and performance as an apprentice with a professional dance company approved by VCU Dance.

DANC 394 Professional Performance: Trainee Level Second Year

Continuous course; 8 credits per semester.

Prerequisite: official apprentice status with an approved professional dance company and permission of the chair. Training, rehearsal and performance as an apprentice with a professional dance company approved by VCU Dance.

DANC 401 Modern Dance Technique IV and Workshop

Continuous courses; 1 lecture and 6 studio hours. 3-3 credits. These courses may be repeated for a maximum of 18 credits on the recommendation of the department chair. Prerequisites: dance major and DANC 302, or departmental approval; completion of DANC 401 to enroll in DANC 402. Preprofessional study and training in modern dance technique. Movement studies demanding a superior level of clarity, strength and flexibility. Movement patterns demanding a high level of coordination, deep kinesthetic awareness and aesthetic sensitivity. Exploration of a wide range of performance qualities. Course includes weekly group exploration of techniques related to all areas of dance.

DANC 402 Modern Dance Technique IV and Workshop

Continuous courses; 1 lecture and 6 studio hours. 3-3 credits. These courses may be repeated for a maximum of 18 credits on the recommendation of the department chair. Prerequisites: dance major and DANC 302, or departmental approval; completion of DANC 401 to enroll in DANC 402. Preprofessional study and training in modern dance technique. Movement studies demanding a superior level of clarity, strength and flexibility. Movement patterns demanding a high level of coordination, deep kinesthetic awareness and aesthetic sensitivity. Exploration of a wide range of performance qualities. Course includes weekly group exploration of techniques related to all areas of dance.

DANC 405 Composition for Trainees

Continuous courses; 2 lecture and 2 studio hours. 3-3 credits. Prerequisites: dance major and DANC 105 and 307, or departmental approval; completion of DANC 405 to enroll in DANC 406. Exploration and research of the elements of choreography.

DANC 406 Composition for Trainees

Continuous courses; 2 lecture and 2 studio hours. 3-3 credits. Prerequisites: dance major and DANC 105 and 307, or departmental approval; completion of DANC 405 to enroll in DANC 406. Exploration and research of the elements of choreography.

DANC 407 Teaching Methods for Dance

Semester course; 2 lecture and 2 studio hours. 3 credits. Prerequisite: dance major and DANC 302. The student learns to analyze and communicate movement in a variety of teaching situations. The student will have an opportunity to observe different teaching techniques and to practically apply learned teaching concepts and theories.

DANC 411 Ballet Technique IV

Continuous courses; 1 lecture and 2 studio hours. 2-2 credits. May be repeated for a maximum total of 12 credits. Prerequisites: dance major and placement audition or permission of the chair; completion of DANC 411 to enroll in DANC 412. Preprofessional study and practice of ballet technique focusing on the

refinement of technical skills and the elements of dynamic performance in ballet.

DANC 412 Ballet Technique IV

Continuous courses; 1 lecture and 2 studio hours. 2-2 credits. May be repeated for a maximum total of 12 credits. Prerequisites: dance major and placement audition or permission of the chair; completion of DANC 411 to enroll in DANC 412. Preprofessional study and practice of ballet technique focusing on the refinement of technical skills and the elements of dynamic performance in ballet.

DANC 413 African American Presence in American Dance, Performance and Social Contexts

Semester course; 3 lecture hours. 3 credits. Prerequisites: DANC 103-104 and UNIV 200 or HONR 200, or permission of instructor. This course is an option for the third course in a sequence that fulfills a writing intensive requirement for dance majors only. Examines African-American history, culture and aesthetics as they relate to dance in American social and performance contexts. Includes lectures, readings, research and video screenings.

DANC 414 Summer Dance Workshop

Semester courses; variable hours. 1 or 3 credits per semester. May be repeated for credit. Flexible course offerings in dance technique, improvisation, composition, rhythmic training and repertory. See the Schedule of Classes for specific topics to be offered each semester.

DANC 450 Professional Project

Semester course; 3-9 credits. May be repeated for a maximum of 12 credits. Prerequisite: dance major. An individualized program in research and/or practicum within a professionally-oriented organization, subject to approval of the department faculty.

DANC 451 Careers in Dance

Semester course; 3 lecture hours. 3 credits. Prerequisite: dance major. Realistic aspects of the dance profession, as performer, teacher and researcher. The student's learning experience culminates in a final project that enhances and challenges the student in both areas of performance and choreography. The project must attain public performance status.

DANC 460 Business of Dance

Semester course; 2 lecture hours. 2 credits. Prerequisite: UNIV 200. Enrollment restricted to dance majors. Investigation of diverse business models in dance performance, creation, production and administration.

DANC 490 Senior Project

Semester course; 3 lecture hours. 3 credits. Prerequisites: dance major; DANC 302, 303 and 304; and departmental approval. The culmination of the student's learning experience in a final project that enhances and challenges the student in both areas of performance and choreography. The project must attain public performance status.

DANC 491 Topics in Dance

Semester course; 1-4 credits. May be repeated for a maximum of 8 credits. Prerequisite: permission of instructor. A seminar or workshop on a selected issue or topic in the field of dance. See the Schedule of Classes for specific topics to be offered each semester.

DANC 492 Independent Study in Dance

Semester course; variable hours. 1-3 credits. May be repeated for a maximum total of six credits.

Prerequisites: dance major status and approval of department chair and instructor. Individual instruction and supervision of a special project. Learning experiences should be designed with the supervising faculty member in the form of a contract between student and instructor. This course is limited to those students who have demonstrated an exceptional level of ability and intense commitment to their discipline.

Dance and Choreography Lab**DANZ 111 Ballet Technique I Laboratory**

Continuous courses; 2 studio hours. 1-1 credit. These courses may be repeated for a maximum of 4 credits on the recommendation of the chair. Prerequisites: completion of DANZ 111 to enroll in DANZ 112. Corequisites: DANC 111-112. Dance major or permission of instructor. Reinforcement in the study of ballet technique at the fundamental level. Emphasis focusing on alignment and in-depth practice of ballet steps. An extension of DANC 111-112 to be taken concurrently.

DANZ 112 Ballet Technique I Laboratory

Continuous courses; 2 studio hours. 1-1 credit. These courses may be repeated for a maximum of 4 credits on the recommendation of the chair. Prerequisites: completion of DANZ 111 to enroll in DANZ 112. Corequisites: DANC 111-112. Dance major or permission of instructor. Reinforcement in the study of ballet technique at the fundamental level. Emphasis focusing on alignment and in-depth practice of ballet steps. An extension of DANC 111-112 to be taken concurrently.

DANZ 211 Ballet Technique II Laboratory

Continuous courses; 2 studio hours. 1-1 credit. These courses may be repeated for a maximum total of 4 credits on the recommendation of the chair. Prerequisites: dance major and DANC/DANZ 112, or departmental approval; completion of DANZ 211 to enroll in DANZ 212. A reinforcement in the study of ballet technique at the intermediate level. An extension of DANC 211-212 to be taken concurrently.

DANZ 212 Ballet Technique II Laboratory

Continuous courses; 2 studio hours. 1-1 credit. These courses may be repeated for a maximum total of 4 credits on the recommendation of the chair. Prerequisites: dance major and DANC/DANZ 112, or departmental approval; completion of DANZ 211 to enroll in DANZ 212. A reinforcement in the study of ballet technique at the intermediate level. An extension of DANC 211-212 to be taken concurrently.

DANZ 311 Ballet Technique III Laboratory

Continuous courses; 2 studio hours. 1-1 credit. May be repeated for a maximum total of 6 credits on the recommendation of the chair. Prerequisites: completion of DANZ 311 to enroll in DANZ 312. Dance major and placement audition or permission of the chair. Reinforcement in the study of ballet technique at the advanced level. May be taken concurrently with DANC 311-312.

DANZ 312 Ballet Technique III Laboratory

Continuous courses; 2 studio hours. 1-1 credit. May be repeated for a maximum total of 6 credits on the recommendation of the chair. Prerequisites: completion of DANZ 311 to enroll in DANZ 312. Dance major and placement audition or permission of the chair. Reinforcement in the study of ballet technique at the advanced level. May be taken concurrently with DANC 311-312.

DANZ 411 Ballet Technique IV Laboratory

Continuous courses; 2 studio hours. 1-1 credit. May be repeated for a maximum total of 4 credits on the recommendation of the chair. Prerequisites: completion of DANZ 411 to enroll in DANZ 412. Dance major and placement audition or permission of the chair. Reinforcement in the study of ballet technique at the preprofessional level. An extension of DANC 411-412, which can be taken concurrently.

DANZ 412 Ballet Technique IV Laboratory

Continuous courses; 2 studio hours. 1-1 credit. May be repeated for a maximum total of 4 credits on the recommendation of the chair. Prerequisites: completion of DANZ 411 to enroll in DANZ 412. Dance major and placement audition or permission of the chair. Reinforcement in the study of ballet technique at the preprofessional level. An extension of DANC 411-412, which can be taken concurrently.

Fashion Design and Merchandising

FASH 145 Computers for Fashion I

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Laptop computer required. Basic computer skills required. This course introduces students to contemporary technology with emphasis on basic computer graphics software used in the fashion industry today.

FASH 201 Construction Techniques

Semester course; 1 lecture and 4 studio hours. 3 credits. The basic principles involved in garment construction with emphasis on professional design-room practices in sewing, pressing and finishing of garments. Knowledge of basic sewing is advisable.

FASH 202 Draping

Semester course; 1 lecture and 4 studio hours. 3 credits. Basic principles of three-dimensional patternmaking by draping muslin on a dress form. Student will be required to purchase the specified dress form.

FASH 203 Patternmaking

Continuous courses; 1 lecture and 4 studio hours. 3-3 credits. Prerequisite: completion of FASH 203 to enroll in FASH 204. Basic principles of patternmaking, developing various styles from master patterns and creating designs to be constructed in muslin. Students also will draft a set of master patterns and learn to "true" the pattern to produce production-ready patterns.

FASH 204 Patternmaking

Continuous courses; 1 lecture and 4 studio hours. 3-3 credits. Prerequisite: completion of FASH 203 to enroll in FASH 204. Basic principles of patternmaking, developing various styles from master patterns and creating designs to be constructed in muslin. Students

also will draft a set of master patterns and learn to "true" the pattern to produce production-ready patterns.

FASH 205 Fashion Drawing I

Continuous courses; 1 lecture and 4 studio hours. 3-3 credits. Prerequisite: completion of FASH 205 to enroll in FASH 206. Introduction to the fashion figure working from models and photographs. Covers flat drawing techniques and fashion design theory. Explores different media and the use of color.

FASH 206 Fashion Drawing I

Continuous courses; 1 lecture and 4 studio hours. 3-3 credits. Prerequisite: completion of FASH 205 to enroll in FASH 206. Introduction to the fashion figure working from models and photographs. Covers flat drawing techniques and fashion design theory. Explores different media and the use of color.

FASH 210 Visual Merchandising

Semester course; 3 lecture hours. 3 credits. Theory and practical application of visual merchandising techniques in the fashion industry. Development of design concepts, fixturing, layout and presentation for retail, manufacturing and special events. Use of computer-aided design.

FASH 240 Survey of the Fashion Industry I

Semester course; 3 lecture hours. 3 credits. A survey of the apparel industry emphasizing the role of the designer and the various stages of production.

FASH 241 Survey of the Fashion Industry II

Semester course; 3 lecture hours. 3 credits. An analysis of the apparel industry emphasizing retail aspects.

FASH 245 Computers for Fashion II

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisites: FASH 145. Laptop computer required. Assumes basic computer skills. This course introduces advanced skills in technology by utilizing graphic, illustration and desktop publishing software as they are used in the fashion industry.

FASH 250 Concepts of Fashion Merchandising Environment

Semester course; 3 lecture hours. 3 credits. Basic research techniques and analysis skills for evaluating contemporary fashion and apparel topics.

FASH 290 Textiles for the Fashion Industry

Semester course; 3 lecture hours. 3 credits. This course is designed to develop an understanding of the factors which influence the tactile behaviors of fabrics during garment design, manufacture and wear. Apparel fiber construction, finish and properties both natural and man-made will be analyzed.

FASH 301 Design I Studio

Semester course; 1 lecture and 4 studio hours. 3 credits. May be repeated. Prerequisite: completion of all sophomore studio courses. A series of courses that focus on selected topics in design, reflecting current fashion emphasis. See the Schedule of Classes for specific topics to be offered each semester.

FASH 302 Design I Studio

Semester course; 1 lecture and 4 studio hours. 3 credits. May be repeated. Prerequisite: completion of all sophomore studio courses. A series of courses that focus on selected topics in design, reflecting current

fashion emphasis. See the Schedule of Classes for specific topics to be offered each semester.

FASH 319 Contemporary Fashion

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 200 or HONR 200. An in-depth study of fashion beginning at the Industrial Revolution and continuing to the present from a historical and socioeconomic point of view. Hands-on examination of vintage garments and field trips to museum collections.

FASH 330/IDES 330/GDES 330 The Business of Design

Semester course; 3 lecture hours. 3 credits. This course introduces basic global economics and general design business concepts such as the free enterprise system, legal forms of business and financial considerations. It also surveys business and management practices such as planning, decision-making, communication, global ethics, marketing, human resources, finance and entrepreneurial skills needed to open a design business.

FASH 341 Merchandise Planning and Control

Semester course; 3 lecture hours. 3 credits. Theory and mathematical application of the major elements of retail buying and merchandising. Discussion covers planning and control of inventory, profit analysis, merchandise pricing and purchase negotiation.

FASH 342 Retail Buying Simulation

Semester course; 3 lecture hours. 3 credits. Prerequisites: FASH 341 and INFO 162. Practical application of retail buying in relation to the calculations for a six-month buying plan for a department within a department store. The simulation includes projection of sales, stock levels, markdowns, purchases, gross margins, markup, etc.

FASH 343 Fashion Forecasting

Semester course; 3 lecture hours. 3 credits. Using basic principles to identify, track and analyze current trends, students will develop a fashion forecast. Demographic, economic, social and historical forces of behavior will be evaluated.

FASH 345 Computers for Fashion Design: Adobe Photoshop and Illustrator

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Laptop computer and basic computer skills required. Students will learn to conceptualize fashion design while gaining an understanding of graphic and illustration software through the utilization of the computer as a drawing and communication tool.

FASH 350 Fashion Promotion

Semester course; 3 lecture hours. 3 credits. Prerequisite: junior standing. Through lecture and field experience, students are exposed to technical and creative aspects of fashion promotion and public relations. A variety of media are utilized. Students may be required to spend time outside the classroom on promotional activities.

FASH 370/GDES 370/IDES 370 Design History: 20th and 21st Centuries

Semester course; 3 lecture hours. 3 credits. Prerequisites: ARTF 105-106. Study of the major theories and styles on communication arts, fashion and interior environments of the 20th and 21st centuries. Contemporary analysis of cultural conditions and the

manner in which designers respond to those conditions.

FASH 380 Fashion Branding

Semester course; 3 lecture hours. 3 credits. Students will understand the concept of fashion branding and the processes necessary to successfully develop or redevelop a fashion brand.

FASH 390/INTL 390 Historic and Ethnic Textiles

Semester course; 3 lecture hours. 3 credits. Prerequisite: FASH 290 or IDES 446 or permission of instructor. An examination of the history of textile design and production around the world.

FASH 391 Fashion Workshop

Semester course; variable hours. 1-3 credits. May be repeated for a maximum total of 6 credits. A topical workshop offered in various areas of fashion not included in the regular curriculum. See the Schedule of Classes for specific topics to be offered each semester.

FASH 401 Design II Studio

Semester course; 1 lecture and 4 studio hours. 3 credits. May be repeated. Prerequisites: completion of all sophomore studio courses and permission of instructor. A series of upper-level design classes for the advanced or skilled student, reflecting current topics in the fashion industry. See the Schedule of Classes for specific topics to be offered each semester.

FASH 402 Design II Studio

Semester course; 1 lecture and 4 studio hours. 3 credits. May be repeated. Prerequisites: completion of all sophomore studio courses and permission of instructor. A series of upper-level design classes for the advanced or skilled student, reflecting current topics in the fashion industry. See the Schedule of Classes for specific topics to be offered each semester.

FASH 403 Design Theory and Illustration I

Semester course; 1 lecture and 4 studio hours. 3 credits. May be repeated. Prerequisite: completion of all Department of Fashion sophomore studio courses. A series of design theory and illustration topics that address current fashion and support the Department of Fashion design courses. See the Schedule of Classes for specific topics to be offered each semester.

FASH 404 Design Theory and Illustration II

Semester course; 1 lecture and 4 studio hours. 3 credits. May be repeated. Prerequisites: Completion of all Department of Fashion sophomore studio courses and permission of instructor. A series of advanced design theory and illustration topics that address current fashion, challenge the skilled student and support the Department of Fashion design courses. See the Schedule of Classes for specific topics to be offered each semester.

FASH 442 Advanced Show Production

Semester course; 3 lecture hours. 3 credits. A practical application of the production, planning and execution of a professionally staged and choreographed fashion show featuring the Department of Fashion Design and Merchandising students' juried work.

FASH 443 Supervision and Management

Semester course; 3 lecture hours. 3 credits. The study of advanced leadership skills as they relate to the fashion industry. Topics include team building, negotiations, time and stress management, and

communications. Emphasis placed on leadership and supervision skills across cultures.

FASH 445 Advanced Application in Store Development

Semester course; 3 lecture hours. 3 credits. Prerequisites: FASH 341 and 342. Studies operational functions as related to the objective and decision-making procedures inherent in successful small-business retailing. Quantitative strategies will be applied as students develop a model plan for a retail business.

FASH 450 Line Development

Semester course; 3 lecture hours. 3 credits. Pre- or corequisite: FASH 341. Students will learn the fundamentals of producing a line of apparel, accessories or home fashions from conception to consumer. Emphasis will be placed on market research, specification sheets, costing, sourcing, production and sales.

FASH 451 Importing and Exporting Fashion

Semester course; 3 lecture hours. 3 credits. Prerequisite: FASH 450. An overview and introduction to import/export theory, government regulations and global sourcing. Students will gain insight to the dynamics and cultures of the international fashion marketplace.

FASH 490 Fashion Seminar

Short course (5 weeks); 3 lecture hours. 1 credit. A professional seminar for senior fashion majors. Lectures will cover career opportunities and job preparation.

FASH 492 Independent Study in the Fashion Industry

Semester course; 1-3 credits. May be repeated. Prerequisite: junior or senior standing as a major in fashion design or fashion merchandising. Learning experiences should be designed with the supervising faculty member in the form of a contract between student and instructor; approval of department chair necessary prior to registration. This course will be limited to those students who have demonstrated intense commitment to a particular area of study within the fashion industry.

FASH 493 Fashion Internship

1-3 credits. It may be a single internship for 3 credits or several (maximum 3) totaling 3 credits. Open to junior- and senior-level fashion majors only. A practicum in which students apply on-the-job the formal classroom and studio training they have received in their option (design, merchandising) on campus.

Graphic Design

GDES 202 Design Technology I

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: successful completion of the Art Foundation Program. A design foundation workshop that emphasizes skills development and application of design technology: time and project management, visual thinking, image capturing and editing.

GDES 205 Design Methods and Processes

Semester course; 2 lecture and 3 studio hours. 3 credits. An in-depth investigation of the theoretical

aspects of the design process within the context of designing effective visual communications.

GDES 211 Typography I

Semester course; 2 lecture and 3 studio hours. 3 credits. An introduction to communication problem-solving through the visual medium of language. The fundamentals of typography and typographic design are explored in experimental and practical projects.

GDES 212 Design Form and Communication

Semester course; 2 lecture and 3 studio hours or 4 lecture and 6 studio hours. 3 credits for Richmond; 6 credits for VCUQ. The relationship of form and communication in graphic design is explored through theoretical and applied projects. The impact of typography and imagery and their syntactic relations upon audience and content is stressed.

GDES 213 Typography II

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: GDES 211. An intermediate exploration of typography as an expressive and functional communication vehicle. Emphasis is placed on defining effective design criteria to meet the reader's needs, the communicator's intent and the designer's formal sensibilities.

GDES 214 Imaging I

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: successful completion of the Art Foundation Program. Cannot be taken for credit with COAR 331. A studio course focusing on the use of digital imaging techniques for communication purposes. The processes and techniques for making and working with digital images are explored.

GDES 216 Imaging II

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: GDES 214. A studio course focusing on the creation of visual images for communication purposes. The processes and media for making visual images and the limits of visual literacy are explored.

GDES 252 History of Visual Communication

Semester course; 3 lecture hours. 3 credits. An investigation of contemporary visual communication concepts, media and images, and their role in contemporary society.

GDES 253 Theory and Philosophy of Visual Communication

Semester course; 3 lecture hours. 3 credits. An overview of theoretical and philosophical issues influencing the practice of visual communication design.

GDES 300 Creative Strategies

Semester course; 2 lecture and 3 studio hours. 3 credits. A course in which alternative creative communication problem-solving strategies are investigated.

GDES 301 Beginning Letterpress

Semester course; 2 lecture and 3 studio hours. 3 credits. An introductory/intermediate printmaking studio course designed for students interested in developing their visual vocabulary in letterpress and relief printing. Students will undertake critical analysis of the letterpress medium and utilize techniques to develop and produce finished editions of each assigned task.

GDES 302 Book Arts

Semester course; 2 lecture and 3 studio hours. 3 credits. An introduction to the tools, materials and craft of contemporary bookmaking. Investigation of bookbinding, handcraft and related techniques.

GDES 308 Web Page Design

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: permission of instructor. A course developing the design of websites. Emphasis is placed on the visual design, navigation, development, communication and authoring of websites.

GDES 330/IDES 330/FASH 330 The Business of Design

Semester course; 3 lecture hours. 3 credits. Introduces basic global economics and general design business concepts such as the free enterprise system, legal forms of business and financial considerations. Also surveys business and management practices such as planning, decision-making, communication, global ethics, marketing, human resources, finance and entrepreneurial skills needed to open a design business.

GDES 343 Systems in Design

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: successful completion of the sophomore GDES courses. The study of systematic and methodological approaches to communication design through the solving of complex problems in visual communication. Emphasis is placed on objective process and research in approaches to various professional situations.

GDES 345 Print I

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: UNIV 200 or HONR 200 and successful completion of the sophomore GDES courses. An introduction to the design process and applied realizations of print-based materials and outcomes. Addresses the form and communication of the printed page from the tradition of print to the organizational principles outside that tradition. Objectives accomplished through lectures, demonstrations and problem-solving.

GDES 346 Visual Narrative I

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: successful completion of the sophomore GDES courses. Studio course that introduces the conceptual and technical issues involved in the design and production of sequential documents and time-based compositions. Addresses the possibilities and limitations of the integration of word, image, video and sound as they relate to problem-solving in visual communication.

GDES 347 Interaction I

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: successful completion of the sophomore GDES courses. An introduction to the conceptual and technical issues involved in the design and production of interactive documents and environments. Addresses the possibilities and limitations of computer-generated images, sound and digital video as they relate to problem-solving in visual communication.

GDES 356 Studio Management

Semester course; 3 lecture hours. 3 credits. A study of business and management factors that relate to creative

design. Topics include marketing, structure and organization; financial factors; ethical and legal aspects; and management of design, illustration and photography studios.

GDES 365 Print II

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: GDES 345. An advanced studio course devoted to the study of systematic and methodological approaches to the design process and applied realization of print-based materials and outcomes. Emphasizes rigorous objective and experimental research methods in approaches to various professional situations. Objectives accomplished through lectures, demonstrations and team-based approaches to problem-solving.

GDES 366 Visual Narrative II

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: GDES 346. A studio course devoted to the design and production of advanced projects in sequential design, with focus on research, problem definition and team-based approaches to problem-solving.

GDES 367 Interaction II

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: GDES 347. A studio course devoted to the design and production of advanced projects in interaction design and experience design with focus on research, problem definition and team-based approaches to problem-solving.

GDES 370/FASH 370/IDES 370 Design History: 20th and 21st Centuries

Semester course; 3 lecture hours. 3 credits. Prerequisites: ARTF 105-106. Study of the major theories and styles on communication arts, fashion and interior environments of the 20th and 21st centuries. Contemporary analysis of cultural conditions and the manner in which designers respond to those conditions.

GDES 391 Lecture Topics in Design

Semester course; variable hours. 1-3 credits per semester. May be repeated for a maximum of 9 credits. Topical lectures in design issues and visual communications.

GDES 392 Research/Individual Study

Semester course; 1-2 lecture and 3-6 studio hours. 2-4 credits. May be repeated for a total of 6 credits. Enrollment requires permission of instructor, approval of faculty adviser and chair. The structuring, research, execution and presentation of an independent project in visual communications under the direction of a faculty adviser. The student will be encouraged to become a self-generating problem seeker and solver with the ability to carry out self-stated goals.

GDES 401 Advanced Letterpress

Semester course; 2 lecture and 3 studio hours. 3 credits. May be repeated for a maximum of 6 credits. Prerequisite: GDES 301. An advanced print studio course designed for students interested in exploring their visual vocabulary in digital and letterpress relief printing. Students will undertake critical analysis of the combined media of digital and letterpress and utilize techniques inherent within each technology to develop and produce finished editions.

GDES 403 Design Activism

Semester course; 2 lecture and 3 studio hours. 3 credits. An overview of the ethical issues faced by practitioners in the field of design and proactive roles available outside of the traditional client/designer relationship. The course presents critiques of the various roles that designers play in the areas of marketing, advertising, product development, and as entrepreneurs and content generators. The course includes a component in which problem identification, team work and real-world engagement are required.

GDES 404 Typeface Design

Semester course; 2 lecture and 3 studio hours. 3 credits. Glyph construction is explored through historical and methodological analysis as well as the creation of typographic systems. Formal mechanics of typefaces are emphasized in discussion of their function as vehicles for communication. Both the functional and expressive nature of typefaces are examined through hands-on exercises.

GDES 407 Senior Project

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: GDES 321 and 326. An advanced course in the conceptualization, execution, realization and documentation of a portfolio project. Students will be required to create and structure a major project that will develop and test their conceptual, contextual and technical abilities. Project work will be exhibited, documented or printed. Various drawing, painting and mixed media will be explored. Assignments will incorporate applicable references to the history of art and contemporary developments.

GDES 408 Advanced Web Design

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: GDES 308. Investigation into the design and development of dynamic websites. Introduces database integration, webhost management and advanced coding techniques. Emphasis is placed on the semantic design and development of content-rich websites and blogs.

GDES 411 Communication Design: Design Studio

Semester course; 4 lecture and 6 studio hours. 6 credits. Prerequisite: GDES 410. A course in which project situations of professional visual communication offices are approached in an educational context. Problems that represent current visual communication problems are presented.

GDES 412 Typography III

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: successful completion of the sophomore GDES courses. Advanced problems in typographic design with emphasis upon the development of a personal creative approach to form and communication.

GDES 413 Package Design

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: GDES 213 and 367. Theoretical and studio investigation of three-dimensional structural principals as they relate to the area of packaging, exhibition and environmental design.

GDES 414 Exhibition and Environmental Graphic Design

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: GDES 213 and 366. Study of the

presentation of information in large-scale, three-dimensional formats. Exploration of exhibition and environmental design, including developing imagery and typography, understanding the use of "wayfinding" (identification, interpretation and orientation) and human factors, communicating of programmed content.

GDES 415 Communication Design: Motion Graphics

Semester course; 4 lecture and 6 studio hours. 6 credits. Prerequisites: GDES 213 and 366. Required for Communication Arts and Design students at the VCU School of the Arts in Qatar. An exploration of time and motion as it applies to visual communication in non-interactive linear narratives. Examines the basic principles of broadcast and film and covers the integration of motion graphics within these formats.

GDES 416 Motivational Graphics

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: GDES 213 and 366. Study in the development of visual communication performance criteria and practical strategies that influence audience attitudes and behavior.

GDES 417 Interdisciplinary Team Design

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: GDES 213 and 366. Advanced projects in visual communication in which student design teams solve complex problems requiring collaboration.

GDES 418 Design Center

Semester course; 2-6 lecture and 3-9 studio hours. 3-9 credits. May be repeated for a total of 12 credits. Enrollment requires portfolio review by faculty. A professional studio to give students practical experience working with faculty on self-initiated and client-initiated, real-world design projects.

GDES 419 Electronic Imaging

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: GDES 216 or permission of instructor. An advanced exploration into the use of the computer and other electronic peripheral devices in the creation of expressive imagery and functional communications.

GDES 445 Problem Seeking

Semester course; 3 lecture hours. 3 credits. A seminar exploring the nature, scope and implications of defining design objectives in terms of limitations, requirements and potentials of a product's implementation, performance and life cycle.

GDES 470 Senior Seminar

Semester course; 3 lecture hours. 3 credits. An examination of selected theoretical, historical, aesthetic and social areas of concern to the graphic designer. Scholarly research, critical analysis and discussion are expected.

GDES 472 Senior Studio

Semester course; 2 lecture and 3 studio hours. 3 credits. A capstone course oriented toward the creation of a professional portfolio, self-promotional materials and business system. The course culminates in the annual Senior Show.

GDES 491 Studio Topics in Design

Semester course; 2 lecture and 3 studio hours. 3 credits. May be repeated for a total of 12 credits.

Topical studio focusing on research and experimentation in specialized visual communication media.

GDES 492 Design Internship

Semester course; 1-3 credits. May be repeated for a maximum of 3 credits. Prerequisites: senior standing, 3.0 GPA or permission of the chair. Supervised pragmatic work experiences. Training is provided under the direction and supervision of qualified professional practitioners.

Interior Design

IDES 103 Introductory Studio Course

Continuous course; 1 lecture and 2 laboratory hours. 2-2 credits. This course is an introduction to the complex and multifaceted field of interior design as an applied art and as a business for non-interior design majors. Basic design elements, principles and practices, historical and related architectural background material will be reviewed.

IDES 104 Introductory Studio Course

Continuous course; 1 lecture and 2 laboratory hours. 2-2 credits. This course is an introduction to the complex and multifaceted field of interior design as an applied art and as a business for non-interior design majors. Basic design elements, principles and practices, historical and related architectural background material will be reviewed.

IDES 201 Introductory Interior Design Studio I

Semester course; 2 lecture/seminar and 6 studio hours. 4 credits. Prerequisites: all Art Foundation courses. Corequisites: IDES 211 and 231. Interior design majors only; other School of the Arts majors by approval. Introduction to identification and applications of fundamental interior design issues through applied projects. Emphasis includes developing design ideas, understanding design philosophies, design principles and elements, human factors, defining and solving problems creatively, analyzing spatial and functional requirements, applying design processes, creating an aesthetic space, and preparing a presentation as related to interior design.

IDES 202 Introductory Interior Design Studio II

Semester course; 2 lecture/seminar and 6 studio hours. 4 credits. Prerequisites: IDES 201, 211 and 231. Corequisites: IDES 212, 252 and 311. Interior design majors only; other School of the Arts majors by approval. Expands upon the interior design issues introduced in IDES 201 through their application in small scale interiors projects of increasing size and complexity. Emphasizes the further development of methods and processes for design development, understanding of basic design principles and elements, and ways of analyzing design requirements through written, oral, graphic and three-dimensional documentation.

IDES 211 Interior Graphics I

Semester course; 1 lecture and 6 studio hours. 3 credits. Prerequisites: all Art Foundation courses. Corequisites: IDES 201 and 231. Interior design majors only; other School of the Arts majors by approval. Introduction to manual graphic

communication techniques in interior design including drafting, sketching, rendering, perspective drawing, presentation formats and model-making for professional graphic presentations.

IDES 212 Interior Graphics II

Semester course; 1 lecture and 6 studio hours. 3 credits. Prerequisites: all Art Foundation courses, IDES 201, 211 and 231. Corequisites: IDES 202, 252 and 311. Interior design majors only; other School of the Arts majors by approval. Laptop computer required. Introduction to computer graphic communication language and techniques in interior design drafting, rendering, perspective drawing, presentation formats and 3-D imaging for professional graphic presentations.

IDES 231 Fundamentals of Interior Design

Semester course; 3 lecture hours. 3 credits. Prerequisites: all Art Foundation courses. Required of all incoming interior design majors. Open to interior design majors and home fashion merchandising majors only. Interior design majors are required to enroll concurrently in IDES 201 and 211. Introduction to the theories, methods and processes of interior design. Facilitates the transition of skills and knowledge from the Art Foundation Program to specific interior design applications and focuses on analysis and evaluation of interior environments as a support and supplement to the studio experience.

IDES 241 Physical and Social Behavior

Semester course; 3 lecture hours. 3 credits. Prerequisite: IDES 231. Theories of behavioral and social aspects of interior design. Study of how people interpret, evaluate and act in the built environment. Social, cultural and economic factors are included.

IDES 251 Historic Environments: Ancient Through 19th Century

Semester course; 3 lecture hours. 3 credits. Prerequisites: ARTH 103 and 104. Study of the major paradigms, theories and styles of the built environment (interior design, furniture and architecture) from antiquity to the late 19th century. Contemporary analysis of cultural conditions and the manner in which designers and architects respond to those conditions.

IDES 252 Historic Environments: 20th-21st Centuries

Semester course; 3 lecture hours. 3 credits. Prerequisites: ARTH 103 and 104. Study of the major paradigms, theories and styles of architecture, interior environments and furniture from the beginnings of modernism to the present day. Contemporary analysis of cultural conditions and the manner in which designers and architects respond to those conditions.

IDES 301 Interior Design Studio I

Semester course; 2 lecture/seminar and 6 studio hours. 4 credits. Prerequisites: UNIV 200 or HONR 200 and successful completion of the interior design sophomore portfolio review. Corequisites: IDES 312, 321 and 323. Interior design majors only. Laptop computer required. Discussion and application of design philosophies, theories and creative design strategies at the intermediate level. Emphasis includes: research, survey and analysis, design processes, spatial and functional analysis, design elements and principles, human factors, creative problem-solving,

code requirements, selection of interior components, and preparation of a presentation.

IDES 302 Interior Design Studio II

Semester course; 2 lecture/seminar and 6 studio hours. 4 credits. Prerequisite: IDES 301. Corequisite: IDES 431. Interior design majors only. Laptop computer required. Continued discussion and application of design philosophies, theories and creative design strategies at the intermediate level. Emphasis includes: research, survey and analysis, design processes, spatial and functional analysis, design elements and principles, human factors, creative problem-solving, code requirements, selection of interior components, and preparation of a presentation.

IDES 311 Advanced Interior Graphics I

Semester course; 1 lecture and 6 studio hours. 3 credits. Prerequisites: IDES 201, 211 and 231. Corequisites: IDES 202, 212 and 252. Interior design majors only. Laptop computer required. Advanced manual and computer graphic communication techniques in interior design including drafting, sketching, rendering, perspective drawing, presentation formats and model-making for professional graphic presentations. Computer graphic techniques including software such as AutoCAD, Adobe Photoshop, Adobe Illustrator and Dreamweaver.

IDES 312 Advanced Interior Graphics II

Semester course; 1 lecture and 6 studio hours. 3 credits. Prerequisite: IDES 311. Interior design majors only. Laptop computer required. Advanced computer graphic communication techniques in interior design including drafting, rendering, perspective drawing, presentation formats and 3-D imaging for professional graphic presentations.

IDES 321 Interior Materials and Textiles

Semester course; 3 lecture hours. 3 credits. Interior design and home fashion merchandising students only. Investigation, selection and practical application of materials and textiles in interior environments.

IDES 322 Color in Interior Environments

Semester course; 3 lecture hours. 3 credits. Prerequisites: all Art Foundation Program studio courses and IDES 231 or comparable experience by approval. Interior design and School of the Arts majors only. Advanced study of color and its impact on interior spaces; theory and practical applications.

IDES 323 Light and Color in Interior Environments

Semester course; 3 lecture hours. 3 credits. Prerequisite: successful completion of the interior design sophomore portfolio review. Corequisites: IDES 301 and 312. Interior design and School of the Arts majors only. The study of illumination and color and their impact on people in interior spaces; theory and practical applications.

IDES 324 Furniture Design

Semester course; 1 lecture and 6 studio hours. 3 credits. Prerequisite: successful completion of the interior design sophomore portfolio review or permission of instructor. Interior design, crafts, sculpture and theater design majors only. Advanced study of furniture design and custom millwork as related to the design of interior environments. Original student designs are developed through the study of structure and materials.

IDES 330/FASH 330/GDES 330 The Business of Design

Semester course; 3 lecture hours. 3 credits. This course introduces basic global economics and general design business concepts such as the free enterprise system, legal forms of business and financial considerations. It also surveys business and management practices such as planning, decision-making, communication, global ethics, marketing, human resources, finance and entrepreneurial skills needed to open a design business.

IDES 370/FASH 370/GDES 370 Design History: 20th and 21st Centuries

Semester course; 3 lecture hours. 3 credits. Prerequisites: ARTF 105-106. Study of the major theories and styles on communication arts, fashion and interior environments of the 20th and 21st centuries. Contemporary analysis of cultural conditions and the manner in which designers respond to those conditions.

IDES 391 Topics in Interior Design

Semester course; 1-4 studio or lecture hours. 1-4 credits. May be repeated for a maximum of 8 credits. Prerequisite: permission of the instructor. A study of a topical issue in interior design. See the Schedule of Classes for specific topics to be offered each semester.

IDES 400 Senior Interior Design Studio I

Semester course; 2 lecture and 6 studio hours. 4 credits. Prerequisite: IDES 302. Corequisite: IDES 441. Interior design majors only. Laptop computer required. Study of construction documents on the computer as related to the design of interior environments and as applied to a studio project.

IDES 401 Senior Interior Design Studio II

Semester course; 2 lecture/seminar and 6 studio hours. 4 credits. Prerequisites: IDES 400 and 441. Corequisite: IDES 442. Interior design majors only. Department-approved senior interior design project. Advanced design experience of student's choice of an interior environment of complex scope and scale to meet the needs of specific clients and prepare students for the practice of the profession. The project addresses issues of design of the 21st century and integrates all aspects of the curriculum.

IDES 421 Construction Documents

Semester course; 1 lecture and 6 studio hours. 3 credits. Prerequisites: all Art Foundation Program studio courses and IDES 201, 202, 231, 212, 312 and concurrent enrollment in IDES 301, 302, 303, 304 or 401. Interior design majors only. Laptop computer required. Study of construction documents on the computer as related to the design of interior environments.

IDES 422 Building Systems

Semester course; 3 lecture hours. 3 credits. Prerequisites: IDES 301 and 323. Corequisite: IDES 302. Interior design majors only. Contemporary theories and techniques in the design of buildings as related to interior design, small structural considerations, HVAC, acoustics, plumbing and the attributes of materials.

IDES 431 ID Business Practices

Semester course; 3 lecture hours. 3 credits. Prerequisites: IDES 201 and IDES 231. Interior design majors only. Writing intensive. Advanced study of the

interior design profession as related to professional and business practices including: responsibilities, services, ethics, business and project management, and marketing.

IDES 441 Senior Design Seminar I

Semester course; 2 lecture hours. 2 credits. Prerequisite: IDES 302. Corequisite: IDES 400. Interior design majors only. Discussions of current design theories, issues and concerns of the built environment, future studies and the global community as applied to senior studio.

IDES 442 Senior Design Seminar II

Semester course; 2 lecture hours. 2 credits. Prerequisites: IDES 400 and 441. Corequisite: IDES 401. Interior design majors only. Continued discussions of current design theories, issues and concerns about the built environment, futures studies and the global community as applied to senior studio.

IDES 491 Topics in Interior Design

Semester course; 1-4 credits. May be repeated for a maximum of 8 credits. Prerequisite: permission of the instructor. An in-depth study of a topical issue in interior design. See the Schedule of Classes for specific topics to be offered each semester.

IDES 492 Independent Study in Interior Design

Semester course; variable hours. 1-3 credits. May be repeated for maximum of six credits. Prerequisite: junior or senior standing as a major in interior design. Learning experiences should be designed with the supervising faculty member in the form of a contract between student and instructor. This course is limited to those students who have demonstrated an exceptional level of ability and intense commitment to their discipline.

IDES 493 Interior Design Internship

Semester course; 3 credits. Prerequisite: IDES 431. Interior design majors only. Provides supervised practical work experiences that are coordinated with professional interior designers in the field. Formal arrangements must be made and approved by coordinator or department chair.

Kinetic Imaging

KINE 208 Introduction to Computer Techniques

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: successful completion of Art Foundation Program and permission of department chair. Covers basic video editing techniques and the software necessary for contemporary video, animation and sound art practice. Formerly CARD 208.

KINE 233 Media Arts Survey

Semester course; 3 lecture hours. 3 credits. A historical overview of contemporary media art to include video art, sound art, the Internet and other technology-based art movements. Formerly CARD 233.

KINE 234 Introduction to Animation

Semester course; 2 lecture and 3 studio hours. 3 credits. An introduction to the techniques and principles of animation as frame-by-frame sequential media, covering preproduction methods particular to animation, and a survey of historical techniques with

an emphasis in viewing and responding to animated work. Formerly CARD 234.

KINE 235 Animation I

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: KINE 208 and 234. Students will build on skills learned in KINE 234. Topics covered include principles of animation and timing, intermediate digital skills, narrative and experimental structures in animation.

KINE 236 Introduction to Video

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: KINE 208. A study of the processes and equipment necessary for producing and editing work on videotape. Formerly CARD 236.

KINE 237 Sound Communications

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: KINE 208. The basic theory and production of media-based sound. Formerly CARD 237.

KINE 291 Special Topics

Semester course; 1-4 variable hours. 1-4 credits. May be repeated for a maximum of eight credits. Various topics of special interest will be offered on a changing basis.

KINE 308 Web Technologies for Media Artists

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: KINE 208. This course investigates current and potential uses of online media. Students create content and/or disseminate their work using Internet technology; this includes inquiry into online media, social media tools and emerging web technologies.

KINE 335 Motion Graphics

Effective Spring 2015

Semester course; 2 lecture and 3 studio hours. 3 credits. May be repeated for a maximum of 6 credits. Prerequisite: KINE 235. Students will study the creation of moving graphic elements as an extension of animation and video art. The history and development of motion graphics in art, broadcast and effects studios will be examined. Students will engage in innovative development of motion graphics using current digital technology combined with experimental techniques.

KINE 336 Video I

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: KINE 236. A comprehensive course in video communication nonnarrative strategies and documentary formats. Formerly CARD 336.

KINE 337 Sound Communication II

Effective Spring 2015

Semester course; 2 lecture and 3 studio hours. 3 credits. May be repeated for a maximum of 6 credits. Prerequisite: KINE 237. Continues the focus and specialization of sound design introduced in the prerequisite course, supporting video and animation production as well as developing an awareness of sound art. Conventional and experimental approaches to sound design are covered through a series of project assignments. Students will use standard audio equipment and also more specialized technology, such as a Moog synthesizer and Theremin.

KINE 338 3-D Computer Animation I

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: KINE 208. A comprehensive

introduction to the use of the computer for modeling, rendering and animating three-dimensional objects and environments.

KINE 357 Critical Issues in the Media

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 200 or HONR 200. Topics, theory and genre affecting media and time-based mediums are explored through critical discourse, readings, screenings and lectures. Formerly CARD 357.

KINE 392 Research/Individual Study

Semester course; 1-2 lecture and 3-6 studio hours. 2-4 credits. May be repeated for a total of 8 credits. Enrollment requires permission of instructor, approval of faculty adviser and chair. The structuring, research, execution and presentation of an independent project in visual communications under the direction of a faculty adviser. The student will be encouraged to become a self-generating problem-seeker and -solver with the ability to carry out self-stated goals.

KINE 403 Senior Studio

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: senior status. To be taken in the last semester of the senior year. Critical analysis and development of the student's exit portfolio with emphasis on strengthening focus and concept inherent in the body of work. Formerly CARD 403.

KINE 434 Animation II

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: KINE 235. Students will work with advanced analogue and digital experimental animation techniques. Developing creative problem-solving strategies, students will be introduced to animation as a fine art practice, to animation on and off the screen, and in an installation and performance context.

KINE 436 Video II

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: KINE 336. A comprehensive course in video communication exploring narrative strategies and form-content relationships. Formerly CARD 436.

KINE 438 3-D Computer Animation II

Semester course; 2 lecture and 3 studio hours. 3 credits. May be repeated for a maximum of 9 credits. Prerequisite: KINE 338. Advanced study of three-dimensional computer animation.

KINE 439 Video III

Semester course; 2 lecture and 3 studio hours. 3 credits. May be repeated for a maximum of 9 credits. Prerequisite: KINE 436. An advanced course focusing on short subject pieces in video. Formerly CARD 439.

KINE 457 Socially Engaged Media

Effective Spring 2015

Semester course; 2 lecture and 3 studio hours. 3 credits. May be repeated for a maximum of 6 credits. Prerequisite: KINE 357. A studio multimedia course involving the creation of diverse artworks in a social, political and public context. Students engage in weekly projects, both independent and collaborative, along with presentations, discussions and ongoing blog entries.

KINE 458 Virtual Interactive Worlds

Effective Spring 2015

Semester course; 2 lecture and 3 studio hours. 3

credits. Maybe repeated for a maximum of 6 credits. Prerequisite: KINE 338 or permission of instructor. A transdisciplinary course exploring alternative game strategies, virtual environment aesthetics, interactivity and mixed-reality in a team project setting.

KINE 464 Animation III

Semester course; 2 lecture and 3 studio hours. 3 credits. May be repeated for a maximum of 9 credits. Prerequisite: KINE 434. An advanced course in animation studies. Students will produce a self-directed project, with progress reviewed in class critiques through the semester, culminating in a final animation-based project.

KINE 491 Studio Topics

Semester course; 2 lecture and 3 studio hours. 3 credits. May be repeated for a total of 12 credits. Topical studio focusing on research and experimentation in specialized visual communication media.

KINE 492 Internship

Semester course; variable hours. 1-3 credits. May be repeated for a maximum of 6 credits. Prerequisite: permission of the chair. Open to kinetic imaging majors only. Creative learning experiences in the professional realm under the direction and supervision of qualified practitioners.

Music Composition

MUSC 201 Class Composition I

Semester course; 2 lecture hours. 2 credits. Prerequisite: MHIS 146. Open to all music majors and required of potential composition majors; the emphasis of this class will be on simple rhythmic and melodic studies.

MUSC 315 Counterpoint I

Semester course; 3 lecture hours. 3 credits. Prerequisite: MHIS 246. This class concentrates on two-part writing, canons, species, exercises, short two-voiced pieces and inventions.

MUSC 316 Counterpoint II

Semester course; 3 lecture hours. 3 credits. Prerequisite: MHIS 246. Availability contingent upon student demand and faculty resources. Three- and four-part writing forms based on the chorale; contrapuntal variation forms and fugue will be studied.

MUSC 406 Orchestration

Semester course; 3 lecture hours. 3 credits. No degree credit for graduate composition majors. Prerequisite: MHIS 246. Application of idiomatic scoring devices for orchestral instruments and voices in both large and small combinations.

Music Education

MUED 301 Methods and Techniques: Guitar

Semester course; 2 laboratory hours. 1 credit. For music education majors only. Achievement of basic performance competencies and teaching knowledge on the guitar including chording, single-string technique, plectrum and finger styles.

MUED 302 Methods and Techniques: Voice

Semester course; 2 laboratory hours. 1 credit. For music education majors only. Achievement of

performance competencies in voice including vocal production, diction and solo and group performance.

MUED 303 Methods and Techniques: Woodwinds

Continuous courses; 2 laboratory hours. 1-1 credit. Prerequisite: completion of MUED 303 to enroll in MUED 304. For music education majors only. Achievement of performance competencies and teaching knowledge on flute, clarinet, oboe, bassoon and saxophone.

MUED 304 Methods and Techniques: Woodwinds

Continuous courses; 2 laboratory hours. 1-1 credit. Prerequisite: completion of MUED 303 to enroll in MUED 304. For music education majors only. Achievement of performance competencies and teaching knowledge on flute, clarinet, oboe, bassoon and saxophone.

MUED 305 Methods and Techniques: Brass

Semester course; 2 laboratory hours. 1 credit. For music education majors only. Achievement of performance competencies and teaching knowledge on trumpet, baritone, tuba, trombone and French horn.

MUED 306 Methods and Techniques: Strings

Semester course; 2 laboratory hours. 1 credit. For music education majors only. Achievement of performance competencies and teaching knowledge on violin, viola, cello or bass.

MUED 307 Methods and Techniques: Percussion

Semester course; 2 laboratory hours. 1 credit. For music education majors only. Achievement of performance competencies and teaching knowledge on snare drum. Introduction to basic techniques of other percussion instruments.

MUED 380 Introduction to Music Education

Semester course; 1 lecture and 2 laboratory hours. 2 credits. Prerequisite: passing score on Praxis I or the Virginia Communication and Literacy Assessment or threshold SAT/ACT scores. An introduction to the profession of music education. Emphasis on the study of the historical development of music education in the U.S. along with current thinking, trends, practices and approaches in the profession, and the formation of a personal philosophy of music education. Substantial practicum experience is a fundamental aspect of this course. Formerly MUED 390.

MUED 381 Methods and Practicum in Elementary Music Education

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisite: MUED 380. Study of current methods and materials of music education at the elementary level. Orff, Dalcroze, Kodaly, Gordon and other current music education approaches for the young child will be discussed, observed and demonstrated. An intensive directed practicum is a fundamental aspect of this course. Formerly MUED 391.

MUED 382 Secondary Methods/Practicum and Rehearsal Techniques

Semester course; 3 lecture and 2 laboratory hours. 4 credits. Prerequisites: APPM 381, MUED 381 and passing score on the Virginia Communication and Literacy Assessment. Development of the varied skills

required to successfully administer a secondary music education program. Emphasis on understanding program structure, development and methodologies; development of conducting technique, rehearsal strategies and selecting/arranging literature appropriate for musical growth of students.

MUED 384 Marching Band Techniques

Semester course; 1 lecture and 1 laboratory hour. 2 credits. Prerequisite: MUED 380. Discussion of marching band techniques that address the different components of preparation, rehearsal and presentation of events. The application of topics and discussions are presented with marching band choreography using computer software simulation.

MUED 385 Music Education Technology and Arranging

Semester course; 1 lecture and 1 laboratory hour. 2 credits. Prerequisite: MUED 380. Basic understanding of current technology in the field of music education. Specific skills developed for arranging school-aged ensembles with CAI, sequencing, productivity software and basic sound reinforcement will be the primary focus.

MUED 483 Special Workshop in Music Education

Semester course; 0.5-3 credits. Flexible semester courses on selected aspects of music education. See the Schedule of Classes for specific topics to be offered each semester.

MUED 485 Music Education Student Teaching I: Elementary

6 credits. Prerequisites: MUED 382, APPL 416, passing score on the Praxis II Music Content Knowledge and 2.8 overall GPA. Corequisite: MUED 486. The culminating field experience for music education students. An eight-week directed internship at the elementary general music education level. MUED 485 and 486 provide sequential experience and responsibilities for planning and instruction of music education for children in the P-12 setting.

MUED 486 Music Education Student Teaching II: Secondary

6 credits. Prerequisites: MUED 382, APPL 416, passing score on the Praxis II Music Content Knowledge and 2.8 overall GPA. Corequisite: MUED 485. The culminating field experience for music education students. An eight-week directed internship at the secondary instrumental or choral music education level. MUED 485 and 486 provide sequential experience and responsibilities for planning and instruction of music education for children in the P-12 setting.

Music History, Literature and Theory

MHIS 105 Introduction to Writing Music

Continuous courses; 3 lecture hours. 3-3 credits. Prerequisite: completion of MHIS 105 to enroll in MHIS 106. For non-music majors only. Creating and harmonizing melodies, principles of notation and elementary music theory. Second semester emphasis is on creative aspects.

MHIS 106 Introduction to Writing Music

Continuous courses; 3 lecture hours. 3-3 credits. Prerequisite: completion of MHIS 105 to enroll in MHIS 106. For non-music majors only. Creating and harmonizing melodies, principles of notation and elementary music theory. Second semester emphasis is on creative aspects.

MHIS 110 Elements of Music

Semester course; 3 lecture hours. 3 credits. No degree credit for music majors. A study of music notation, scale and triad forms. Aural skill development will parallel the theoretical studies. Intended to prepare music majors for core curriculum study.

MHIS 120 Introduction to World Musical Styles

Semester course; 3 lecture hours. 3 credits. A study of the major styles and forms of Western art music and non-European musical cultures and practices. Attention will be given to various aspects of music within those cultures, Western and otherwise. An emphasis will be placed on the development of active cognitive listening skills through guided listening to selected recorded music from Western and non-European societies.

MHIS 145 Theory and Aural Skills I-II

Continuous courses; 2 lecture and 3 laboratory hours. 4-4 credits. Prerequisite: completion of MHIS 145 to enroll in MHIS 146. Open to music majors and minors only. The application of music theory, aural skills and keyboard knowledge are combined in the study of harmonic and melodic structure. First semester begins with rudiments and progresses to diatonic and secondary harmony as applied to phrase structure in music. Emphasis is placed upon the development of aural skills as applied to the presented material.

MHIS 146 Theory and Aural Skills I-II

Continuous courses; 2 lecture and 3 laboratory hours. 4-4 credits. Prerequisite: completion of MHIS 145 to enroll in MHIS 146. Open to music majors and minors only. The application of music theory, aural skills and keyboard knowledge are combined in the study of harmonic and melodic structure. First semester begins with rudiments and progresses to diatonic and secondary harmony as applied to phrase structure in music. Emphasis is placed upon the development of aural skills as applied to the presented material.

MHIS 147 Jazz Theory and Aural Skills

Semester course; 3 lecture hours. 3 credits. Prerequisite: MHIS 145. Theoretical and aural recognition of established melodic, harmonic and rhythmic traditions within jazz so as to apply successfully to creative performance-practice and composition-arranging pursuits.

MHIS 201 Acoustics

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Recommended prerequisite: MATH 101. Physical properties of sound and wave mechanics applied to the study and analysis of music and musical instruments. Topics will include instrumental and vocal sound production and perception, timbral characteristics and pitch theory.

MHIS 243 Music Appreciation

Semester course; 3 lecture hours. 3 credits. Not open to music majors. Designed to encourage understanding of music from selected periods. Development of active

cognitive listening skills through guided listening to selected recorded music.

MHIS 244 Experiencing Music

Semester course; 1 lecture and 2 laboratory hours. 3 credits. Designed for the purpose of developing familiarity with the elements of music that are part of a successful performance and listening experience. Weekly attendance at both VCU and external events is part of the criteria to develop students' awareness of the creative process in shaping a musical performance.

MHIS 245 Theory and Aural Skills III-IV

Continuous courses; 2 lecture and 3 laboratory hours. 4-4 credits. Prerequisites: MHIS 146; completion of MHIS 245 to enroll in MHIS 246. Open to music majors. The application of music theory, aural skills and keyboard knowledge are combined in the study of harmonic and melodic structure. Second year continues with chromatic harmony and modulations and concludes with modern techniques as applied to form in music. Elements of popular styles and jazz are incorporated as appropriate. Emphasis is placed upon the development of aural skills as applied to the presented material.

MHIS 246 Theory and Aural Skills III-IV

Continuous courses; 2 lecture and 3 laboratory hours. 4-4 credits. Prerequisites: MHIS 146; completion of MHIS 245 to enroll in MHIS 246. Open to music majors. The application of music theory, aural skills and keyboard knowledge are combined in the study of harmonic and melodic structure. Second year continues with chromatic harmony and modulations and concludes with modern techniques as applied to form in music. Elements of popular styles and jazz are incorporated as appropriate. Emphasis is placed upon the development of aural skills as applied to the presented material.

MHIS 250/AFAM 250 Introduction to African-American Music

Semester courses; 3 lecture hours. 3 credits. An introductory survey of black involvement with the development of music in America from 1607 to the present. African-American musical styles will be studied from many aspects, including their African roots and contemporary popular expression. Performance practices will be analyzed and active cognitive listening skills developed through guided listening to selected recordings.

MHIS 291 Topics in Music

Semester course; variable hours. 1-3 credits per semester. May be repeated for a maximum of 6 credits. Flexible semester courses in selected aspects of music performance, theory, literature or history. See the Schedule of Classes for specific topics to be offered.

MHIS 303 Piano Literature

Semester courses; 2 lecture hours. 2, 2 credits. Prerequisite: open to music majors; all others must obtain permission of instructor. A survey of stringed keyboard literature. Historical, formal and stylistic considerations of the various periods and composers of keyboard music. Listening and reading assignments included. Fall semester: Baroque and Classical periods (1600-1828); spring semester: Romantic, Modern and Contemporary periods (1828-present).

MHIS 304 Piano Literature

Semester courses; 2 lecture hours. 2, 2 credits. Prerequisite: open to music majors; all others must

obtain permission of instructor. A survey of stringed keyboard literature. Historical, formal and stylistic considerations of the various periods and composers of keyboard music. Listening and reading assignments included. Fall semester: Baroque and Classical periods (1600-1828); spring semester: Romantic, Modern and Contemporary periods (1828-present).

MHIS 305 Form and Analysis I

Semester course; 2 lecture hours. 2 credits. Prerequisite: MHIS 246. An analytical study of musical forms and salient features of melody, harmony, rhythm and timbre of late Baroque, Classical, early and late Romantic compositions.

MHIS 306 Form and Analysis II

Semester course; 2 lecture hours. 2 credits. Prerequisite: MHIS 246. Study of traditional and new approaches to form in the music of the 20th century. Examination of post-tonal harmony as a determinant of form, formal aspects of motivicism, contour, rhythm, register, timbre and texture.

MHIS 307/PHYS 307 The Physics of Sound and Music

Semester course; 3 lecture hours. 3 credits. Prerequisites: A 100- or 200-level physics course or equivalent and the ability to read music or sing or play a musical instrument, or permission of instructor. Basics of the physics of waves and sound. Fourier synthesis, tone quality, human ear and voice, musical temperament and pitch, physics of musical instruments, electronic synthesizers, sound recording and reproduction, room and auditorium acoustics. Not applicable toward the physics major.

MHIS 311 Jazz Arranging I

Semester course; 3 lecture hours. 3 credits. Prerequisites: MHIS 246 and APPM 272, or permission of instructor. A study of the basic harmonic, melodic, notational and orchestration techniques needed to draft a successful jazz arrangement. The final project will be to write an arrangement for a 12-piece jazz ensemble.

MHIS 312 Jazz Arranging II

Semester course; 3 lecture hours. 3 credits. Prerequisite: MHIS 311. Advanced harmonic, melodic and orchestration techniques applied to writing for the small jazz ensemble, vocal group and large jazz orchestra.

MHIS 321 Music History I, II

Semester courses; 3 lecture hours. 3, 3 credits. Prerequisites: MHIS 120 and UNIV 200 or HONR 200. Study of Western music in a historical context from antiquity to the present. Semester courses divided into the following: antiquity through the Classical era, Romantic era to 21st century.

MHIS 322 Music History I, II

Semester courses; 3 lecture hours. 3, 3 credits. Prerequisites: MHIS 120 and UNIV 200 or HONR 200. Study of Western music in a historical context from antiquity to the present. Semester courses divided into the following: antiquity through the Classical era, Romantic era to 21st century.

MHIS 324 Jazz History

Semester course; 3 lecture hours. 3 credits. Prerequisite: MHIS 120. Study of jazz in a historical context from pre-jazz roots to contemporary styles.

MHIS 350/AFAM 350/INTL 370 Studies in the Music of the African Continent and Diaspora

Semester course; 3 lecture hours. 3 credits. May be repeated for a maximum of 6 credits. Prerequisite: MHIS 243 or MHIS/AFAM 250. An in-depth examination of selected topics and issues in African-derived musical and cultural traditions. See the Schedule of Classes for specific topics to be offered each semester.

MHIS 373 Beethoven and Brahms Symphonies

Semester course; 2 lecture hours. 2 credits. Prerequisite: MHIS 305. An overview of all symphonies will be the basis for an in-depth analysis of selected movements.

MHIS 380 Survey of the Music Industry

Semester course; 3 lecture hours. 3 credits. Topics include copyright, business organization, music production, management, recording, freelancing, grants, taxation and careers allied with music.

MHIS 382 Computers and Digital Recording

Semester course; 2 lecture and 1 studio hours. 3 credits. Prerequisite: permission of chair. Open to arts majors. Lectures, and presentations on electronics, digital technology and acoustics as they relate to studio recording. Course covers the necessary knowledge and skills to work with software and other related audio-production equipment. Taught off campus at a nearby studio. Additional fee required.

MHIS 392 Independent Study

Semester courses; variable hours. 1-6 credits per semester. Maximum total of 6 credits. Determination of the amount of credit and permission of the instructor and department chair must be obtained prior to registration for the course. Open generally only to students of junior and senior standing who have individual interests in areas not otherwise available to the student.

MHIS 405 Jazz Form and Analysis I

Semester course; 3 lecture hours. 3 credits. Prerequisite: MHIS 312. Arranging and performance-practice techniques across selected jazz styles.

MHIS 406 Jazz Form and Analysis II

Semester course; 2 lecture hours. 2 credits. Prerequisite: MHIS 405 or 411. Continuing study of arranging and performance-practice techniques across selected jazz styles.

MHIS 411 Jazz Arranging III

Semester course; 3 lecture hours. 3 credits. Availability contingent upon student demand and faculty resources. Techniques of arranging for the contemporary pop medium.

MHIS 412 Jazz Arranging IV

Semester course; 3 lecture hours. 3 credits. Prerequisite: MHIS 411. A study of the techniques used in modal, blues and other forms of contemporary jazz composition.

MHIS 420 Chamber Music Literature Through 1800

Semester course; 3 lecture hours. 3 credits. Prerequisite: MHIS 321 or 322. Historical and analytical study of selected chamber music works from the 16th, 17th and 18th centuries.

MHIS 421 Chamber Music Literature Since 1800

Semester course; 3 lecture hours. 3 credits.

Prerequisite: MHIS 321 or 322. Historical and analytical study of selected chamber music works from the 19th, 20th and 21st centuries.

MHIS 422 The History of the Symphony

Semester course; 3 lecture hours. 3 credits.

Prerequisite: MHIS 321 or 322. Historical and analytical study of selected symphonies from the 17th, 18th, 19th and 20th centuries.

MHIS 423 Tone Poems and Concert Overtures

Semester course; 3 lecture hours. 3 credits.

Prerequisite: MHIS 321 or 322. Historical and analytical study of selected tone poems and concert overtures from the 18th, 19th, 20th and 21st centuries.

MHIS 424 History of American Musical Theatre

Semester course; 3 lecture hours. 3 credits.

Prerequisite: MHIS 321 or 322. Historical and analytical study of selected musical theatre productions from the 19th, 20th and 21st centuries.

MHIS 425 Opera History

Semester course; 3 lecture hours. 3 credits.

Prerequisite: MHIS 321 or 322. Historical and analytical study of selected operas from the 17th, 18th, 19th, 20th and 21st centuries.

MHIS 465 Song Literature

Semester course; 2 lecture hours. 2 credits. A survey of the vocal literature of Germany, France, England and other countries.

MHIS 474 Bach: Goldberg Variations

Semester course; 3 lecture hours. 3 credits.

Prerequisite: MHIS 246 or permission of instructor. A study in performance aspects and theoretical analysis of the Goldberg Variations by Johann Sebastian Bach. Writings on the topic, a printed score of the work and selected recordings will serve as the content for this study.

MHIS 476 Duke Ellington

Semester course; 3 lecture hours. 3 credits.

Prerequisite: permission of instructor. An overview of the music of Duke Ellington. Lectures and presentations on Ellington recordings, writings and sources of his influences will serve as content for overview.

MHIS 491 Topics in Music

Semester course; variable hours. 1-3 credits per semester. May be repeated for a maximum of 9 credits. Flexible semester courses in selected aspects of music performance, theory, literature or history. See the Schedule of Classes for specific topics to be offered each semester.

MHIS 492 Independent Study

Semester courses; variable hours. 1-6 credits per semester. Maximum total of 6 credits. Determination of the amount of credit and permission of the instructor and department chair must be obtained prior to registration for the course. Open generally only to students of junior and senior standing who have individual interests in areas not otherwise available to the student.

Painting and Printmaking

The following graduate courses may be taken by undergraduates for degree credit: PAPR 525, 527 and 528. See the Graduate and Professional Programs Bulletin for course descriptions.

PAPR 205 Painting, Basic

Semester course; 2 lecture and 6 studio hours. 4 credits. May be repeated for a maximum of 8 credits. An introduction to the use of paints with an emphasis on the organization of the artistic image, through the use of plastic form and color, coupled with analysis of historical and contemporary work.

PAPR 209 Materials: Printmaking

Semester course; 2 lecture and 6 studio hours. 4 credits. An introduction to three principal printmaking techniques: etching, lithography and digital imaging.

PAPR 221 Drawing, Basic

Semester course; 9 studio hours. 3 credits. May be repeated for a maximum of 6 credits. Drawing instruction with attention to extension of the student's knowledge of the tools of drawing. Materials and techniques will be related to pictorial organization.

PAPR 290 Concepts and Issues

Semester course; 2 lecture hours. 2 credits. A lecture course that familiarizes students with contemporary artworks, as well as modern and postmodern concepts. Students will be introduced to contemporary issues in art through the presentation of slides, films and visiting speakers. Visits to outside events and lectures will be required.

PAPR 303 Painting, Intermediate

Semester courses; 1 lecture and 6 studio hours. 3, 3 credits. Prerequisites: 3 credits of basic painting or permission of instructor. Primary emphasis on the development of an individual direction in the context of contemporary ideas and images in painting.

PAPR 304 Painting, Intermediate

Semester courses; 1 lecture and 6 studio hours. 3, 3 credits. Prerequisites: 3 credits of basic painting or permission of instructor. Primary emphasis on the development of an individual direction in the context of contemporary ideas and images in painting.

PAPR 305 Painting, Intermediate

Semester course; 2 lecture and 6 studio hours. 4 credits. May be repeated for a maximum of 8 credits. Prerequisites: 4 credits of basic painting or permission of instructor. Primary emphasis on the development of an individual direction in the context of contemporary ideas and images in painting.

PAPR 309 Electronic Strategies

Semester course; 2 lecture and 6 studio hours. 4 credits. A digital media course designed to acclimatize students with the use of computers in the context of fine art. As opposed to common perceptions of "computer art," students will learn to use the computer as they would any other tool -- to articulate their ideas and add to their artistic practice. Through in-class exercises and homework assignments emphasizing problem-solving, students will learn to express their ideas through this emerging medium.

PAPR 315 Printmaking, Intermediate (Etching)

Semester course; 2 lecture and 6 studio hours. 4 credits. May be repeated for a maximum of 8 credits. Prerequisite: PAPR 209 or permission of instructor. Investigation of etching printmaking, drypoint, engraving, aquatint, soft grounds and related techniques.

PAPR 317 Printmaking, Intermediate (Lithography)

Semester course; 2 lecture and 6 studio hours. 4 credits. May be repeated for a maximum of 8 credits. Prerequisite: PAPR 209 or permission of instructor. Investigation of techniques and technical printing problems in lithographic printing process from stones and plates.

PAPR 319 Printmaking, Intermediate (Screenprinting)

Semester course; 2 lecture and 6 studio hours. 4 credits. May be repeated for a maximum of 8 credits. Prerequisite: PAPR 209 or permission of instructor. An investigation of cut, hand-drawn and photographic stencil techniques and printing on a variety of surfaces.

PAPR 321 Drawing, Intermediate

Semester course; 9 studio hours. 3 credits. May be repeated for a maximum of 6 credits. Prerequisites: UNIV 200 or HONR 200 and 3 credits of basic drawing, or permission of instructor. Drawing for advanced students with special emphasis on creative response to the drawing as a work of art.

PAPR 324 Drawing, Intermediate

Semester course; 9 studio hours. 3 credits. Prerequisites: 3 credits of basic drawing or permission of instructor. Drawing for intermediate students with emphasis on problematic thinking and dealing with drawing as an aesthetic form.

PAPR 326 Color

Semester course; 3 lecture hours. 3 credits. A course examining the concepts governing the use of color. Historical and contemporary concepts and methods of application will be explored.

PAPR 329 Life Drawing

Semester course; 6 studio hours. 3 credits. May be repeated for a maximum of 9 credits. Prerequisite: foundation drawing. Explores the structural and muscular systems of the human body with emphasis upon proportional relationships, chiaroscuro, contour, volume and foreshortening.

PAPR 330 Figure Painting

Semester course; 2 lecture and 6 studio hours. 4 credits. Prerequisite: PAPR 205 or permission of instructor. Designed to allow advanced painting students to work on a continuous basis with the life model in painting. The first half of the semester is focused on old master techniques and styles from earlier periods in art. The second half of the semester examines the work of contemporary figurative painters in the context of developing each student's individual approach to technique, style and content.

PAPR 355 Drawing and Painting, Intermediate

Semester course; 9 studio hours. 3, 3 credits. Prerequisites: 3 credits of basic drawing or painting or permission of instructor. Intermediate instruction in

drawing and painting. Models, both nude and clothed, and still lifes are used.

PAPR 356 Drawing and Painting, Intermediate

Semester course; 9 studio hours. 3, 3 credits.
Prerequisites: 3 credits of basic drawing or painting or permission of instructor. Intermediate instruction in drawing and painting. Models, both nude and clothed, and still lifes are used.

PAPR 392 Independent Study in Painting and Printmaking

Semester course; variable hours. 1-3 credits. May be repeated for a maximum total of six credits.
Prerequisites: junior standing as a major in painting and printmaking and approval of department chair and instructor. Individual instruction and supervision of a special project. Learning experiences should be designed with the supervising faculty member in the form of a contract between student and instructor. This course is limited to those students who have demonstrated an exceptional level of ability and intense commitment to their discipline.

PAPR 403 Painting, Advanced

Semester courses; 1 lecture and 6 studio hours. 3, 3 credits. Prerequisites: 3 credits of intermediate painting or permission of instructor. More ambitious projects with the aim of developing in the senior student a highly professional approach and achievement in his or her work. Individual as well as group discussions.

PAPR 404 Painting, Advanced

Semester courses; 1 lecture and 6 studio hours. 3, 3 credits. Prerequisites: 3 credits of intermediate painting or permission of instructor. More ambitious projects with the aim of developing in the senior student a highly professional approach and achievement in his or her work. Individual as well as group discussions.

PAPR 405 Painting, Advanced

Semester course; 2 lecture and 6 studio hours. 4 credits. May be repeated for a maximum of 20 credits. Prerequisites: 4 credits of intermediate printmaking or permission of instructor. More ambitious projects with the aim of developing in senior students a highly professional approach and achievement in their work. Individual as well as group discussions.

PAPR 409 Large Format Digital Printing

Semester course; 2 lecture and 6 studio hours. 4 credits. Prerequisite: PAPR 209. Engages students in the use of digital tools in printmaking. Students will investigate developments in digital culture in relation to print's history and future. Creative applications of digital tools, with an emphasis on the digital print, form the heart of this course.

PAPR 412 Printmaking, Advanced (Lithography)

Semester course; 9 studio hours. 3 credits.
Prerequisites: 3 credits of intermediate printmaking or permission of instructor. Specialization in one medium. Aesthetic suitability of the design to a particular medium is emphasized.

PAPR 413 Printmaking, Advanced (Etching)

Semester course; 9 studio hours. 3 credits.
Prerequisites: 3 credits of intermediate printmaking or permission of instructor. Concentration on one medium with emphasis on creative techniques.

PAPR 415 Printmaking, Advanced (Etching)

Semester course; 2 lecture and 6 studio hours. 4 credits. May be repeated for a maximum of 20 credits. Prerequisites: 4 credits of intermediate printmaking or permission of instructor. Specialization in one medium with emphasis upon technical research and aesthetic suitability of the design to the particular medium used.

PAPR 417 Printmaking, Advanced (Lithography)

Semester course; 2 lecture and 6 studio hours. 4 credits. May be repeated for a maximum of 20 credits. Prerequisites: 4 credits of intermediate printmaking or permission of instructor. Further investigation of techniques and technical printing problems in the lithographic printing process from stones and plates.

PAPR 419 Printmaking, Advanced (Screenprinting)

Semester course; 2 lecture and 6 studio hours. 4 credits. May be repeated for a maximum of 20 credits. Prerequisites: 4 credits of intermediate printmaking or permission of instructor. Further exploration of cut, hand-drawn and photographic stencil techniques and printing on a variety of surfaces.

PAPR 421 Drawing, Advanced

Semester course; 9 studio hours. 3 credits. May be repeated for a maximum of 15 credits. Prerequisites: 3 credits of intermediate drawing or permission of instructor. A studio for drawing with individual criticism. Special attention is given to contemporary concepts.

PAPR 423 Experimental Printmaking

Semester course; 2 lecture and 6 studio hours. 4 credits. May be repeated for a maximum of 8 credits. Prerequisites: 3 credits of intermediate printmaking or permission of instructor. Relief printing, collographs, monoprints, photoengraving and mixed media will be investigated.

PAPR 455 Drawing and Painting, Advanced

Continuous courses; 9 studio hours. 3-3 credits. Prerequisites: 3 credits of intermediate drawing or painting or permission of instructor; completion of PAPR 455 to enroll in PAPR 456. Advanced instruction in drawing and painting. Models, both nude and clothed, and still lifes are used.

PAPR 456 Drawing and Painting, Advanced

Continuous courses; 9 studio hours. 3-3 credits. Prerequisites: 3 credits of intermediate drawing or painting or permission of instructor; completion of PAPR 455 to enroll in PAPR 456. Advanced instruction in drawing and painting. Models, both nude and clothed, and still lifes are used.

PAPR 490 Senior Seminar

Semester course; 3 lecture hours. 2 credits. Information to help graduating seniors in the department of painting and printmaking meet the professional requirements involved in exhibiting and promoting their creative work and in functioning as an artist. Writing intensive.

PAPR 491 Topics in Painting and Printmaking

Semester course; 1-4 credits. May be repeated with different topics for a maximum of 12 credits. Topical course focusing on creative expression and research in the areas of painting and printmaking. See the Schedule of Classes for specific topics to be offered.

PAPR 492 Independent Study in Painting and Printmaking

Semester course; variable hours. 1-3 credits. May be repeated for a maximum total of six credits. Prerequisites: senior status as a major in painting and printmaking and approval of department chair and instructor. Individual instruction and supervision of a special project. Learning experiences should be designed with the supervising faculty member in the form of a contract between student and instructor. This course is limited to those students who have demonstrated an exceptional level of ability and intense commitment to their discipline.

Photography and Film

PHTO 201 Sophomore Photography Seminar

Semester course; 1 lecture hour. 1 credit. Prerequisite: sophomore standing in Department of Photography and Film. Introduces various methods and means of exhibition.

PHTO 202 Sophomore Film Seminar

Semester course; 1 lecture hour. 1 credit. Prerequisite: sophomore standing in the Department of Photography and Film. Students will learn all aspects of organizing a film festival that will be held at the end of the spring semester.

PHTO 233 Elements of the Moving Image

Semester course; 4 lecture hours. 4 credits. A survey of new media and their origins. An exploration of this visual phenomena and its relationship to modern society.

PHTO 243 Darkroom

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: sophomore standing in the department. Manual 35mm film camera is required. Study of fundamental camera techniques and photographic processes including darkroom printing. Emphasizes professional standards, technical proficiency and individual artistic expression.

PHTO 245 Design Photography I

Semester course; 2 lecture and 3 studio hours. 3 credits. For communication art and design majors only or permission of instructor. A comprehensive beginning class covering an introduction to the camera, the process of exposure, developing, and black-and-white printmaking.

PHTO 260 Experiments in Sequencing

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: PHTO 243. Explores the history, contexts and applications of sequencing as a unifying artistic practice. Emphasis is placed on sequencing as it relates to visual communication and contemporary multimedia.

PHTO 275 Film as Material

Semester course; 2 lecture and 3 studio hours. Prerequisite: sophomore standing in the department. Study of the fundamental techniques and processes of 16mm film production, including cameras, lighting and composition. Emphasizes technical proficiency and individual artistic expression.

PHTO 280 Moving Pixels

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: sophomore standing in the department. Introduction to digital video, computer

imaging and interactive multimedia as tools of artistic expression and social inquiry.

PHTO 281 Digital Imaging I

Semester course; 2 lecture and 3 studio hours. Prerequisite: sophomore standing in the department. Digital still image camera is required. Study of fundamental techniques and processes of digital image-making, including image capture, manipulation and digital printing. Emphasizes professional standards, technical proficiency and individual artistic expression.

PHTO 289 Filmmaking for Non-majors

Semester course; variable hours. 1-3 credits. May be repeated for a maximum of 6 credits. Digital motion picture camera is required. Study of fundamental techniques and processes of digital filmmaking, including image and audio recording, editing and exporting digital media. Emphasizes media as a tool of artistic expression and social inquiry.

PHTO 290 Photography for Non-majors

Semester course; variable hours. 1-3 credits. May be repeated for a maximum of 6 credits. Digital still image camera is required. Study of fundamental techniques and processes of digital image-making, including image capture, manipulation and digital printing. Emphasizes professional standards, technical proficiency and individual artistic expression.

PHTO 295 Revolutionary Cinema

Semester course; 3 lecture hours. 3 credits. Prerequisite: PHTO 280. Investigates a range of experimental/underground/alternative moving image art forms and styles and covers key historical moments in the avant-garde. Emphasizes attentive viewing and critical analysis of works that challenge dominant media conventions.

PHTO 301 Junior Seminar

Semester course; 1 studio hour. 1 credit. Prerequisite: junior standing in the Department of Photography and Film. Instruction in how to make an artist website using current technology and 2-D design principles.

PHTO 307 Processes and Techniques

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: PHTO 243. Explores alternative photographic techniques with an emphasis on handmade printing. Places various photographic practices and aesthetics in a historical context. Students develop personal awareness of their creative process in the pursuit of a conceptually coherent body of work.

PHTO 309 View Camera Operation and Technique

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: PHTO 243 or 245 or permission of instructor. A course in understanding and using the 4x5 view camera for optimum photographic results. Emphasis is on how the camera functions, the use of Polaroid materials, and developing and printing larger format negatives to produce high quality prints.

PHTO 340 Lighting I: Studio

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: PHTO 243 and PHTO 281. Introduces controlled lighting for still photography in the studio. Students use continuous light sources and professional grade strobe equipment to explore tabletop and portraiture photography through lectures

and studio assignments. Emphasizes professional standards, technical proficiency and individual artistic expression.

PHTO 341 Intermediate Photography

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: PHTO 243 or permission of the instructor. Previsualizing the photographic image through controlled exposure and film development techniques using the Zone System. Emphasis on expanding the student's ability to express ideas photographically. Discussion of student work in regular critiques.

PHTO 350 Concepts I

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: UNIV 200 or HONR 200 and PHTO 281. Students utilize the aesthetic and technical skills mastered in previous courses to explore photography as a conceptual tool. Emphasizes both historic and contemporary contextualizations of the medium and fosters development of a long-term, personal artistic project.

PHTO 351 Portrait Photography

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: PHTO 345 Design Photography or PHTO 350 Intermediate Photography. Students explore the various visual possibilities of the use of portrait photography.

PHTO 352 Concepts II: Junior Project

Semester course; 2 lecture and 3 studio hours. Prerequisite: PHTO 350. Students complete a conceptually coherent body of work that engages with photography as an artistic medium. Course emphasizes advanced understanding of historical perspectives and critical theory as they relate to the development of a personal project.

PHTO 361 Sound and Color

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: PHTO 280 and PHTO 281. Explores advanced concepts and techniques in sound design, editing, color grading and postproduction workflow for film, video and multimedia.

PHTO 370 Filmmaker as Director

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: PHTO 376 or permission of instructor. Develop a methodology for working with actors in a film production, by arranging auditions, creating an environment for improvisation and analyzing an actor's performance. Learn how to integrate a performance into the total filmmaking process.

PHTO 376 Filmmaking II

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: PHTO 375 and PHTO 233. Techniques for production of short films with emphasis on light as the primary expressive tool.

PHTO 377 The Film Image

Semester course; 3 lecture hours. 3 credits. May be repeated for a maximum of 9 credits. An examination of production techniques and problems encountered by the filmmaker in creating the motion picture image. A selected number of narrative, documentary, experimental and animated films are viewed as source material and dealt with from a production point of view. The films chosen for discussion vary from semester to semester.

PHTO 381 Digital Imaging II

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: PHTO 281. Digital still image camera is required. Study of advanced techniques and processes of digital image-making, including advanced manipulation and color control and advanced digital printing. Emphasizes professional standards, technical proficiency and individual artistic expression.

PHTO 382 Advanced Digital Printing

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: PHTO 380 and 381. How to manage a digital color workflow in order to produce desired colors and tonal values in the final output -- the print. Instruction in controlling image management, color calibration and printing through lectures, demonstration and hands-on experience. Discussion of student work in regular critiques.

PHTO 390 Writing for the Screen

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: UNIV 200 or HONR 200. Explores basic theory and formal aspects of story, structure and character through readings, workshops and writing exercises. Students develop skills specific to writing and pre-producing a short fiction, documentary or experimental film.

PHTO 391 Topics in Photography and Film

Semester course; variable hours. 1-3 credits. May be repeated with different topics for a maximum of 6 credits. A lecture and/or studio course offered on a variety of photography or film issues. See the Schedule of Classes for specific topics covered each semester.

PHTO 392 Animation

Semester course; 2 lecture and 3 studio hours. 3 credits. Explores various materials and processes, analog and digital, involved in creating animated moving image works. Emphasizes studio technique and artistic exploration.

PHTO 393 Film Animation II

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: PHTO 392. Advanced techniques for the production of a short animated film.

PHTO 394 Documentary I

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: UNIV 200 or HONR 200, PHTO 360 and 390. Introduces strategies for developing, shooting and editing various types of documentary and nonfiction media including, but not limited to, the electronic essay, biography/portraiture, ethnographic film and new genres. Covers key historical moments and ethical issues related to the representation of the real world.

PHTO 420 Senior Thesis I

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: senior standing in the department. Critical analysis and development of a yearlong creative thesis project with emphasis on the completion of a conceptually coherent body of work. Course emphasizes professional standards, technical proficiency and individual artistic expression informed by historical perspectives and critical theory.

PHTO 421 Senior Thesis II

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: PHTO 420. Critical analysis and development of a yearlong creative thesis project with emphasis on the completion of a conceptually coherent

body of work. Course emphasizes professional standards, technical mastery and individual artistic expression informed by historical perspectives and theory. This course is a capstone experience integrating effective oral, written and visual communication, critical thinking and advanced studio techniques.

PHTO 435 Professional Practice

Semester course; 3 lecture hours. 3 credits. Examines a range of business models, practices and tools applicable to building a career in photography and related artistic, commercial and media fields. Emphasizes practical skills, marketing, legal and ethical issues.

PHTO 436 Senior Suitcase

Semester course; 3 lecture hours. 3 credits. Examines a range of professional practices and tools applicable to building a career in the media arts. Students develop ancillary materials related to their overall student film portfolio. Emphasizes practical skills, marketing and audience-engagement issues.

PHTO 442 Lighting II: Location

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: PHTO 340. Explores photography using lighting design on location. Students concentrate on balancing and matching available lighting with electronic flash and continuous lighting tools. Emphasis is on the technical, professional and logistical skills required of a photographer working on location assignments and on using creative approaches to lighting and image design.

PHTO 474 Contemporary Critical Perspectives

Semester course; 3 lecture hours. 3 credits. Prerequisite: PHTO 352. Explores and interrogates multiple theories of representation and the aesthetic, ideological, ethical and cultural issues raised by contemporary photography and related media. Students will view work, read contemporary criticism, engage in discussion and produce original, critical writing.

PHTO 475 Advanced Production Workshop

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: PHTO 390. A practical, intensive workshop in which students work collaboratively in standard industry crew positions to complete a single project. Students explore craft, aesthetics, storytelling and production issues at an advanced level.

PHTO 476 Filmmaking Workshop

Continuous courses; 1 lecture and 6 studio hours. 3-3 credits. Prerequisites: UNIV 200 or HONR 200 and permission of instructor; completion of PHTO 475 to enroll in PHTO 476. The production of a motion picture with the assistance of students in the various production crew roles.

PHTO 481 Filmmaking III

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: PHTO 376. Techniques for production of short film projects in 16mm format with emphasis on sound as an integral part of production.

PHTO 484 Thesis Film I

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: PHTO 475. Students complete writing, previsualization, preproduction and initial

production on their thesis films. Students engage in workshops, screenings and critiques in order to further develop their professional identities and to advance their understanding of the methods and tools deployed by independent film and media artists.

PHTO 485 Thesis Film II

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: PHTO 484. Students complete all production, editing, sound design and outreach materials for their thesis films. Students engage in workshops, screenings and critiques in order to further develop their professional identities and to advance their understanding of the methods and tools deployed by independent film and media artists. This course is a capstone experience integrating effective oral, written and visual communication, critical thinking and advanced studio techniques.

PHTO 489 Motion Picture Special Effects

Continuous courses; 1 lecture and 6 studio hours. 3-3 credits. Prerequisites: PHTO 376 or permission of instructor; completion of PHTO 489 to enroll in PHTO 490. An exploration of special effects for film production.

PHTO 490 Motion Picture Special Effects

Continuous courses; 1 lecture and 6 studio hours. 3-3 credits. Prerequisites: PHTO 376 or permission of instructor; completion of PHTO 489 to enroll in PHTO 490. An exploration of special effects for film production.

PHTO 491 Topics in Photography and Film

Semester course; variable hours. 1-4 credits. May be repeated with different topics for a maximum of 12 credits. A seminar or workshop that intensively engages photography, film and related-media subjects, including, but not limited to, a range of historical and contemporary photographic/cinematic practices, trends, theories and concerns within a wider artistic and art historical context. See the Schedule of Classes for specific topics covered each semester.

PHTO 492 Independent Study in Photography and Film

Semester course; variable hours. 1-3 credits. May be repeated for a maximum total of 6 credits. Prerequisites: junior or senior standing as a major in photography and film, and approval of department chair and instructor. Individual instruction and supervision of a special project. Learning experiences should be designed with the supervising faculty member in the form of a contract between student and instructor. This course is limited to those students who have demonstrated an exceptional level of ability and intense commitment to their discipline.

PHTO 494 Documentary II

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: PHTO 394. Students will explore advanced concepts and techniques in documentary and nonfiction media creation through in-class exercises, screenings, independent productions and group critiques.

PHTO 495 Photography and Film Internship

Semester course; 10 hours per week for a total of 150 hours of professional work experience. 3 credits. May be repeated. Prerequisite: consent of internship supervisor and academic adviser. Practical work experiences are coordinated with professionals in the field of photography, film and related media.

Sculpture and Extended Media

SCPT 209 Introduction to Sculpture

Semester courses; 2 lecture and 3 studio hours. 3, 3 credits. Open to non-art majors only. The course will offer an opportunity for students to work with some of the ideas and materials of sculpture through slides, lecture and studio involvement.

SCPT 210 Introduction to Sculpture

Semester courses; 2 lecture and 3 studio hours. 3, 3 credits. Open to non-art majors only. The course will offer an opportunity for students to work with some of the ideas and materials of sculpture through slides, lecture and studio involvement.

SCPT 211 Basic Sculpture I

Semester course; 2 lecture and 6 studio hours. 4 credits. The primary goal of this course is the effective expression of ideas. The student is introduced to the basic tools, materials and techniques with attention given to problem-solving.

SCPT 212 Basic Sculpture II

Semester course; 2 lecture and 6 studio hours. 4 credits. Prerequisite: SCPT 211. The primary goal of this course is the effective expression of ideas. The student uses advanced techniques that build upon the basic skills taught in Basic Sculpture I with attention given to problem-solving.

SCPT 215 Sophomore Seminar

Semester course; 2 lecture hours. 2 credits. Open only to sculpture majors. Designed for sophomore sculpture majors as a supplement to studio courses in the department. Emphasis is placed on articulating and expanding upon individual interests in relation to studio practices.

SCPT 217 Sculptural Concepts

Semester courses; 3 lecture and 3 studio hours. 4, 4 credits. Prerequisite: permission of instructor. A study of contemporary technology, philosophy, criticism and their relation to material resources and technical practices.

SCPT 218 Sculptural Concepts

Semester courses; 3 lecture and 3 studio hours. 4, 4 credits. Prerequisite: permission of instructor. A study of contemporary technology, philosophy, criticism and their relation to material resources and technical practices.

SCPT 290 Concepts and Issues

Semester course; 2 lecture hours. 2 credits. Prerequisite: completion of Art Foundation. A lecture course that familiarizes students with contemporary artworks, as well as modern and postmodern concepts. This class presents contemporary issues in art through the presentation of media and visiting speakers. Visits to outside events and lectures will be required.

SCPT 311 Intermediate Sculpture

Semester courses; 3 lecture and 6 studio hours. 4, 4 credits. May be repeated for a maximum of 8 credits. Prerequisite: SCPT 212. The emphasis in this course is on creative independence. The student is encouraged to utilize a variety of materials in order to express his ideas.

SCPT 312 Intermediate Sculpture

Semester courses; 3 lecture and 6 studio hours. 4, 4 credits. May be repeated for a maximum of 8 credits. Prerequisite: SCPT 212. The emphasis in this course is on creative independence. The student is encouraged to utilize a variety of materials in order to express his ideas.

SCPT 313 Dimensional Concepts

Semester courses; 2 lecture and 6 studio hours. 4, 4 credits. An opportunity for the sculpture student to extend and expand upon traditional methods of expression and to explore new areas.

SCPT 314 Dimensional Concepts

Semester courses; 2 lecture and 6 studio hours. 4, 4 credits. An opportunity for the sculpture student to extend and expand upon traditional methods of expression and to explore new areas.

SCPT 321 Figure Modeling

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: completion of Art Foundation. This course provides instruction in fundamental figure modeling skills working with clay and from live models.

SCPT 322 Flexible Molds

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: completion of Art Foundation. This course provides instruction on a variety of moldmaking techniques, including plaster and flexible moldmaking materials.

SCPT 323 Foundry

Semester course; 2 lecture and 6 studio hours. 4 credits. Prerequisite: SCPT 322. This course provides instruction in bronze and aluminum metal casting using the lost wax process, ceramic shell.

SCPT 324 Robotics for Sculpture

Semester course; 2 lecture and 6 studio hours. 4 credits. Prerequisite: completion of Art Foundation. This course provides instruction in the construction, programming and integration of microcontrollers in conjunction with the use of switches, motors and other devices.

SCPT 411 Advanced Sculpture

Semester courses; 2 lecture and 6 studio hours. 4, 4 credits. May be repeated for a maximum of 16 credits. Prerequisite: SCPT 212. The majority of the student's activities occur in the studio with emphasis on the development of a personal style.

SCPT 412 Advanced Sculpture

Semester courses; 2 lecture and 6 studio hours. 4, 4 credits. May be repeated for a maximum of 16 credits. Prerequisite: SCPT 212. The majority of the student's activities occur in the studio with emphasis on the development of a personal style.

SCPT 413 Dimensional Concepts

Semester courses; 2 lecture and 6 studio hours. 4, 4 credits. An opportunity for the sculpture student to extend and expand upon traditional methods of expression and to explore new areas.

SCPT 414 Dimensional Concepts

Semester courses; 2 lecture and 6 studio hours. 4, 4 credits. An opportunity for the sculpture student to extend and expand upon traditional methods of expression and to explore new areas.

SCPT 415 Senior Seminar

Semester course; 2 lecture hours. 2 credits. Open only to sculpture majors. Designed for graduating sculpture students. Focus is on professional development and preparation for the possibility of graduate school.

SCPT 417 Seminar in Contemporary Sculpture

Semester course; 4 lecture hours. 4 credits. May be repeated for a maximum of 12 credits. Prerequisite: SCPT 212. A forum for consideration and discussion of recent developments.

SCPT 419 Professional Studio Practicum

Semester course; 9 studio hours. 3 credits. May be repeated for a total of 6 credits. Enrollment requires permission of departmental chair. A studio class that provides a continuation of the student's work in sculpture. This course will be recorded as an elective for a sculpture major.

SCPT 480 Critical Issues

Semester course; 4 lecture hours. 4 credits. Prerequisite: completion of Art Foundation. This advanced course examines diverse critical and aesthetic issues through the study of a select group of highly innovative international artists.

SCPT 491 Topics in Sculpture

Semester course; 1-4 credits. May be repeated for a maximum of 16 credits. Prerequisite: permission of instructor. A seminar or workshop on a selected issue or topic in the field of sculpture. See the Schedule of Classes for specific topics to be offered each semester.

SCPT 492 Independent Study in Sculpture

Semester course; variable hours. 1-4 credits. May be repeated for a maximum total of 8 credits. Prerequisites: senior standing as a major in sculpture and approval of department chair and instructor. Individual instruction and supervision of a special project. Learning experiences should be designed with the supervising faculty member in the form of a contract between student and instructor. This course is limited to those students who have demonstrated an exceptional level of ability and intense commitment to their discipline.

SCPT 493 Sculpture Internship

Semester course; 40 contact hours per credit. 1-6 credits. May be repeated for a maximum of 12 credits. Prerequisite: SCPT 311 or SCPT 312. Open to junior- and senior-level sculpture majors only. A practicum in which students work with professionals in the field.

Speech**SPCH 121 Effective Speech**

Semester course; 3 lecture hours. 3 credits. Structured speaking and critical listening experiences within the basic forms of speech communication: interpersonal, small group and public.

SPCH 321 Speech for Business and the Professions

Semester course; 3 lecture hours. 3 credits. Theory and practice in the oral communication process. Organization and presentation of informative and persuasive subject matter in professional contexts related to the student's major area of interest.

Theatre

With permission of instructor, the following graduate courses may be taken by undergraduates for degree credit: THEA 501-502, THEA 505-506, THEA 508 and THEA 513-514. Graduate-level course descriptions are available online: <http://www.vcu.edu/bulletins>.

THEA 103 Stagecraft

Semester course; 9 studio hours. 3 credits. Restricted to theatre majors. The fundamental methods, materials and techniques of set construction for the stage. Participation in departmental productions.

THEA 104 Costume Construction

Semester course; 9 studio hours. 3 credits. Restricted to theatre majors. The fundamental methods, materials and techniques of costume construction for the stage. Participation in departmental productions.

THEA 105 Advanced Costume Construction

Semester course; 1 lecture and 3 studio hours. 3 credits. Prerequisite: THEA 104. Focuses on the development of skills needed to function as a stitcher in a theatrical costume shop through practical application of techniques and processes.

THEA 107 Introduction to Stage Performance

Semester courses; 3 lecture hours. 3, 3 credits. For non-theatre majors. A survey and application of the basic elements in stage performing; acting, scene study, voice and movement.

THEA 108 Introduction to Stage Performance

Semester courses; 3 lecture hours. 3, 3 credits. For non-theatre majors. A survey and application of the basic elements in stage performing; acting, scene study, voice and movement.

THEA 113 Introduction to Acting I

Semester course; 1 lecture and 2 studio hours. 3 credits. Open only to theatre majors upon satisfactory audition. An introduction to and exploration of performance skills through theatre games, role-playing, improvisation and work on basic script units.

THEA 114 Introduction to Acting II

Semester course; 1 lecture and 2 studio hours. 3 credits. Open only to theatre majors upon satisfactory audition. Study of the basic Stanislavski System and practicing toward competency of applying this system to monologue and scene study.

THEA 121 Introduction to Drawing

Semester course; 2 lecture hours. 2 credits. Open only to theatre majors. An introduction to drawing skills. Topics include line quality and contour, volume, value with shading and crosshatching, texture, space and composition, perspective, gesture, and figure drawing.

THEA 122 Color Theory

Semester course; 2 lecture hours. 2 credits. Open only to theatre majors. An introduction to color theory. Topics covered include how to create different values, hues and intensities, and how to mix color to best express a specific artistic intent.

THEA 161 Figure Drawing: Superficial Anatomy

Semester course; 1 lecture and 4 studio hours. 2 credits. Introductory course focused on developing

drawings from direct observations of the figure. The specific problem will be the study of superficial anatomy as related to costume design. Various drawing and painting media will be explored.

THEA 162 Figure Drawing: Draping the Human Form

Semester course; 1 lecture and 4 studio hours. 2 credits. Focus on developing drawings from direct observations of the figure and folds, students will show the surface influence of superficial anatomy on the draped figure. Various drawing and painting media will be explored.

THEA 201 Voice and Speech for the Actor I

Semester course; 1 lecture and 2 studio hours. 3 credits. Open only to theatre majors upon satisfactory audition. A study of the basic elements of voice and speech for actors.

THEA 202 Voice and Speech for the Actor II

Semester course; 1 lecture and 2 studio hours. 3 credits. Continuing study elements of voice and speech and practicing toward competency of applying these skills to text.

THEA 203 Movement for the Actor I

Semester course; 1 lecture and 2 studio hours. 3 credits. Open only to theatre majors upon satisfactory audition. Practice and study of stage movement for the purpose of creating truthful physical behavior in the theatre.

THEA 204 Movement for the Actor II

Semester course; 1 lecture and 2 studio hours. 3 credits. Continuing study of creating truthful physical behavior in the theatre, leading toward competency of applying same to characters and text.

THEA 211 Introduction to Drama

Semester course; 3 lecture hours. 3 credits. Analysis and critical examination of plays for methods of interpretation and production qualities.

THEA 212 Introduction to Drama II

Semester course; 3 lecture hours. 3 credits. Analysis and critical examination of plays for methods of interpretation and production qualities.

THEA 213 Acting I

Semester course; 1 lecture and 2 studio hours. 3 credits. Open only to theatre majors upon satisfactory audition. Exploration of the Stanislavski System with particular emphasis on emotional availability, point of view and personalization techniques.

THEA 214 Acting II

Semester course; 1 lecture and 2 studio hours. 3 credits. Prerequisite: THEA 213. Open only to theatre majors upon satisfactory audition. Study of point of view with personalization and emotional availability and practicing toward competency of applying these techniques to monologue and scene study culminating in the sophomore assessment audition.

THEA 217 Theatrical Drafting

Semester course; 1 lecture and 4 studio hours. 2 credits. An introduction to the practices and procedures used in communicating technical and design information among a range of theatre practitioners. Focus on traditional hand-drafting techniques.

THEA 218 Introduction to Scene Painting

Semester course; 1 lecture and 4 studio hours. 3 credits. An introduction to fundamental scene painting technique. Students will have the opportunity to study the materials and techniques of scene painting as well as the practices and expectations of a career in scenic artistry.

THEA 219 Fundamentals of Entertainment Technology

Semester course; 3 lecture hours. 3 credits. Introduction to the physical science underlying various disciplines of technical theatre.

THEA 221 Introduction to Scene Design

Semester course; 3 lecture hours. 3 credits. Restricted to theatre majors. An introduction to the theories, practices and procedures of designing for the stage.

THEA 223 Practicum in Theatre Technology

Semester courses; 9 studio hours. 3, 3 credits. Prerequisites: THEA 103 and THEA 104. Restricted to theatre majors. Advanced study in theatre technologies and the materials and methodologies of stage construction.

THEA 224 Practicum in Theatre Technology

Semester courses; 9 studio hours. 3, 3 credits. Prerequisites: THEA 103 and THEA 104. Restricted to theatre majors. Advanced study in theatre technologies and the materials and methodologies of stage construction.

THEA 225 Electricity for the Stage

Semester course; 3 lecture hours. 3 credits. Restricted to theatre majors. A study of the properties and basic principles of electricity as they relate to the utilization of light on the stage. Participation in departmental productions.

THEA 227 Introduction to Theatrical Makeup

Semester course; 2 lecture and 2 studio hours. 3 credits. Prerequisite: THEA 104 or permission of instructor. Teaches basic makeup practices for theatrical work. Students will gain an introductory knowledge of the physiological structure of the human face and how to alter appearance of an actor through the use of stage-makeup and basic prosthetic appliances. These skills will be evaluated through practical applications and studio work.

THEA 228 Introduction to Costume Design

Semester course; 2 lecture and 2 studio hours. 3 credits. Prerequisite: THEA 227 or permission of instructor. Introduces students to the costume design process including: the techniques of drawing to aid in facilitating costume design, paperwork required of the costume designer, and costume sketching and painting techniques. Students will employ critical thinking in their evaluation of the costume design process and concurrently be introduced to the skills required in the design process through practical design projects.

THEA 229 Introduction to Lighting Design

Semester course; 2 lecture and 3 studio hours. 3 credits. Restricted to theatre majors. A study of issues concerning the properties of light and electricity as they relate to theatre including design, composition and color.

THEA 251 Rehearsal and Performance

Semester courses; 2, 4 or 6 studio hours. 1, 2 or 3 credits. Restricted to theatre majors. Work in acting,

management, design or technical areas within a TheatreVCU production.

THEA 252 Rehearsal and Performance

Semester courses; 2, 4 or 6 studio hours. 1, 2 or 3 credits. Restricted to theatre majors. Work in acting, management, design or technical areas within a TheatreVCU production.

THEA 261 Figure Drawing: Media and Technique

Semester course; 1 lecture and 4 studio hours. 2 credits. This course will explore various traditional wet and dry media techniques in depicting representational costume design. Assignments will incorporate applicable references to art history.

THEA 262 Figure Drawing: Advanced Media and Technique

Semester course; 1 lecture and 4 studio hours. 2 credits. Prerequisite: THEA 261. An advanced course investigating various traditional wet and dry media techniques depicting the human form and costuming. Assignments will incorporate applicable references to the history of art and contemporary developments.

THEA 292 Independent Study in Theatre

Semester course; variable hours. 1-3 credits. May be repeated for a maximum total of six credits. Prerequisites: sophomore standing as a major in theatre and approval of department chair and instructor. Individual instruction and supervision of a special project. Learning experiences should be designed with the supervising faculty member in the form of a contract between student and instructor. This course is limited to those students who have demonstrated an exceptional level of ability and intense commitment to their discipline.

THEA 301 Advanced Voice and Speech for the Actor I

Semester course; 1 lecture and 2 studio hours. 3 credits. Prerequisite: THEA 202. Open only to theatre majors upon satisfactory audition. Building upon lessons and skills practiced in the prerequisite course, an introduction to advanced elements of voice and speech and practicing toward competency of applying these skills to text.

THEA 302 Advanced Voice and Speech for the Actor II

Semester course; 3 studio hours. 3 credits. Prerequisite: THEA 301 with a minimum grade of B. Building upon lessons and skills practiced in the prerequisite, continuing study in advanced elements of voice and speech and practicing toward competency of applying these skills to text.

THEA 303/AFAM 303 Black Theatre

Semester course; 3 lecture hours. 3 credits. A study of the major developments in the evolution of black theatre through readings and studio performances in black-related and black theatre dramaturgy.

THEA 305 Advanced Scenic Design I

Semester course; 1 lecture and 3 studio hours. 3 credits. Prerequisite: THEA 221. Open only to theatre majors. A study of the techniques and methods of scene design.

THEA 306 Advanced Scenic Design II

Semester course; 1 lecture and 3 studio hours. 3 credits. Prerequisite: THEA 221. Open only to theatre majors. Advanced study of the techniques and methods of scene design.

THEA 307 History of the Theatre

Continuous courses; 3 lecture hours. 3-3 credits. Prerequisites: UNIV 200 or HONR 200; completion of THEA 307 to enroll in THEA 308. Restricted to theatre majors. A study and analysis of theatre history: the architecture, the performer and performances, the stage, the production methods and the audience.

THEA 308 History of the Theatre

Continuous courses; 3 lecture hours. 3-3 credits. Prerequisites: UNIV 200 or HONR 200; completion of THEA 307 to enroll in THEA 308. Restricted to theatre majors. A study and analysis of theatre history: the architecture, the performer and performances, the stage, the production methods and the audience.

THEA 309 History of Costumes

Semester courses; 3 lecture hours. 3, 3 credits. Illustrated lectures on the history of clothing from primitive times to the present.

THEA 310 History of Costumes

Semester courses; 3 lecture hours. 3, 3 credits. Illustrated lectures on the history of clothing from primitive times to the present.

THEA 311 Advanced Movement for the Actor I

Semester course; 1 lecture and 2 studio hours. 3 credits. Open only to theatre majors upon completion of satisfactory audition. Advanced study of movement for the actor emphasizing physical control, flexibility and various physical performance techniques.

THEA 312 Advanced Movement for the Actor II

Semester course; 1 lecture and 2 studio hours. 3 credits. Prerequisite: THEA 311 with a minimum grade of B. Building on the lessons of the prerequisite, continuing practice of movement skills toward proficiency in creating truthful physical behavior in the theatre.

THEA 313 Actor's Studio I

Semester course; 1 lecture and 2 studio hours. 3 credits. Open only to theatre majors upon completion of satisfactory audition. Scene study and exploration of personalized character work as it applies to modern acting.

THEA 314 Actor's Studio II

Semester course; 1 lecture and 2 studio hours. 3 credits. Prerequisite: THEA 313 with a minimum grade of B. Building on the lessons of the prerequisite, continuing exploration of personalized character work as it applies to modern acting.

THEA 315 Audition Technique

Semester course; 1 lecture and 4 studio hours. 3 credits. Prerequisites: minimum grade of B in THEA 313. Open only to theatre majors upon completion of a satisfactory audition or with permission of instructor. Concentrated work using various techniques and methods of auditioning for the stage, television and film.

THEA 262 Figure Drawing: Advanced Media and Technique

Semester course; 1 lecture and 4 studio hours. 2 credits. Prerequisite: THEA 261. An advanced course investigating various traditional wet and dry media techniques depicting the human form and costuming. Assignments will incorporate applicable references to the history of art and contemporary developments.

THEA 318 Musical Theatre Performance II

Semester course; 1 lecture and 2 studio hours. 3 credits. Prerequisite: THEA 317. Open only to theatre majors upon completion of a satisfactory audition. Continuation of the development of skills necessary to prepare songs and roles in musical productions while also developing skills in audition technique and the building of a personal repertoire.

THEA 320 Structural Design for the Stage

Semester course; 3 lecture hours. 3 credits. Introduction to basic structural analysis as applies to theatrical scenic construction and rigging.

THEA 321 Costume Design Studio I

Semester course; 2 lecture and 2 studio hours. 3 credits. Prerequisite: permission of instructor. A studio course exploring the practice of the creative techniques, skill-building tools and business processes used according to the practical standards of the industry developed by professional union costume designers.

THEA 322 Costume Design Studio II

Semester course; 2 lecture and 2 studio hours. 3 credits. Prerequisite: permission of instructor. Continuing studio course exploring the practice of the creative techniques, skill-building tools and business processes used according to the practical standards of the industry developed by professional union costume designers.

THEA 323 Practicum in Advanced Theatre Technology

Semester course; 9 studio hours. 3 credits. May be repeated for a maximum of 9 credits. Restricted to theatre majors. Advanced study in theatre technologies and technical management.

THEA 324 Practicum in Stage Lighting

Semester course; 9 studio hours. 3 credits. May be repeated for a maximum of 12 credits. Restricted to theatre majors. Practical application in the methodologies of stage lighting.

THEA 325 Stage Management Practicum

Semester course; 2 lecture and 2 studio hours. 3 credits. May be repeated for a maximum of 18 credits. Prerequisite: permission of instructor. The fundamental responsibilities and techniques of professional stage management at the assistant stage management level. Graded as pass/fail.

THEA 326 Audio Mixing for Theatre

Semester course; 3 lecture hours. 3 credits. A study of audio mixing and the practical application of these practices for live theatrical productions.

THEA 327 Computer-assisted Design and Drafting for the Theatre

Semester course; 3 lecture hours. 3 credits. May be repeated for a maximum of 6 credits. Instruction and practice in the use of computer assisted design and

drafting for the theatre such as preparation and presentation, perspective, rotation, development and graphic solutions pertaining to theatrical construction problems.

THEA 329 Patternmaking for the Theatre

Semester course; 1 lecture and 6 studio hours. 3 credits. Prerequisite: THEA 105. This course introduces basic patternmaking skills including: sloper development, pattern manipulations employing flat patterning techniques, drafting, scaling and copying of historic garments. This course introduces critical-thinking skills as related to the form, fit and composition of clothing as it relates to the body. Students will apply these skills to practical projects that can relate to a variety of historical period costumes.

THEA 330 Production

Semester courses; 1 or 2 lecture and 4 or 8 laboratory hours. 3 or 6 credits per semester. Open only to theatre majors. The design, rehearsal and performance of dramatic works.

THEA 331 Production

Semester courses; 1 or 2 lecture and 4 or 8 laboratory hours. 3 or 6 credits per semester. Open only to theatre majors. The design, rehearsal and performance of dramatic works.

THEA 332 Draping for the Theatre

Semester course; 1 lecture and 6 studio hours. 3 credits. Prerequisite: THEA 329. This course introduces basic draping skills including: sloper development, princess-line and bias garments, and clothing draped over extensive understructures. This course practices critical-thinking skills as related to the form, fit and composition of clothing as it relates to the body. Students will apply these skills to demonstrate specific historical period costumes.

THEA 333 Sound Design Technology

Semester course; 3 lecture hours. 3 credits. Introduction to basic concepts, equipment and software needed to create and reinforce sound imagery.

THEA 334 Sound Design I

Semester course; 3 lecture hours. 3 credits. Exploration in contemporary practices in sound design for the theatre.

THEA 336 Introduction to Costume Crafts

Semester course; 1 lecture and 6 studio hours. 3 credits. Prerequisite: THEA 227. The course will introduce the student to a variety of skills and application methods that are needed for the execution of costume designs in a theatrical production. An overview and basic understanding of these crafts will be explored and practiced during the semester.

THEA 340 Theatre Projects

Semester courses; 1 or 2 lecture and 4 or 8 laboratory hours. 3 or 6 credits per semester. Open only to theatre majors. Individual or group projects in acting, directing, costume design, stage design or dramaturgy.

THEA 341 Theatre Projects

Semester courses; 1 or 2 lecture and 4 or 8 laboratory hours. 3 or 6 credits per semester. Open only to theatre majors. Individual or group projects in acting, directing, costume design, stage design or dramaturgy.

THEA 351 Rehearsal and Performance

Semester courses; 2, 4 or 6 studio hours. 1, 2 or 3 credits. Restricted to theatre majors. Work in acting, management, design or technical areas within a TheatreVCU production.

THEA 352 Rehearsal and Performance

Semester courses; 2, 4 or 6 studio hours. 1, 2 or 3 credits. Restricted to theatre majors. Work in acting, management, design or technical areas within a TheatreVCU production.

THEA 361 Directing I

Semester course; 3 lecture hours. 3 credits. Open only to theatre majors. Introduction to and practice in the theories of stage direction.

THEA 362 Directing II

Semester course; 3 lecture hours. 3 credits. Prerequisite: THEA 361. Continuing practice in solving problems involved in the production of period plays and a study of modern theories.

THEA 371 Mechanical Design for the Stage

Semester course; 3 lecture hours. 3 credits. Introduction to the process for, components of and applications for mechanical design for stage.

THEA 372 Control Systems for Entertainment

Semester course; 3 lecture hours. 3 credits. Introduction to current and emerging control systems used in lighting, sound, stage machinery and show control.

THEA 373 Photo Manipulation for Theatre

Semester course; 3 lecture hours. 3 credits. Introduction to the basic concepts and practices of creating computer-manipulated photo images and documents.

THEA 392 Independent Study in Theatre

Semester course; variable hours. 1-3 credits. May be repeated for a maximum total of 6 credits. Prerequisites: junior standing as a major in theatre and approval of department chair and instructor. Individual instruction and supervision of a special project. Learning experiences should be designed with the supervising faculty member in the form of a contract between student and instructor. This course is limited to those students who have demonstrated an exceptional level of ability and intense commitment to their discipline.

THEA 403 History of Dramatic Literature

Semester courses; 3 lecture hours. 3, 3 credits. Restricted to theatre majors. Study and analysis of dramatic literature. First semester: Aeschylus through Shakespeare. Second semester: Corneille to Ibsen.

THEA 404 History of Dramatic Literature

Semester courses; 3 lecture hours. 3, 3 credits. Restricted to theatre majors. Study and analysis of dramatic literature. First semester: Aeschylus through Shakespeare. Second semester: Corneille to Ibsen.

THEA 407 Advanced Scenic Technique

Semester course; 1 lecture and 4 studio hours. 3 credits. Prerequisites: THEA 221 and permission of instructor. An intensive involvement in contemporary theory and practice of scenic techniques. Participation in departmental productions.

THEA 408 Advanced Scene Painting

Semester course; 1 lecture and 4 studio hours. 3 credits. Repeatable for a maximum of 12 credits. Practice of fundamental scene painting technique. Students will have the opportunity to study the materials and advanced techniques of scene painting, as well as the practices and expectations of a career in scenic artistry.

THEA 412 Acting for Camera

Semester course; 1 lecture and 4 studio hours. 3 credits. Prerequisite: THEA 314 with a minimum grade of B. Open only to theatre majors upon completion of a satisfactory audition or with permission of instructor. Students will learn techniques for approaching acting problems associated with performance in front of a camera.

THEA 413 Actor's Studio II

Semester course; 1 lecture and 4 studio hours. 3 credits. Prerequisites: minimum grade of B in THEA 314. Open only to theatre majors upon completion of satisfactory audition or with permission of instructor. Students will learn techniques for approaching specific acting problems associated with the performance of various classical acting styles.

THEA 415 The Business of Theatre

Semester course; 4 lecture hours. 4 credits. Open only to theatre majors upon completion of a satisfactory audition or with permission of instructor. An analysis and survey of beginning and maintaining a successful professional career in theatre, television and film, including information about contracts, unions, agents/managers, casting directors, taxes and other life strategies in order to develop a specific plan for the next steps after graduation.

THEA 416 Solo Performance

Semester course; 3 lecture hours. 3 credits. Prerequisite: THEA 314 with a minimum grade of B. Open only to theatre majors upon completion of a satisfactory audition or with permission of instructor. An exploration of story and personal journey. Students will explore and interrogate a diverse range of solo-performance styles culminating in a solo performance of a "work-in-progress" of between 15 and 30 minutes presented to an audience.

THEA 421 Advanced Costume Design Studio I

Semester course; 2 lecture and 2 studio hours. 3 credits. Prerequisites: THEA 321 and 322. Advanced studio course exploring the practice of the creative techniques and the practical standards of the industry developed by professional union costume designers.

THEA 422 Advanced Costume Design Studio II

Semester course; 2 lecture and 2 studio hours. 3 credits. Prerequisites: THEA 321 and 322. Advanced studio course exploring the practice of the creative techniques and business processes used according to the practical standards of the industry developed by professional union costume designers. During the semester students will create a digital interview-quality portfolio.

THEA 423 Modern Drama

Semester courses; 3 lecture hours. 3, 3 credits. Restricted to theatre majors. Intensive study of major continental and American plays.

THEA 424 Modern Drama

Semester courses; 3 lecture hours. 3, 3 credits. Restricted to theatre majors. Intensive study of major continental and American plays.

THEA 426/ENGL 433 Advanced Dramatic Writing

Semester course; 3 lecture hours. 3 credits. May be repeated once for credit. Prerequisite: ENGL 305, 317 or comparable drama course, or permission of instructor. A practical approach to the creation of original scripts for theatre and film.

THEA 429 Advanced Lighting Design

Semester course; 2 lecture and 3 studio hours. 3 credits. May be repeated for a maximum of 9 credits. Prerequisite: THEA 229. Advanced study of the methods, problems and techniques of lighting design for the student who plans to enter the field professionally.

THEA 430 Production

Semester courses; 1 or 2 lecture and 4 or 8 laboratory hours. 3 or 6 credits per semester. Open only to theatre majors. The design, rehearsal and performance of dramatic works.

THEA 431 Production

Semester courses; 1 or 2 lecture and 4 or 8 laboratory hours. 3 or 6 credits per semester. Open only to theatre majors. The design, rehearsal and performance of dramatic works.

THEA 432 Stage Management: Music Theory

Semester course; 3 lecture hours. 3 credits. Prerequisite: THEA 325 with a minimum grade of B. Open only to theatre majors. An in-depth analysis of music theory as it pertains to the opera and musical theatre fields.

THEA 433 Stage Management: Musical Theatre and Opera

Semester course; 3 lecture hours. 3 credits. Prerequisite: THEA 325 with a minimum grade of B. Open only to theatre majors. An in-depth analysis of the specific techniques required to successfully stage-manage musical theatre and opera.

THEA 434 Stage Management: Maintaining and Remounting Productions

Semester course; 3 lecture hours. 3 credits. Prerequisite: THEA 325 with a minimum grade of B. Open only to theatre majors. An in-depth analysis of the advanced techniques in stage management required to successfully maintain a long-running show and remount a previously realized production.

THEA 435 The Business of Stage Management

Semester course; 3 lecture hours. 3 credits. Prerequisite: THEA 325 with a minimum grade of B. Open only to theatre majors. An analysis of the techniques necessary for a successful career as a stage manager, studying resumes, interview skills, unions and other areas.

THEA 439 Advanced Patterning Techniques I

Semester course; 1 lecture and 3 studio hours. 3 credits. Prerequisites: THEA 329 and 332. Garment patterning based on various historic periods. Projects emphasize creative solutions to patterning problems employing critical thinking. Skills learned in prerequisite courses will be practiced, developing

competency as related to achieving fit, form and function of period garments within the limitations of a given design.

THEA 440 Theatre Projects

Semester courses; 1 or 2 lecture and 4 or 8 laboratory hours. 3 or 6 credits per semester. Open only to theatre majors. Individual or group projects in acting, directing, costume design, stage design or dramaturgy.

THEA 441 Theatre Projects

Semester courses; 1 or 2 lecture and 4 or 8 laboratory hours. 3 or 6 credits per semester. Open only to theatre majors. Individual or group projects in acting, directing, costume design, stage design or dramaturgy.

THEA 442 Advanced Patterning Techniques II

Semester course; 1 lecture and 3 studio hours. 3 credits. Prerequisite: THEA 439. Garment patterning based on various historic periods. Projects emphasize creative solutions to patterning problems employing critical thinking. Skills learned in prerequisite course will be practiced and built upon, developing complex understructures for period clothing while practicing competency in patterning and building the period garments, which complement the fit, form and function of these period garments.

THEA 451 Rehearsal and Performance

Semester courses; 2, 4 or 6 studio hours. 1, 2 or 3 credits. Restricted to theatre majors. Work in acting, management, design or technical areas within a TheatreVCU production.

THEA 452 Rehearsal and Performance

Semester courses; 2, 4 or 6 studio hours. 1, 2 or 3 credits. Restricted to theatre majors. Work in acting, management, design or technical areas within a TheatreVCU production.

THEA 469 Advanced Patterning Techniques III

Semester course; 1 lecture and 3 studio hours. 3 credits. Prerequisite: THEA 442. Advanced patterning techniques centered on tailoring for students who have completed flat patterning and draping classes. This class explores modern and historical methods of tailoring; lining and finishing are emphasized for stage and costume use. The course assesses the student's competency in skills taught in previous course work.

THEA 470 Advanced Patterning Techniques IV

Semester course; 1 lecture and 3 studio hours. 3 credits. Prerequisite: THEA 469. Exploration of costume patterning with an emphasis on period patterning in a production setting, assessing the basic and advanced knowledge of draping and flatpatterning. This course provides students with intense production projects on VCU Mainstage productions synthesizing all aspects of patterning.

THEA 491 Topics in Theatre

Semester course; variable hours. 1-3 credits per semester. May be repeated for a maximum of 9 credits. Restricted to theatre majors. Flexible semester course in selected aspects of performance, theory, literature or history. See the Schedule of Classes for specific topics to be offered each semester.

THEA 492 Independent Study in Theatre

Semester course; variable hours. 1-3 credits per semester. May be repeated for a maximum of 9 credits.

Prerequisites: senior standing as a major in theatre and approval of department chair and instructor. Individual instruction and supervision of a special project. Learning experiences should be designed with the supervising faculty member in the form of a contract between student and instructor. This course is limited to those students who have demonstrated an exceptional level of ability and intense commitment to their discipline.

THEA 493 Professional Internship

Semester courses; 3-9 credits. Restricted to theatre majors. A practicum in theatre conducted in cooperation with selected professional or semi-professional theatre organizations.

THEA 494 Professional Internship

Semester courses; 3-9 credits. Restricted to theatre majors. A practicum in theatre conducted in cooperation with selected professional or semi-professional theatre organizations.

THEA 495 Senior Project: Portfolio Review

Semester course; 1 lecture hour. 1 credit. Prerequisites: senior standing and a minimum of 18 credits in 300- or 400-level major courses. Restricted to theatre majors. A capstone experience integrating resume preparation and professional development within the field of theatre. Documentation of creative activities and achievements accumulated during theatre studies is compiled for a portfolio review.

Theatre Lab

THEZ 221 Introduction to Scene Design Laboratory

Semester course; 3 studio hours. 1 credit. Pre- or corequisite: THEA 221. Participation in departmental productions. Observation and participation in the practical application of scene design in performance.

THEZ 223 Practicum in Theatre Technology Laboratory

Semester courses; 3 studio hours. 1, 1 credit. Observation and participation in the practical application of theatre technology in performance.

THEZ 224 Practicum in Theatre Technology Laboratory

Semester courses; 3 studio hours. 1, 1 credit. Observation and participation in the practical application of theatre technology in performance.

THEZ 225 Basic Stage Electronics-Lighting Laboratory

Semester course; 2 studio hours. 1 credit. The practical application in production of the ideas, principles and theories discussed in design/technical courses.

THEZ 227 Basic Stage Costuming and Make-up Laboratory

Semester courses; 2 studio hours. 1, 1 credit. The practical application in production of the ideas, principles and theories discussed in design/technical courses.

THEZ 228 Basic Stage Costuming and Make-up Laboratory

Semester courses; 2 studio hours. 1, 1 credit. The practical application in production of the ideas,

principles and theories discussed in design/technical courses.

THEZ 229 Introduction to Lighting Design Laboratory

Semester course; 2 studio hours. 1 credit. The practical application in production of the ideas, principles and theories discussed in design/technical courses.

THEZ 305 Scene Design Laboratory

Semester courses; 2 studio hours. 1, 1 credit. The practical application in production of the ideas, principles and theories discussed in design technical courses.

THEZ 306 Scene Design Laboratory

Semester courses; 2 studio hours. 1, 1 credit. The practical application in production of the ideas, principles and theories discussed in design technical courses.

THEZ 321 Research Techniques for Costume Design Laboratory

Semester courses; 2 studio hours. 1, 1 credit. The practical application in production of the ideas, principles and theories discussed in design/technical courses.

THEZ 322 Research Techniques for Costume Design Laboratory

Semester courses; 2 studio hours. 1, 1 credit. The practical application in production of the ideas, principles and theories discussed in design/technical courses.

THEZ 323 Practicum in Advanced Theatre Technology

Semester course; 3 studio hours. 1 credit. Pre- or corequisite: THEA 323. Observation and experience in a practical situation with an emphasis on leadership and crew management.

THEZ 324 Practicum in Stage Lighting

Semester course; 3 studio hours. 1 credit. Pre- or corequisite: THEA 324. Observation and experience in a practical situation with an emphasis on leadership and crew management.

THEZ 326 Theatrical Sound Design Laboratory

Semester course; 3 studio hours. 1 credit. Pre- or corequisite: THEA 326. Participation in departmental productions. Observation and participation in the practical application of sound design and execution in performance.

THEZ 407 Advanced Scenic Technique Laboratory

Semester course; 2 studio hours. 1 credit. The practical application in production of the ideas, principles and theories discussed in design/technical courses.

THEZ 421 Advanced Costume Design Laboratory

Semester courses; 2 studio hours. 1, 1 credit. The practical application in production of the ideas, principles and theories discussed in design/technical courses.

THEZ 422 Advanced Costume Design**Laboratory**

Semester courses; 2 studio hours. 1, 1 credit. The practical application in production of the ideas, principles and theories discussed in design/technical courses.

THEZ 429 Advanced Lighting Design**Laboratory**

Semester course; 2 studio hours. 1 credit. The practical application in production of the ideas, principles and theories discussed in design/technical courses.

School of Business

Accounting

ACCT 202 Accounting for Non-business Majors

Semester course; 3 lecture hours. 3 credits. The course is open only to non-business students. A nontechnical introduction to the principles of financial and managerial accounting with emphasis on the use and interpretation of financial reports, managerial planning and control. The course is for the individual who seeks a basic knowledge of accounting and its uses. It is designed for the user of accounting information rather than the preparer. This course cannot be substituted for ACCT 203, 204 or 205. Students graduating with a major in the School of Business cannot receive credit for this course.

ACCT 203 Introduction to Accounting I

Semester course; 3 lecture hours. 3 credits. Theoretical and technical facets of financial and managerial accounting for business. Accumulation, analysis, interpretation and uses of accounting information. Course will focus on financial accounting.

ACCT 204 Introduction to Accounting II

Semester course; 3 lecture hours. 3 credits. Prerequisite: ACCT 203 with a minimum grade of C. Theoretical and technical facets of financial and managerial accounting for business. Accumulation, analysis, interpretation and uses of accounting information. Course will focus on managerial accounting.

ACCT 205 Introductory Accounting Survey

Semester course; 3 lecture hours. 3 credits. Restricted to students in the post-baccalaureate undergraduate certificate programs in accounting and information systems, students seeking a B.S. in Financial Technology, students enrolled in the School of Engineering, or by permission of instructor. An accelerated course covering theoretical and technical facets of financial and managerial accounting for business. Accumulation, analysis, interpretation and uses of accounting information. May not be counted toward any of the B.S. programs offered by the School of Business other than the B.S. in Financial Technology.

ACCT 291 Topics in Accounting

Semester course. 1-3 credits. Prerequisite: permission of instructor. An in-depth study of selected accounting topics. Graded as pass/fail.

ACCT 303 Intermediate Accounting I

Semester course; 3 lecture hours. 3 credits. Prerequisite: ACCT 203 or ACCT 205 with a minimum grade of C. Restricted to students who have completed at least 54 credit hours (junior standing). Focuses on financial accounting and accounting standards, including the conceptual framework for financial accounting. Includes an in-depth study of the income statement, the balance sheet and an introduction to the statement of cash flows. Also covers valuation of inventories.

ACCT 304 Intermediate Accounting II

Semester course; 3 lecture hours. 3 credits. Prerequisite: ACCT 303 with a minimum grade of C. Restricted to students who have completed at least 54 credit hours (junior standing). Continues the study of financial accounting, covering accounting for

acquisition and disposition of property, plant and equipment, intangible assets, contingencies, long-term liabilities, stockholders' equity, earnings-per-share, and investments.

ACCT 305 Intermediate Accounting III

Semester course; 3 lecture hours. 3 credits. Prerequisite: ACCT 304 with a minimum grade of C. Restricted to students who have completed at least 54 credit hours (junior standing). Continues the study of financial accounting, covering accounting for income taxes, accounting for pensions and post-retirement benefits, accounting for leases, accounting changes and error analysis, statement of cash flows, full disclosure in financial reporting and International Financial Reporting Standards.

ACCT 306 Cost Accounting

Semester course; 3 lecture hours. 3 credits. Prerequisite: ACCT 204 or ACCT 205 with a minimum grade of C. This course is restricted to students who have completed at least 54 credit hours (junior standing). Cost accumulation for inventory pricing and income determination. Cost behavior concepts for planning and control. Job order and process cost systems, standard costs, budgets and special topics in relevant costs for managerial decisions.

ACCT 307 Accounting Systems

Semester course; 3 lecture hours. 3 credits. Prerequisite: ACCT 303 with a minimum grade of C. This course is restricted to students who have completed at least 54 credit hours (junior standing). Examines design and evaluation of manual and computerized accounting information systems. Emphasis on the system of internal controls and the impact of computers on those controls.

ACCT 401 Governmental and Not-for-profit Accounting

Semester course; 3 lecture hours. 3 credits. Prerequisites: ACCT 304 with a minimum grade of C. This course is restricted to students who have completed at least 54 credit hours (junior standing). The role of accounting in the management of resources entrusted to government and nonprofit entities, including accounting and reporting standards. Accounting in municipalities and nonprofit entities such as hospitals, charitable and health organizations, and colleges and universities.

ACCT 402 Advanced Cost Accounting

Semester course; 3 lecture hours. 3 credits. Prerequisite: ACCT 306 with a minimum grade of C. This course is restricted to students who have completed at least 54 credit hours (junior standing). An advanced conceptual cost/managerial course designed to familiarize students with the more complex aspects of cost/managerial accounting concepts including process costing, standard costing, activity-based costing, Just-in-Time inventory systems, enterprise resource planning and issues relating to the relative strengths and limitations of managerial accounting.

ACCT 403 Management Control Systems

Semester course; 3 lecture hours. 3 credits. Prerequisite: ACCT 306 with a minimum grade of C. This course is restricted to students who have completed at least 54 credit hours (junior standing). An advanced conceptual management control systems course designed to expose students to the theoretical

and conceptual foundations of management control systems and to integrate accounting into the managerial decision/control process. Uses a predominantly case-oriented approach. While primary emphasis will be on integrating accounting into the management control process, significant attention also will be devoted to the behavioral issues involved in management control system design and implementation. Students also will receive hands-on experience in structuring and formulating control systems in an Enterprise Resource Planning system environment.

ACCT 404 Introduction to Forensic Accounting and Fraud Examination

Semester course; 3 lecture hours. 3 credits. Prerequisite: ACCT 304 with a minimum grade of C. Introduction to the area of forensic accounting. Topics include the detection of fraudulent financial reporting, employee fraud, money laundering, digital forensic analysis and electronic evidence, evidence management, computer forensics, and an introduction to business valuation.

ACCT 405 Tax Accounting Principles

Semester course; 3 lecture hours. 3 credits. Prerequisite: ACCT 204 or ACCT 205 with a minimum grade of C. Restricted to students who have completed at least 54 credit hours (junior standing). Income tax legislation and the concept of taxable income; federal income tax law applicable to individuals.

ACCT 406 Auditing

Semester course; 3 lecture hours. 3 credits. Prerequisites: ACCT 304 and 307 with a minimum grade of C. This course is restricted to students who have completed at least 54 credit hours (junior standing). A study of the conceptual, theoretical and practical procedures applicable to auditing à both external and internal. Primary emphasis is placed upon the theory of audit evidence; the objectives, techniques and procedures for financial and operational audit reports.

ACCT 408 Accounting Decision Analysis

Semester course; 3 lecture hours. 3 credits. Prerequisites: ACCT 307 with a minimum grade of C; and MGMT 301, STAT 210 or STAT 212. Restricted to students who have completed at least 54 credit hours (junior standing). The spreadsheet analysis and written communication of data relating to accounting-focused business problems.

ACCT 409 Research and Communication for the Accounting Profession

Semester course; 3 lecture hours. 3 credits. Prerequisites: ACCT 304 with a minimum grade of C. Restricted to students who have completed at least 54 credit hours (junior standing). Focuses on the research of accounting issues and preparation of technical reports relating to that research. Leadership and team dynamics are explored using group projects.

ACCT 410 Advanced Tax Accounting

Semester course; 3 lecture hours. 3 credits. Prerequisite: ACCT 405 with a minimum grade of C. This course is restricted to students who have completed at least 54 credit hours (junior standing). Complex tax problems of the trust, partnership and corporation. Particular emphasis is given to tax planning.

ACCT 491 Topics in Accounting

Semester course; 1-3 lecture hours. 1-3 credits. Prerequisites vary by topic. Study of current topics. Topics may vary by semester. See the Schedule of Classes for specific topics to be offered.

ACCT 493 Internship in Accounting

Semester course; 3 credits. Prerequisites: ACCT 304 with a minimum grade of B; senior standing in accounting and permission of the department chair. Intention to enroll must be indicated to the instructor prior to or during advance registration for semester of credit. Involves students in a meaningful experience in a setting appropriate to the major. A structured course in which the first three weeks are spent in the classroom, followed by 11 weeks at a workplace. The last week of the semester students return to the classroom for discussion and reflection on the work experience. An internship portfolio is required at the end of the course. Graded as pass/fail.

ACCT 497 Guided Study in Accounting

Semester course; variable hours. 1-3 credits. Maximum total of three credits. Prerequisites: junior standing in accounting and approval of adviser and department chair prior to course registration. Intensive study under supervision of a faculty member in an area not covered in-depth or contained in the regular curriculum.

Business**BUSN 201 Foundations of Business I**

Continuous courses; 3-3 lecture hours. 3-3 credits. Prerequisite: UNIV 112. First semester: Introduces students to basic business environments, entrepreneurial thinking, and business functions and practices. Helps students gain an integrated awareness of business and practice analytical skills needed for their advanced business courses and careers. Second semester: Examines business functions and practices needed for sustainable business operation, building on knowledge and skills from BUSN 201 and executing or analyzing an integrated project or comprehensive case analysis. Students should take BUSN 202 immediately following BUSN 201.

BUSN 202 Foundations of Business II

Continuous courses; 3-3 lecture hours. 3-3 credits. Prerequisite: BUSN 201 with a minimum grade of C. First semester: Introduces students to basic business environments, entrepreneurial thinking, and business functions and practices. Helps students gain an integrated awareness of business and practice analytical skills needed for their advanced business courses and careers. Second semester: Examines business functions and practices needed for sustainable business operation, building on knowledge and skills from BUSN 201 and executing or analyzing an integrated project or comprehensive case analysis. Students should take BUSN 202 immediately following BUSN 201.

BUSN 225 Winning Presentations

Semester course; 3 lecture hours. 3 credits. Restricted to School of Business students in the foundation or advanced programs. Why are some presenters bad, some good and others great? Why do some people have more "presence" than others? What leadership skills work in a room full of people who are not on the same page? How does one pitch an idea in

less than two minutes? Presentation skills involve more than just speaking in public. Good presentation skills require an understanding of yourself, your subject and your audience. This course will explore the skills involved in mastering all of these.

BUSN 400 Principles of Consulting

Semester course; 3 lecture hours. 3 credits. Prerequisites: junior status and acceptance into International Consulting Program. Corequisite: BUSN 401. Intended to provide students with a formal training in how to conduct consulting engagements. The course is designed to teach students how to conduct consulting engagements by providing academic background through readings and lectures, real-world perspectives from practicing consultants, and practice application through simulations and cases. The course culminates in a consulting engagement with a real client from the Richmond business community to provide the students with an opportunity to apply the consulting skills they learned in the classroom.

BUSN 401 International Consulting Practicum

Semester course; 3 lecture hours. 3 credits. Prerequisites: junior status and acceptance into International Consulting Program. Corequisite: BUSN 401. Intended to provide students with an opportunity to apply the lessons learned about consulting in BUSN 400 to a real business client in a foreign country.

Economics**ECON 101/INTL 102 Introduction to Political Economy**

Semester course; 3 lecture hours. 3 credits. Seminar on the development of critical thought and economic analysis of policy issues. Focus is on how policy choices affect society and the individual, the economic methodology that guides policy choices, and the institutional and political environments within which policy is derived. Issues cover a broad range of topics including environmental issues, tax policy, inflation expectations, unemployment, foreign trade and the effectiveness of fiscal and monetary policies.

ECON 203 Introduction to Economics

Semester course; 3 lecture hours. 3 credits. A survey of economic principles, institutions and problems. The course is designed to provide basic economic understanding for students who do not expect to major in economics or in the School of Business. Not applicable for credit toward economics and business majors. Also note that students may receive credit for only two of the following three courses: ECON 203, 210 or 211.

ECON 205 The Economics of Product Development and Markets

Semester course; 3 lecture hours. 3 credits. An introduction to some of the fundamental economic concepts necessary to effectively operate in today's marketplace. Basic elements of microeconomics, net present value analysis and market strategy will be covered in class. The goal is to provide students with a better understanding of how to approach business problems and of proven problem-solving techniques. Appropriate for engineering and non-engineering students.

ECON 210 Principles of Microeconomics

Semester course; 3 lecture hours. 3 credits. A course designed to acquaint the student with a theoretical and practical understanding of the economic institutions and problems of the American economy with a focus on microeconomics. Note that students may receive credit toward their degree requirements for only two of the following three courses: ECON 203, 210 and 211.

ECON 211 Principles of Macroeconomics

Semester course; 3 lecture hours. 3 credits. Prerequisite: ECON 203 with minimum grade of a B or ECON 210. A course designed to acquaint the student with a theoretical and practical understanding of the economic institutions and problems of the American economy with a focus on macroeconomics. Note that students may receive credit toward their degree requirements for only two of the following three courses: ECON 203, 210 and 211.

ECON 291 Topics in Economics

Variable hours. Variable credit. Maximum of 3 credits per topic. Prerequisite: permission of instructor. An in-depth study of selected business topics. Graded as pass/fail at the option of the department.

ECON 300 Contemporary Economic Issues

Semester course; 3 lecture hours. 3 credits. Prerequisites: ECON 210, ECON 211 and junior standing. Students will learn to think critically about current policy issues using basic economic principles. Communication skills will be developed through presenting, discussing and debating alternative positions in class. Students will work in teams to outline the basic economic incentives and the direct and indirect costs and benefits associated with different policy actions. Through teamwork students will practice leadership skills and methods to manage group dynamics. Topics will vary by semester and may include the economics of discrimination, the environment, health care, cultural arts, education, business ethics, fiscal policy, monetary policy, globalization, inequality and immigration.

ECON 301 Microeconomic Theory

3 lecture hours. 3 credits. Prerequisite: ECON 203 with a minimum grade of B or ECON 210. Analysis of the principles that govern production, exchange and consumption of goods and services. Topics include demand analysis, production and cost theory, price and output determination, theory of markets and distribution theory.

ECON 302 Macroeconomic Theory

3 lecture hours. 3 credits. Prerequisites: ECON 203 with a minimum B grade and ECON 211; or ECON 210 and ECON 211. A general survey of national income analysis and macroeconomic theory. Detailed study of public policies affecting price levels, employment, economic growth and the balance of payments.

ECON 303 Managerial Economics

Semester course; 3 lecture hours. 3 credits. Prerequisites: ECON 203 with a minimum B grade and ECON 211; or ECON 210 and ECON 211. This course is restricted to students who have completed at least 54 credit hours (junior standing). Application of tools of economic analysis to allocation problems in profit and nonprofit organizations. Models for evaluating revenue, production, cost and pricing will be

presented. Emphasis on developing decision rules for turning data into information for solving problems.

Effective Spring 2015

ECON 303 Managerial Economics

Semester course; 3 lecture hours. 3 credits.

Prerequisites: ECON 203 with a minimum grade of B and ECON 211; or ECON 210 and ECON 211; and SCMA 212 or MATH 200. This course is restricted to students who have completed at least 54 credit hours (junior standing). Application of tools of economic analysis to allocation problems in profit and nonprofit organizations. Models for evaluating revenue, production, cost and pricing will be presented. Emphasis on developing decision rules for turning data into information for solving problems.

ECON 305 Public Finance - State and Local

Semester course; 3 lecture hours. 3 credits.

Prerequisite: ECON 203 with a minimum grade of B or ECON 210. An economic analysis of state and local government budgeting, revenue sources and expenditures.

ECON 307 Money and Banking

Semester course; 3 lecture hours. 3 credits.

Prerequisite: ECON 211. A study of money, financial markets and the financial structure with emphasis on commercial banks and the Federal Reserve System. Relationships between economic activity and money supply are introduced.

ECON 312 E-commerce and Markets for Information Goods

Semester course; 3 lecture hours. 3 credits.

Prerequisite: ECON 203 with a minimum grade of B or ECON 210. This course surveys the ways that information and emerging information technologies affect market organization and market efficiency. Competitive strategies and regulatory policy for information markets also are considered. Topics include network effects, first mover advantages, auctions, price discrimination and organizational structure.

ECON 313 Economics of Transportation

Semester course; 3 lecture hours. 3 credits.

Prerequisite: ECON 203 with a minimum grade of B or ECON 210. An economic analysis of the transportation industry with special emphasis on regulation, public policy and urban transportation.

ECON 315/AFAM 315/INTL 315 Economic Development

Semester course; 3 lecture hours. 3 credits.

Prerequisites: ECON 203 with a minimum grade of B and ECON 211; or ECON 210 and ECON 211. Introduction to the process of economic development. Surveys development theory and experiences of underdeveloped countries of Africa, Asia, Latin America and the Caribbean and of developed countries. Explores obstacles to development and policies and tools for stimulating economic development.

ECON 321/URSP 321 Urban Economics

Semester course; 3 lecture hours. 3 credits.

Prerequisite: ECON 203 with a minimum grade of B or ECON 210. An introduction to urban economics, with an emphasis on the economics of agglomeration and the role of externalities in the urban economy. Economic analysis of the provision of urban public

services and urban public financing, especially in politically fragmented areas.

ECON 325 Environmental Economics

Semester course; 3 lecture hours. 3 credits. This course is restricted to students who have completed at least 54 credit hours (junior standing). The application of economic analysis to externalities such as air and water pollution, pesticide control, land use planning and other environmental issues. The role of cost/benefit analysis in the decision-making process is developed. Efficiency and equity issues are evaluated.

ECON 329/INTL 329 International Economics

3 lecture hours. 3 credits. Prerequisites: ECON 203 with a minimum grade of B and ECON 211; or ECON 210 and ECON 211. An analysis of economic and political influences on exports and imports, balance of payments, foreign investment, exchange rates and international monetary systems.

ECON 333 Behavioral Economics

Semester course; 3 lecture hours. 3 credits.

Prerequisite: ECON 203 with a minimum grade of B or ECON 210. Identifies when behavior systematically violates mainstream models and provides alternative behavioral models which are psychologically and empirically plausible. Discusses a variety of violations including endowment effects, framing, dynamic inconsistency and the winner's curse.

ECON 338 Game Theory

Semester course; 3 lecture hours. 3 credits.

Prerequisite: ECON 203 with a minimum grade of B or ECON 210. Analyzes strategic situations using game theory. Applies the analysis to a variety of settings and questions. Develops an understanding of the uses and limitations of the analysis.

ECON 344 Biodiversity and Ecological Economics

Semester course; 3 lecture hours. 3 credits.

Prerequisite: ECON 203 with a minimum grade of B or ECON 210. Explores the use of both economic and ecological approaches to the identification, valuation and protection of biological diversity and ecological integrity. Investigates the potential of coupled human and natural systems through construction and computer simulation of dynamic ecological-economic models.

ECON 402 Business Cycles and Forecasting

Semester course; 3 lecture hours. 3 credits.

Prerequisites: ECON 203 with a minimum grade of B and ECON 211; or ECON 210 and ECON 211. An examination of repetitive variations in business activity. The measurement and analysis of economic fluctuations and how they affect the business environment. Stresses modern forecasting techniques.

ECON 403 Introduction to Mathematical Economics

Semester course; 3 lecture hours. 3 credits.

Prerequisites: ECON 203 with a minimum grade of B and ECON 211; or ECON 210 and ECON 211. This course is restricted to students who have completed at least 54 credit hours (junior standing). The application of mathematical techniques to economic theory and economic models.

ECON 419 History of Economic Thought

Semester course; 3 lecture hours. 3 credits.

Prerequisites: ECON 203 with a minimum grade of B and ECON 211; or ECON 210 and ECON 211. A survey of the ideas of major economic contributors to modern economic thought. Theories of value, growth and distribution from the 18th through the 20th centuries will be presented.

ECON 421 Government and Business

Semester course; 3 lecture hours. 3 credits.

Prerequisite: ECON 203 with a minimum grade of B or ECON 210. The application of economic analysis to the behavior of business, industry and government regulation. Topics include the causes and exercise of monopoly power, antitrust enforcement, public utilities and industry studies.

ECON 431 Labor Economics

Semester course; 3 lecture hours. 3 credits.

Prerequisites: ECON 300, 301 and 302; and STAT 210, STAT 212, MGMT 301 or PSYC 214. This course is restricted to students who have completed at least 54 credit hours (junior standing). Analysis of labor markets and institutions to gain an understanding of the process of wage and employment determination. Both historic and current topics are included.

ECON 441 Experimental Economics

Semester course; 3 lecture hours. 3 credits.

Prerequisites: ECON 300, ECON 301 and 302; and STAT 210, STAT 212, MGMT 301 or PSYC 214; and junior standing. Students will learn about the leading models of decision making and human behavior in markets. The course will focus on using experimental methods to test the models' hypotheses. Students will learn how to design experiments, collect experimental data, and how to examine the data and interpret the results.

ECON 489 Senior Seminar in Economics

3 lecture hours. 3 credits. Prerequisites: ECON 300, ECON 301 and 302; STAT 210, STAT 212, MGMT 301 or PSYC 214; and junior standing. Analysis of economic theory and problems. Students will study a few topics in depth, focusing on understanding the current research, critically analyzing controversial issues and using data to investigate competing claims.

ECON 491 Topics in Economics

Semester course; variable hours. Variable credit.

Maximum of 3 credits per topics course; maximum total of 6 credits for all topics courses. Prerequisite: junior standing. An in-depth study of a selected economic topic, to be announced in advance.

ECON 492 Independent Study in Economics

Semester course; 1-3 credits. Maximum total of 3 credits. Prerequisites: junior or senior standing as an economics major and approval of adviser and department chair prior to course registration. Intensive study under supervision of a faculty member in an area not covered in depth or contained in the regular curriculum.

ECON 493 Internship in Economics

Semester course; the student is expected to work at the site 15-20 hours per week. 1-3 credits. Prerequisites: junior standing, a minimum of 3.0 GPA in economics courses, at least 15 economics credits and permission of the department chair. Intention to enroll must be indicated to the instructor prior to or during registration for semester of credit. The internship is

designed to give students practical experience in an appropriate supervised environment in the public or private sector. Graded as pass/fail.

Finance, Insurance and Real Estate

FIRE 291 Topics in Finance, Insurance and Real Estate

Variable hours. Variable credit. Maximum of 3 credits per topic. Prerequisite: permission of instructor. An in-depth study of selected business topics. Graded as pass/fail at the option of the department.

FIRE 301 Personal Financial Planning

Semester course; 3 lecture hours. 3 credits. Designed to assist households and those providing financial services and advice to households in making complex financial decisions. Units include income and expenditure, credit, borrowing, banking, savings, insurance, home buying, investment, and estate planning. Formerly FIRE 315.

FIRE 305 Principles of Real Estate

Semester course; 3 lecture hours. 3 credits. Focuses on the language, principles, practices and laws that govern the real estate enterprise, including property rights, legal elements, physical aspects of location and production, brokerage, valuation, ethical dimensions, development, financing and land use. Formerly FIRE 316.

FIRE 306 Regulatory Aspects of Safety and Risk Control

Semester course; 3 lecture hours. 3 credits. This course is restricted to students who have completed at least 54 credit hours (junior standing). Examines political, scientific and social concepts of risk that influence the regulation of certain societal hazards and threats. Includes a survey of federal and state laws, regulations and standards that impact upon employment, the environment, industrial security, consumer protection and occupational safety and health. Formerly FIRE 330.

FIRE 307 System Safety

Semester course; 3 lecture hours. 3 credits. This course is restricted to students who have completed at least 54 credit hours (junior standing). Addresses the concepts and practices of system safety; included are basic system concepts, application of system safety techniques, qualitative and quantitative applications such as fault-free, failure-mode-and-effects, MORT and cost-benefit analyses. Formerly FIRE 332.

FIRE 308 Incident Investigation and Analysis

Semester course; 3 lecture hours. 3 credits. This course is restricted to students who have completed at least 54 credit hours (junior standing). Reviews various conceptual and analytical models used in accident/incident investigation strategies and reporting systems, report formats, data collection methods, causal inferences, problem identification and data analysis; in-depth case studies and epidemiological reviews of recent events will be emphasized. Formerly FIRE 334.

FIRE 309 Risk and Insurance

Semester course; 3 lecture hours. 3 credits. Nature of risk; insurance and other risk-handling methods; examination of basic life, health, property and liability principles and coverages.

FIRE 311 Financial Management

Semester course; 3 lecture hours. 3 credits. Prerequisites: MGMT 212, MATH 200 or SCMA 212; and ACCT 203 or ACCT 202 (for non-business majors). This course is restricted to students who have completed at least 54 credit hours (junior standing) or 24 credits with minimum cumulative GPA of 2.5. Principles of optimal financial policy in the procurement and management of wealth by profit-seeking enterprises; the application of theory to financial decisions involving cash flow, capital structure and capital budgeting.

FIRE 312 Financial Modeling

Semester course; 3 lecture hours. 3 credits. Prerequisite: FIRE 311. This course is restricted to students who have completed at least 54 credit hours (junior standing). This course is designed to introduce students to a wide array of primarily Excel techniques used in financial model building. Students will be introduced to techniques such as data tables, solver, matrix manipulation, array formulas, pivot tables, etc., to create financial models that are common in the areas of finance, risk management and real estate finance.

FIRE 313 Financial Management for Small Business

Semester course; 3 lecture hours. 3 credits. Prerequisite: FIRE 311. This course is restricted to students who have completed at least 54 credit hours (junior standing). This course emphasizes financial management needs for entrepreneurs or persons who expect to be employed in closely held corporations.

FIRE 315 Real Property Management

Semester course; 3 lecture hours. 3 credits. This course is restricted to students who have completed at least 54 credit hours (junior standing). Real property economics, planning, construction, marketing and management of leased properties. Formerly FIRE 317.

FIRE 316/INTL 416 International Financial Management

Semester course; 3 lecture hours. 3 credits. Prerequisite: FIRE 311. This course is restricted to students who have completed at least 54 credit hours (junior standing). Financial management of business in an international environment. Emphasis on tools and techniques to prepare financial managers of multinational firms to effectively respond to the challenges of the international environment. Formerly FIRE 416/INTL 416.

FIRE 317 Investments

Semester course; 3 lecture hours. 3 credits. Prerequisites: FIRE 311; and SCMA 301, STAT 210, STAT 212, STAT 312 or STAT 541. This course is restricted to students who have completed at least 54 credit hours (junior standing). An analysis of the market for long-term corporate securities. Emphasis is given to the valuation of bonds, common stocks, options and convertible securities, and portfolio concepts. Designed to provide an understanding of the functioning of an efficient market. Formerly FIRE 314.

FIRE 321 Intermediate Financial Management

Semester course; 3 lecture hours. 3 credits. Prerequisite: FIRE 312 with a minimum grade of C. Pre- or corequisite: SCMA 302, MATH/STAT 309, STAT 314 or STAT 321. This course is restricted to students who have completed at least 54 credit hours (junior standing). Advanced topics in financial

management with emphasis on the theoretical bases for the valuation of the firm.

FIRE 325 Real Estate Law

Semester course; 3 lecture hours. 3 credits. This course is restricted to students who have completed at least 54 credit hours (junior standing). Legal fundamentals of real estate including contracts, risk management, environmental and ethical issues, concepts of title, title examination, easements, conveyances, liens and recording statutes affecting real estate. Formerly FIRE 326.

FIRE 326 Real Estate Law

Semester course; 3 lecture hours. 3 credits. Prerequisite: MGMT 323. This course is restricted to students who have completed at least 54 credit hours (junior standing). Legal fundamentals of real estate including contracts, risk management, environmental and ethical issues, concepts of title, title examination, easements, conveyances, liens and recording statutes affecting real estate.

FIRE 329 E-business Risk Management

Semester course; 3 lecture hours. 3 credits. Prerequisite: INFO 202. This course is restricted to students who have completed at least 54 credit hours (junior standing). An analysis of the risks associated with e-business and the practice of e-commerce.

FIRE 359 Issues in Risk Management and Insurance

Semester course; 3 lecture hours. 3 credits. Prerequisite: junior standing. The course focuses on timely issues in the field of risk management and insurance. Students will consider the role of government and the insurance industry as well as the use of other financial solutions in handling risks faced by businesses and individuals. The topics covered change to reflect current societal and industry issues and to explore new risk management innovations.

FIRE 413/INTL 413 Comparative Financial Systems

Semester course; 3 lecture hours. 3 credits. Prerequisite: FIRE 311. This course is restricted to students who have completed at least 54 credit hours (junior standing). An analysis of the structure and functioning of financial systems in different parts of the world. Emphasis is on the evolution of such systems in relation to the U.S. financial system. Different regions of the world may be studied in different semesters.

FIRE 414 Security Analysis and Portfolio Management

Semester course; 3 lecture hours. 3 credits. Prerequisites: FIRE 314 with a minimum C grade; and MGMT 302, MATH/STAT 309, STAT 314 or STAT 321. This course is restricted to students who have completed at least 54 credit hours (junior standing). A detailed analysis of stocks and bonds as well as options and futures. Emphasis is on models for portfolio selection, revision and performance evaluation.

FIRE 416/INTL 416 International Financial Management

Semester course; 3 lecture hours. 3 credits. Prerequisite: FIRE 311. This course is restricted to students who have completed at least 54 credit hours (junior standing). Financial management of business in an international environment. Emphasis on tools and

techniques to prepare financial managers of multinational firms to effectively respond to the challenges of the international environment.

FIRE 417 Security Analysis and Portfolio Management

Semester course; 3 lecture hours. 3 credits.

Prerequisites: FIRE 317 with a minimum grade of C or FIRE 314 with a minimum grade of C; and SCMA 302, MGMT 302, MATH/STAT 309, STAT 314 or STAT 321. This course is restricted to students who have completed at least 54 credit hours (junior standing). A detailed analysis of stocks and bonds as well as options and futures. Emphasis is on models for portfolio selection, revision and performance evaluation.

FIRE 419 Advanced Risk and Insurance

Semester course; 3 lecture hours. 3 credits.

Prerequisite: FIRE 311. This course is restricted to students who have completed at least 54 credit hours (junior standing). It is a risk and insurance course with emphasis on more mathematical computations and analysis. Market, credit and operational risks are covered, along with legal and catastrophic risk assessments. Sustainability is important to this course. Topics covered include (but not limited to) forecasting of losses -- loss triangles and computations of reserves; risk mapping and the risk management matrix; cost/benefit and risk/award analyses; pricing; capital structure, risk-based capital and economic capital; financial statements using audit techniques (accounting); insurance regulation; life cycle financial risks; insurance solutions to property/casualty and life/health risks.

FIRE 424 Property and Liability Insurance

Semester course; 3 lecture hours. 3 credits.

Prerequisite: FIRE 333. This course is restricted to students who have completed at least 54 credit hours (junior standing). Property and liability risk identification and measurement. Major commercial line coverages including fire, marine, automobile, general liability, worker's compensation, fidelity and surety bonds.

FIRE 425 Real Estate Appraisal

Semester course; 3 lecture hours. 3 credits.

Prerequisite: FIRE 305 or FIRE 316. This course is restricted to students who have completed at least 54 credit hours (junior standing). Theory and practice of real property valuation from fundamental concepts to complex income-producing properties and partial-interest valuations. Technology-related tools are employed in the course, including financial modeling with various software programs.

FIRE 429 Property and Liability Insurance

Semester course; 3 lecture hours. 3 credits.

Prerequisite: FIRE 309 or FIRE 333. This course is restricted to students who have completed at least 54 credit hours (junior standing). Property and liability risk identification and measurement. Major commercial line coverages including fire, marine, automobile, general liability, worker's compensation, fidelity and surety bonds.

FIRE 431 Real Estate Investment Analysis

Semester course; 3 lecture hours. 3 credits.

Prerequisites: FIRE 425 and FIRE 429. This course is restricted to students who have completed at least 54 credit hours (junior standing). This is the capstone

course for real estate majors and covers the analytical methods and tools useful for analyzing commercial real estate investments, including a multidisciplinary approach to financial, spatial and social economics which builds a cohesive framework for analyzing complex investment decisions emphasizing fundamentals of property and financial markets.

FIRE 435 Real Estate Finance and Capital Markets

Semester course; 3 lecture hours. 3 credits.

Corequisite: FIRE 311. This course is restricted to students who have completed at least 54 credit hours (junior standing). Instruments, techniques and institutions of real estate finance; the mortgage market; financing process; mortgage risk analysis; creative financing; emphasis on policies and procedures used in financing residential and commercial properties and their interaction with the capital markets. Technology-related tools are employed in the course, including financial modeling with various software programs. Formerly FIRE 429.

FIRE 437 Funds Management in Financial Institutions

Semester course; 3 lecture hours. 3 credits.

Prerequisites: FIRE 312 with a minimum grade of C. This course is restricted to students who have completed at least 54 credit hours (junior standing). Funds management techniques for selected financial institutions including investment companies (mutual funds), life and casualty insurers, savings and loans, mutual savings banks, commercial banks, and pension funds.

FIRE 439 Life and Health Insurance

Semester course; 3 lecture hours. 3 credits.

Prerequisite: junior standing. The function, nature and uses of life and health insurance and annuities; operational aspects of life insurance companies. The course covers insurance solutions for life cycle risks: death; health and longevity -- sustainability; legal and tax aspects. Full-time students who pass this course can receive credit for the CLU HS323 examination from the American College. See instructor for details.

FIRE 441 Funds Management in Financial Institutions

Semester course; 3 lecture hours. 3 credits.

Prerequisite: FIRE 312 with a minimum grade of C. This course is restricted to students who have completed at least 54 credit hours (junior standing). Funds management techniques for selected financial institutions including investment companies (mutual funds), life and casualty insurers, savings and loans, mutual savings banks, commercial banks, and pension funds.

FIRE 444/MGMT 444 Occupational Safety, Health and Security

Semester course; 3 lecture hours. 3 credits.

Covers the principles and practices, and regulatory dimensions of occupational safety, health and security. Causes of workplace health hazard exposures, accidents and domestic and international industrial violence are studied with an emphasis on prevention. Characteristics of effective occupational safety, health and workplace security programs are studied to facilitate understanding and application in the workplace.

FIRE 445 Real Estate Investment Analysis

Semester course; 3 lecture hours. 3 credits.

Prerequisites: FIRE 425 and FIRE 435. This course is restricted to students who have completed at least 54 credit hours (junior standing). This is the capstone course for real estate majors and covers the analytical methods and tools useful for analyzing commercial real estate investments, including a multidisciplinary approach to financial, spatial and social economics, which builds a cohesive framework for analyzing complex investment decisions emphasizing fundamentals of property and financial markets. Formerly FIRE 431.

FIRE 449 Employee Benefit Planning

Semester course; 3 lecture hours. 3 credits.

Management of group life, health, disability and retirement plans. Governmental and employers' solutions to life cycle risks -- sustainability through social insurance programs, group insurance and innovations. The course reflects the dynamic nature of this field and requires cost/benefits analysis, best solutions to risks and a complete portfolio project of plan design, cost considerations, funding, regulation and tax considerations.

FIRE 451 Options, Futures and Swaps

Semester course; 3 lecture hours. 3 credits.

Prerequisite: FIRE 312 with a minimum grade of C or FIRE 317 or FIRE 314 with a minimum grade of C. This course is restricted to students who have completed at least 54 credit hours (junior standing). Analysis and valuation of speculative securities and markets, including options, futures and swaps, with emphasis on their use for hedging and speculative purposes. Major valuation models and term structure models are discussed with applications to problems in finance considered.

FIRE 455 Options, Futures and Swaps

Semester course; 3 lecture hours. 3 credits.

Prerequisites: FIRE 312 or FIRE 314 with a minimum grade of C. This course is restricted to students who have completed at least 54 credit hours (junior standing). Analysis and valuation of speculative securities and markets, including options, futures and swaps with emphasis on their use for hedging and speculative purposes. Major valuation models and term structure models are discussed with applications to problems in finance considered.

FIRE 459 Insurance Law

Semester course; 3 lecture hours. 3 credits.

Prerequisite: junior standing. The course covers the legal concepts and doctrines applicable to insurance. Fundamental legal aspects of all risks and aspects of sustainability. The course provides legislative issues for all solutions to life cycle risks: life and health insurance, pensions, catastrophes (natural and man-made such as terrorism) and property and liability insurance.

FIRE 461 Cases in Financial Management

3 lecture hours. 3 credits.

Prerequisite: FIRE 321 or FIRE 312 with a minimum grade of C. This course is restricted to students who have completed at least 54 credit hours (junior standing). Cases involving financial decisions for various forms of business enterprises.

FIRE 465 Managing Financial Risk

Semester course; 3 lecture hours. 3 credits.

Prerequisites: FIRE 314 and 333. This course is restricted to students who have completed at least 54 credit hours (junior standing). Sources of financial risk. Measurement and uses of enterprisewide financial risk techniques. A variety of analytical tools will be used to learn about value at risk, credit risk, stress testing, financial risk management and actuarial models, and how to manage financial risk.

FIRE 469 Advanced Property/Casualty Insurance: Alternative Markets

Semester course; 3 lecture hours. 3 credits.

Prerequisite: FIRE 309 or FIRE 419. This course is restricted to students who have completed at least 54 credit hours (junior standing). Property and liability risk with emphasis on alternative, less-regulated insurance solutions to all types of risks. The course includes sustainability issues and the way to mitigate natural and man-made catastrophes including sophisticated modeling and techniques. The course covers Lloyds of London; excess and surplus lines carriers; risk retention group, self-insurance, captives and shadow insurance; reinsurance; multilayers of coverage; catastrophe bonds; terrorism; regulation; liability issues globally; social responsibility.

FIRE 479 Managing Financial Risk

Semester course; 3 lecture hours. 3 credits.

Prerequisites: FIRE 309 or 333 and FIRE 317 or 314. This course is restricted to students who have completed at least 54 credit hours (junior standing). Sources of financial risk. Measurement and uses of enterprisewide financial risk techniques. A variety of analytical tools will be used to learn about value at risk, credit risk, stress testing, financial risk management and actuarial models, and how to manage financial risk.

FIRE 491 Topics in Finance, Insurance and Real Estate

Semester course; variable hours. Variable credit.

Maximum of 3 credits per course; maximum total of 6 credits for all topic courses. Prerequisite: junior standing. An in-depth study of a selected business topic, to be announced in advance.

FIRE 492 Independent Study in Finance, Insurance and Real Estate

Semester course; 1-3 credits. Maximum total of 3 credits.

Prerequisites: junior or senior standing as a major in a business curriculum and approval of adviser and department chair prior to course registration. Intensive study under supervision of a faculty member in an area not covered in-depth or contained in the regular curriculum.

FIRE 493 Internship in Finance, Insurance and Real Estate

Semester course; 3 credits. Prerequisites: senior standing with a major in finance (either the finance or insurance track) or real estate, a minimum GPA of 2.8 and permission of the Department of Finance, Insurance and Real Estate chair or the director of the insurance or real estate program. Involves students in a meaningful experience in finance, insurance or real estate. Intention to enroll must be indicated to the chair or appropriate program director.

Information Systems**INFO 160 Digital Literacy: Computer Concepts, Internet, Digital Devices**

Semester course; 1 credit. Overview of basic computer concepts, the Internet, new technologies and digital security. Topics include but are not limited to computing devices -- hardware and software -- skills for using and evaluating Internet content and security with digital devices. This course provides the foundation in digital technologies to prepare students for other business courses and application software courses in the INFO16X series. Administered as a self-paced course with all online content. Graded as pass/fail at 80 percent pass level with on-campus assessment. Purchase of online training/assessment package required.

INFO 161 Digital Literacy: Word Processing Skills I

Semester course; 1 credit. Introduces students to academic and professional word processing skills. Topics include but are not limited to document preparation and modification, tables and graphic enhancements, collaboration, and formatting for research papers. The course will help students prepare documents to support professional tasks and other VCU course work. Administered as a self-paced course. Graded as pass/fail at 80 percent pass level with on-campus assessment. Purchase of online training/assessment package required.

INFO 162 Digital Literacy: Spreadsheets Skills I

Semester course; 1 credit. Introduces students to academic and professional spreadsheet skills. Topics include but are not limited to the entering of text, numbers and formulas; formatting; moving; copying; recalculation; retrieving; charting; saving; and printing with introductory coverage of data manipulation. The course will help students prepare analyses, tables and charts to assist with professional tasks and other VCU course work. Administered as a self-paced course. Graded as pass/fail at 80 percent pass level with on-campus assessment. Purchase of online training/assessment package required.

INFO 163 Introduction to Web Page Design and Application Software

Semester course; 1 credit. Introduces students to Web page design and construction using application software. Topics include Web page creation and modification, hypertext links, tables, graphics, and website organization. Graded as pass/fail. Administered as a self-paced, computer-aided instructional course.

INFO 164 Digital Literacy: Word Processing Skills II

Semester course; 1 credit. Presents intermediate level academic and professional word processing skills. Topics include but are not limited to master documents, newsletters, forms, macros and linking to other applications. This course is designed for students wanting to advance their previous word processing skills. Administered as a self-paced course. Graded as pass/fail at 80 percent pass level with on-campus assessment. Purchase of online training/assessment package required.

INFO 165 Digital Literacy: Spreadsheet Skills II

Semester course, 1 credit. Presents intermediate-level academic and professional spreadsheet skills. Topics include but are not limited to advanced formulas, statistical and financial functions, multiple worksheet/workbook management, macros and pivot tables. This course is designed for students wanting to advance their previous spreadsheet skills. Administered as a self-paced course with all online content. Graded as pass/fail at 80 percent pass level with on-campus assessment. Purchase of online training/assessment package required.

INFO 166 Digital Literacy: Database Skills

Semester course; 1 credit. Introduces students to academic and professional database skills. Topics include but are not limited to creating and editing tables and forms, sorting and filtering data, and generating reports. Administered as a self-paced, online course. Graded as pass/fail at 80 percent pass level with on-campus assessment. Purchase of online training/assessment package required.

INFO 167 Introduction to Internet Researching

Semester course; 1 lecture hour. 1 credit. Course emphasizes Internet search tools and research skills development while expanding students understanding of the World Wide Web and its resources. Students will learn to explore and evaluate the various types of search sites, including the VCU Library Internet resources and learn skills for developing researching strategies. Using a microcomputer-based Web browser such as Internet Explorer or Netscape, students will learn about advanced browser features that will aid them in their search efforts. This course provides the necessary foundation to help students better find and use Web resources for documents and papers that other VCU course work may require.

INFO 168 Digital Literacy: Presentation Skills

Semester course; 1 credit. Introduces students to academic and professional presentation skills. Topics include but are not limited to creating and editing presentations, creating and modifying images/graphics, and use of video/audio media tools. The course will help students prepare presentations for professional tasks and other VCU course work. Administered as a self-paced course. Graded as pass/fail at 80 percent pass level with on-campus assessment. Purchase of online training/assessment package required.

INFO 169 Multimedia Presentations

Short course; 1 lecture hour. 5 weeks. 1 credit. Familiarizes students with the fundamental use of multimedia to enhance presentations. Topics include adding animation, creating templates, linking to other resources as well as audio and video. The course will help students to prepare more effective and professional presentations.

INFO 202 Introduction to E-business Technologies

Semester course; 3 lecture hours. 3 credits. Prerequisite: INFO 160 or passing score on the Knowledge Equivalency Test (see: www.business.vcu.edu/infosys/ket.html). Introduces students to the technologies used in e-business. Students will be introduced to current or emerging Web languages, e-business software development environments, Web application servers and other

packages used in creating and running Web applications.

INFO 250 Introduction to Programming

Semester course; 3 lecture hours. 3 credits.
Prerequisites: INFO 160 and MGMT 171. Introduces students to writing, testing and debugging Java programs using simple logic and algorithms. Basic Java applets and the graphic user interface are covered. Cannot be used as an elective in the information systems major.

INFO 291 Topics in Information Systems

Variable hours. Variable credit. Maximum of 3 credits per topic. Prerequisite: permission of instructor. An in-depth study of selected business topics. Graded as pass/fail at the option of the department.

INFO 300 Information Technology Infrastructure

Semester course; 3 lecture hours. 3 credits. Pre- or co-requisite: INFO 202, CMSC 245 or CMSC 255. Principles of computer hardware and software architecture, network communications technologies and security. Introduction to data structures.

INFO 320 Business Intelligence and Data Mining

Semester course; 3 lecture hours. 3 credits.
Prerequisite: MGMT 301. Restricted to students who have completed at least 54 credit hours (junior standing). Modeling business-related problems using information systems tools and quantitative techniques. Focus is on extraction, translation and loading of relevant business and external data, quantitative analysis, and presentation of findings. Typical problem situations involve suggested productivity improvements, revenue enhancement opportunities and marketing.

INFO 323 Ethical, Social and Legal Issues in Information Systems

Semester course; 3 lecture hours. 3 credits. Restricted to students with junior standing. In-depth coverage of professional, ethical, legal, security and social issues and responsibilities in information systems. Topics include principles of ethics and ethical codes of conduct in the computing professions; contracts, law and regulations specific to information systems and cyberspace; and social issues such as weighing individual and state secrecy, privacy and transparency. Students may not receive degree credit for both INFO 323 and MGMT 323 or MGMT/ACCT 481.

INFO 350 Intermediate Programming

Semester course; 3 lecture hours. 3 credits.
Prerequisites: a minimum grade of C in one of the following: INFO 202, INFO 250, CMSC 245 or CMSC 255; and MATH 211. Object-oriented programming and algorithmic design are introduced using C# and the .NET Framework. Emphasizes building business applications using the .NET Framework Class Library and the components, events and message handling therein. Intermediate Web application development is also covered. Students cannot receive credit for both CMSC 256 and INFO 350.

INFO 360 Business Information Systems

Semester course; 3 lecture hours. 3 credits.
Prerequisite: INFO 160. This course is restricted to students who have completed at least 54 credit hours

(junior standing). Provides an understanding of the importance of computer-based information in the success of the firm. Emphasis is on the role of information systems within each of the functional areas of business. Major concepts include data management, decision support and management information systems.

INFO 361 Systems Analysis and Design

Semester course; 3 lecture hours. 3 credits. This course is restricted to students who have completed at least 54 credit hours (junior standing). Examines the concepts, tools and techniques used to develop and support computer-based information systems. Systems planning, analysis, design and implementation are covered. Behavioral and model building aspects of systems development are emphasized throughout.

INFO 364 Database Systems

Semester course; 3 lecture hours. 3 credits.
Prerequisites: INFO 202, CMSC 245 or CMSC 255; and MATH 211. This course is restricted to students who have completed at least 54 credit hours (junior standing). Designed to prepare students for development of systems involving databases and database management.

INFO 370 Fundamentals of Data Communications

Semester course; 3 lecture hours. 3 credits.
Prerequisites: INFO 202, CMSC 245 or CMSC 255; and MATH 211. This course is restricted to students who have completed at least 54 credit hours (junior standing). Computer networks and data communications. Provides an understanding of the underlying concepts of computer networking. Emphasis is placed on terminology, techniques and issues in networking systems.

INFO 450 Advanced Programming

Semester course; 3 lecture hours. 3 credits.
Prerequisite: INFO 350 with a minimum grade of C. This course is restricted to students who have completed at least 54 credit hours (junior standing). The course covers advanced programming concepts using the Java and C++ languages. Topics include pointers, advanced GUI components and the building of multithreaded applications containing reusable components based upon design patterns and advanced data structures. Students cannot receive credit for both CMSC 245/246 and INFO 450.

INFO 451 Advanced Technology for E-business

Semester course; 3 lecture hours. 3 credits.
Prerequisites: grades of C or better in INFO 350 and 364, and junior standing. Focuses on the technical aspects of developing e-business systems using Web services and Web server controls to build visually interactive and highly responsive Web applications. Students will learn how various XML APIs (processing, messaging and distributed registries) are used under the umbrella of Web services to support the sharing of data and processes for e-business applications. The course will integrate the students' prior knowledge of client-side GUI development with server-side controls, components and behaviors in a multitiered environment that includes database connectivity.

INFO 461 Information Systems Planning and Project Management

Semester course; 3 lecture hours. 3 credits.
Prerequisite: INFO 361. Concentrated study of planning methods and techniques required for defining, planning, integrating and implementing information technology projects consistent with the organizational strategic plan and mission.

INFO 463 Business Process Engineering

Semester course; 3 lecture hours. 3 credits.
Prerequisite: INFO 361. This course is restricted to students who have completed at least 54 credit hours (junior standing). A survey of legacy system re-engineering technologies in which the student becomes familiar with a variety of tools used in practice and has the opportunity to develop applications using these tools under supervision. Selection of technologies is determined each semester.

INFO 465 Projects in Information Systems

Semester course; 3 lecture hours. 3 credits.
Prerequisites: INFO 350, 364, 370 and 461. The student's behavioral and technical skills developed in listed prerequisite courses are challenged by participating in a team systems development project. Appropriate computer-assisted software engineering tools are used throughout the project, from requirement specification to implementation and testing.

INFO 468 Information Engineering

Semester course; 3 lecture hours. 3 credits.
Prerequisites: INFO 361 and INFO 364. This course is restricted to students who have completed at least 54 credit hours (junior standing). A study of information engineering as a model-based, data-centric approach to integrating organizational strategic planning with enterprise information systems development. Involves readings, group discussion and case studies.

INFO 472 Infrastructure Services

Semester course; 3 lecture hours. 3 credits.
Prerequisites: INFO 370 and junior standing. Concepts and principles related to administering and securing information and communication technologies. Topics include management of infrastructure, hosts, applications and network security.

INFO 474 Advanced Networking and Security

Semester course; 3 lecture hours. 3 credits.
Prerequisites: INFO 370 and junior standing. Detailed coverage of the TCP/IP protocol suite and its application to internetworking. Emphasis is placed on security, vulnerabilities and controls.

INFO 491 Topics in Information Systems

Semester course; variable hours. Variable credit. Maximum of 3 credits per course; maximum total of 6 credits for all topic courses. Prerequisite: junior standing. An in-depth study of a selected business topic, to be announced in advance.

INFO 492 Independent Study in Information Systems

Semester course; 1-3 credits. Maximum total of 3 credits. Prerequisites: junior or senior standing as a major in a business curriculum and approval of adviser and department chair prior to course registration. Intensive study under supervision of a faculty member in an area not covered in-depth or contained in the regular curriculum.

INFO 493 Internship in Information Systems

Semester course; 3 lecture hours. 3 credits. Pre- or corequisites: 3.2 GPA in major, permission of director of ISRI, INFO 370 and 465. Intention to enroll must be indicated to director prior to or during advance registration of the semester of credit. Involves students in a meaningful experience, typically 20 hours per week, in a setting appropriate to the major. Students enrolled in INFO 493 may register for a maximum of six credit hours of other course work.

Management**MGMT 121 The Business Environment**

Semester course; 3 lecture hours. 3 credits. Not open to juniors and seniors in the School of Business. Concepts and issues in contemporary business.

MGMT 291 Topics in Management

Variable hours. Variable credit. Maximum of 3 credits per topic. Prerequisite: permission of instructor. An in-depth study of selected business topics. Graded as pass/fail at the option of the department.

MGMT 310 Managing People in Organizations

Semester course; 3 lecture hours. 3 credits. This course is restricted to students who have completed at least 54 credits (junior standing). Introduces students to the management of people in organizations, focusing on the managerial skills, knowledge and activities needed for a successful business operation. Topics include planning, organizing, staffing and leading; effectively utilizing human capital to achieve an organization's objectives in today's competitive environment.

MGMT 318 Study Abroad

Semester course; variable hours. 1-3 credits. Prerequisite: permission of instructor. A field study orientation with the purpose of exposing students to particular global marketplaces. Open to all majors.

MGMT 319 Organizational Behavior

Semester course; 3 lecture hours. 3 credits. This course is restricted to students who have completed at least 54 credit hours (junior standing). Introduction to the determinants and consequences of human behavior and task performance in an organizational setting. Topics include motivation, job design, group development, organizational design, communication, leadership and change.

MGMT 321 Introduction to Entrepreneurship

Semester course; 3 lecture hours. 3 credits. The importance, problems and requirements of small businesses; establishing policies for prices, promotion, control and credit; regulations as well as specific strategies and opportunities related to small business. Formerly MGMT 421.

Effective Fall 2015

MGMT 321 Survey in Entrepreneurship
Semester course; 3 lecture hours. 3 credits. Underlying concepts in entrepreneurship; the importance of entrepreneurs and the problems they face; entrepreneur characteristics and competencies; what makes an idea entrepreneurial; managing relations, ethics and sustainability; opportunity recognition, critical thinking and emphasis on innovative concept development; detailed concept feasibility analysis.

MGMT 331 Human Resource Management

Semester course; 3 lecture hours. 3 credits. Prerequisite: MGMT 301, STAT 210 or STAT 212. This course is restricted to students who have completed at least 54 credit hours (junior standing). Introduces students to the role of human resource management in attracting and retaining a productive workforce. Includes human resource planning, recruitment and selection; employee diversity and development; performance appraisal and reward systems; labor and employee relations; and public policy related to HRM practices.

MGMT 334 Organization Design and Effectiveness

Semester course; 3 lecture hours. 3 credits. Prerequisite: junior standing. Applies macro-organization theory to the effective design of organizational structure and processes. Examines the role of factors such as technology, structure, strategy and environment; power, politics and culture in organizations; and organizational life cycles.

MGMT 389 Managerial Skills Development

Semester course; 3 lecture hours. 3 credits. Prerequisite: MGMT 319. A practicum in the development of personal, interpersonal and team-management skills as applied to leadership and teamwork.

MGMT 403 Human Resource Development

Semester course; 3 lecture hours. 3 credits. Prerequisite: junior standing. Designed to improve qualifications of those seeking employment in the human resources field. Focuses on human resource development and organization development and their relationship to human resource management. Formerly ADLT 403.

MGMT 418/INTL 418 International Management

3 lecture hours. 3 credits. Prerequisite: junior standing. The study of the environment of international business, ethics and social responsibility in international settings, culture and its effect on behavior and management practice, and the strategies and management practices of firms engaged in international activities. Aims to provide students with the knowledge, skills and sensitivities needed to be effective managers in the international business environment.

MGMT 419/INTL 419 Doing Business in Europe

Semester course; 3 lecture hours. 3 credits. Prerequisite: junior standing and permission of instructor. Designed primarily as a core integrative course for students enrolled in the Certificate in International Management Studies, but other students are welcome. The course has three goals: a) integration of foreign languages, European studies and international management; b) infusion of other business areas relevant to doing business in Europe (such as international marketing, finance law and economics); and c) the development of cultural sensitivity and social responsibility. The course will be organized as a series of seminars with faculty and other speakers from the above disciplines.

MGMT 420 Labor and Employment Relations

Semester course; 3 lecture hours. 3 credits. Prerequisite: MGMT 331. This course is restricted to

students who have completed at least 54 credit hours (junior standing). Managerial decision-making in labor management relationships; the collective bargaining process and the administration of labor agreements; the impact of public policy and labor legislation.

MGMT 422 Managing the Family Firm

Semester course; 3 lecture hours. 3 credits. Prerequisites: MGMT 321 or permission of instructor, and junior standing. Students are expected to develop specific strategies and approaches to enhance the effectiveness of the family firm. Designed for members of family firms as well as those who will be working in or providing goods or services for family enterprises. Topics include succession strategies; management and strategic planning; ownership issues; taxes-transfer, gift and estate; professionalizing the family firm; boards of directors in the family firm, family business growth, psychological issues, change and conflict in the family business; family relations; women in the family firm; the younger generation; consulting and education for family business; family business in society; global and ethnicity issues in family business; culture and values.

MGMT 431 Strategic Human Resource Management

3 lecture hours. 3 credits. Prerequisite: MGMT 331. This course is restricted to students who have completed at least 54 credit hours (junior standing). A critical study of selected problems in human resource management.

MGMT 433 Compensation Management

Semester course; 3 lecture hours. 3 credits. Prerequisite: MGMT 331. The design and implementation of compensation and reward systems that both support an organization's strategy and enhance organizational effectiveness.

MGMT 434 Strategic Management

Semester course; 3 lecture hours. 3 credits. Prerequisites: MGMT 319, 320 and 325; MGMT 323 or MGMT 481 or ACCT 481; MKTG 301; FIRE 311; INFO 360; and ECON 303. This course is restricted to business majors with senior standing. Integrative course to analyze policy issues at the overall management-level involving functional areas such as production, finance and marketing, in context with the economic, political and social environment.

MGMT 435 New Venture Strategy and Initiation

Continuous courses; 3 lecture hours. 3-3 credits. Prerequisites: MGMT 321; completion of MGMT 435 to enroll in MGMT 436. First semester: provides students with an integrated strategic analysis of entrepreneurial firms and how they establish competitive advantage. Second semester: engages students in intensive development of a comprehensive business plan using knowledge and skills from MGMT 435. Students should take MGMT 436 immediately following MGMT 435.

MGMT 436 New Venture Strategy and Initiation

Continuous courses; 3 lecture hours. 3-3 credits. Prerequisites: MGMT 321; completion of MGMT 435 to enroll in MGMT 436. First semester: provides students with an integrated strategic analysis of entrepreneurial firms and how they establish competitive advantage. Second semester: engages

students in intensive development of a comprehensive business plan using knowledge and skills from MGMT 435. Students should take MGMT 436 immediately following MGMT 435.

MGMT 444/FIRE 444 Occupational Safety, Health and Security

Semester course; 3 lecture hours. 3 credits. Covers the principles and practices, and regulatory dimensions of occupational safety, health and security. Causes of workplace health hazard exposures, accidents and domestic and international industrial violence are studied with an emphasis on prevention. Characteristics of effective occupational safety, health and workplace security programs are studied to facilitate understanding and application in the workplace.

MGMT 446/INTL 446 International Human Resource Management

Semester course; 3 lecture hours. 3 credits. Prerequisite: MGMT 331, INTL/MGMT 418 or ECON/INTL 329. Covers the application of human resource management activities in an international context. Highlights similarities and differences with domestic methods; current practices in the selection, development, compensation and maintenance of parent-country, host-country and third-country nationals; and the impact of regulatory and cultural differences between countries.

MGMT 447 Human Resource Information Systems

Semester course; 3 lecture hours. 3 credits. Prerequisite: MGMT 331. This course is restricted to students who have completed at least 54 credit hours (junior standing). Covers contemporary human resource information software used in the primary activities of human resource management involving recruitment, selection, performance appraisal, employee benefits, pay administration, safety and health, human resource development, job analysis, human resource planning and job structuring. Emphasis is on introducing the software and practical application through hands-on experience in the computer laboratory.

MGMT 491 Topics in Management

Semester course; variable hours. Variable credit. Maximum of 3 credits per course; maximum total of 6 credits for all topic courses. Prerequisite: junior standing. An in-depth study of a selected business topic, to be announced in advance.

MGMT 492 Independent Study in Management

Semester course; 1-3 credits. Maximum total of 3 credits. Prerequisites: junior or senior standing as a major in a business curriculum and approval of adviser and department chair prior to course registration. Intensive study under supervision of a faculty member in an area not covered in-depth or contained in the regular curriculum.

MGMT 493 Internship in Management

Semester course; 3 credits. Prerequisites: senior standing in the major offering the internship and permission of the department chair. Intention to enroll must be indicated to the instructor prior to or during advance registration for semester of credit. Involves students in a meaningful experience in a setting

appropriate to the major. Graded as pass/fail at the option of the department.

Marketing

MKTG 301 Marketing Principles

Semester course; 3 lecture hours. 3 credits. This course is restricted to students who have completed at least 26 credit hours (sophomore standing). An introduction to the activities, set of institutions and processes for creating, communicating, delivering and exchanging offerings that have value for customers, clients, partners and society at large. Formerly MKTG 308.

MKTG 302 Marketing Problems

Semester course; 3 lecture hours. 3 credits. Prerequisite: MKTG 301. This course is restricted to students who have completed at least 54 credit hours (junior standing). A case course requiring the senior marketing student to apply their knowledge in solving marketing managerial problems. Marketing majors should take this course in the semester immediately following the term in which they complete MKTG 301. Formerly MKTG 476.

MKTG 310 Information for Marketing

Decisions

Semester course; 3 lecture hours. 3 credits. Prerequisites: MKTG 301; and MGMT 301, STAT 210, or STAT 212. This course is restricted to students who have completed at least 54 credit hours (junior standing). Students receive an overview of the marketing research process. The course includes coverage of primary research, secondary data sources and marketing information systems. Students learn to apply research findings to marketing decisions.

MKTG 315 Buyer Behavior

Semester course; 3 lecture hours. 3 credits. Prerequisite: MKTG 301. This course is restricted to students who have completed at least 54 credit hours (junior standing). Study of the relevant psychological, sociological and anthropological variables that shape buyers' activities and motivations in household and organizational decision-making. Throughout the course, students consider the issue of why consumers behave as they do in the marketplace and the nature of their choices as individual, family and institutional buyers. Formerly MKTG 373.

MKTG 320/INTL 320 International Marketing

Semester course; 3 lecture hours. 3 credits. Prerequisite: MKTG 301. This course is restricted to students who have completed at least 54 credit hours (junior standing). Designed to help students develop an understanding of international marketing policies and the differences among foreign marketing environments. Students compare and contrast domestic and international marketing and examine recent changes in the international marketing environment. Formerly MKTG 378/INTL 378.

MKTG 325 Business-to-business Marketing

Semester course; 3 lecture hours. 3 credits. Prerequisites: MKTG 301 and junior standing. This course focuses on strategy development for marketers whose customers include other businesses, the government and/or institutions. It explores the buying behavior of these organizations and highlights how the product development and management processes for

such customers differ from the processes used for consumer marketing.

MKTG 330 Integrated Marketing Communications

Semester course; 3 lecture hours. 3 credits. Prerequisite: MKTG 301. This course is restricted to students who have completed at least 54 credit hours (junior standing). An overview of the steps required to develop an integrated marketing communications campaign. Topics include advertising, public relations, sales promotion, personal selling and direct marketing. Special emphasis is placed on the role of new technologies and interactive media. Formerly MKTG 371.

MKTG 335 Introduction to Personal Selling

Semester course; 3 lecture hours. 3 credits. Prerequisite: MKTG 301. This course is restricted to students who have completed at least 54 credit hours (junior standing). Examines the fundamental nature of personal selling in the promotion mix, including the sales process and the techniques used in performing the selling function. Explains the diverse decisions and activities necessary to manage the outside sales force efficiently and effectively to achieve the organization's overall goals. Formerly MKTG 435.

MKTG 340 Retail Management

Semester course; 3 lecture hours. 3 credits. Prerequisite: MKTG 301. This course is restricted to students who have completed at least 54 credit hours (junior standing). A comprehensive view of retailing and an application of marketing concepts in a practical retail managerial environment. Students learn to evaluate retail firms and to identify their strengths and weaknesses. Formerly MKTG 376.

MKTG 430 Experiential Marketing

Semester course; 3 lecture hours. 3 credits. Prerequisites: MKTG 301, MKTG 330 and junior standing. This course will introduce the student to topics and strategies involving brand experiences and experiential marketing tactics. Students will explore experiential marketing, a marketing strategy designed to cultivate positive brand-consumer experience through products, communication and staged brand experiences. Additional concepts to be examined include brand strategy, marketing and the five senses, event marketing, mobile marketing, ambush marketing, guerilla marketing, venues and sponsorships, sampling, premiums, technology, social media, and data collection.

MKTG 435 Selling in the Business Marketplace

Semester course; 3 lecture hours. 3 credits. Prerequisites: MKTG 301, MKTG 335 and junior standing. This course focuses on selling strategy and tactics for sales managers and field sales representatives whose customers include other businesses, government and/or institutions. Areas of concentration include preparing for, and conducting, effective business-to-business sales calls, including prospecting, scheduling customer sales meetings, needs identification, presentation and securing new business.

MKTG 442 Services Marketing

Semester course; 3 lecture hours. 3 credits. Prerequisite: MKTG 301. This course is restricted to students who have completed at least 54 credit hours

(junior standing). Students develop both a theoretical and practical understanding of "the service product," including the role of customer service in retail and industrial settings. Students learn techniques for analyzing and improving service system design. Students develop an understanding of "quality" as it relates to service products, and they exercise a number of approaches for assessing and improving perceived service quality. Formerly MKTG 475.

MKTG 445 Nonprofit Marketing

Semester course; 3 lecture hours. 3 credits.
Prerequisite: MKTG 301. This course is restricted to students who have completed at least 54 credit hours (junior standing). Examines the relationship between marketing and organizational success in the nonprofit sector, as well as the impact of nonprofit organizations on local, national and global economies. Through real-world applications, students learn to combine marketing strategies and tactics with civic engagement, community service and corporate social responsibility. Students must complete a minimum of 20 service-learning hours with the nonprofit organization that is the focus of the course.

MKTG 448/INTL 448 Digital Marketing

Semester course; 3 lecture hours. 3 credits.
Prerequisites: MKTG 301 and MKTG 330. This course is restricted to students who have completed at least 54 credit hours (junior standing). Examines Internet marketing as a necessary ingredient to successful worldwide marketing strategy. Students analyze markets using Web-based techniques for market evaluation, competitive analysis, market comparison and selection. Discussion includes perspectives on marketing strategies and tactics.

MKTG 450 Product Development and Management

Semester course; 3 lecture hours. 3 credits.
Prerequisite: MKTG 301. This course is restricted to students who have completed at least 54 credit hours (junior standing). Study of the role of marketing in developing and managing products. Essential concepts include the use of project teams for product development and the application of a new product development process. Topics include innovation, technology, listening to the voice of the customer, product design, branding, positioning and product life-cycle management. Formerly MKTG 472.

MKTG 470 Field Project in Marketing

Semester course; 3 credits. Prerequisite: MKTG 301. This course is restricted to students who have completed at least 54 credit hours (junior standing). Students take part in a real-world project under faculty supervision, with the topic announced in advance. Examples include conducting a marketing research project, creating an advertising campaign, writing a marketing case study about an existing business and developing a marketing plan.

MKTG 475 Honors Seminar in Marketing

Semester course; 3 lecture hours. 3 credits.
Prerequisites: MKTG 301 and permission of department chair. This course is restricted to students who have completed at least 54 credit hours (junior standing). Students conduct research about major firms in the Richmond region. Chief marketing officers of these firms teach students about current marketing issues and evaluate the students' projects.

MKTG 491 Topics in Marketing

Semester course; variable hours. Variable credit, with a maximum total of 3 credits per course. For marketing majors, a maximum total of 6 credits for all topics courses. Prerequisite: MKTG 301. An in-depth study of a selected business topic, to be announced in advance.

MKTG 492 Independent Study in Marketing

Semester course; 1-3 credits. For marketing majors, a maximum total of 3 credits for all MKTG 492 courses. Prerequisites: MKTG 301, junior standing and permission of adviser and department chair prior to course registration. Intensive study or research under supervision of a faculty member in an area not covered in depth or contained in the regular curriculum.

MKTG 493 Internship in Marketing

Semester course; 3 credits. Prerequisites: senior standing in the major offering the internship and permission of the department chair. Intention to enroll must be indicated to the instructor prior to or during advance registration for semester of credit. Involves students in a meaningful experience in a setting appropriate to the major. Graded as pass/fail at the option of the department. Formerly MRBL 493.

Supply Chain Management and Analytics

SCMA 171 Mathematical Applications for Business

Semester course; 3 lecture hours. 3 credits.
Prerequisite: MATH 141 or MATH 151. Pre- or corequisite: INFO 162. Mathematics equivalency may be validated by a satisfactory score on the VCU Mathematics Placement Test within the one-year period immediately preceding the beginning of the course. Formulation and solution of problems using a spreadsheet and algebra, mathematics of finance, matrices and introductory linear programming. Instruction will include spreadsheet use as a calculation and graphing tool. Formerly MGMT 171.

SCMA 212 Differential Calculus and Optimization for Business

Semester course; 3 lecture hours. 3 credits.
Prerequisite: SCMA 171 or MATH 151 or satisfactory score on the VCU Mathematics Placement Test within the one-year period immediately preceding the beginning of the course. Univariate and bivariate differential calculus and optimization of algebraic functions that model business phenomena. Students should take SCMA 212 immediately after completing SCMA 171. Formerly MGMT 212.

SCMA 301 Business Statistics I

Semester course; 3 lecture hours. 3 credits.
Prerequisite: SCMA 212 or MATH 200. Statistical methods for collection, visualization and analysis of business and economic data from populations and processes. Statistical thinking, concepts of variability, sampling, descriptive measures, contingency tables, probability and introduction to regression, correlation, confidence intervals and hypothesis testing. Students may not receive degree credit for both SCMA 301 and STAT 208, 210, 212 or 312. Formerly MGMT 301.

SCMA 302 Business Statistics II

Semester course; 3 lecture hours. 3 credits.
Prerequisite: SCMA 212 or MATH 200 and SCMA

301, STAT 210 or STAT 212. Statistical methods employed in the collection and analysis of business and economic data. Continuation of statistical inference for means and variable relationships using t-tests, analysis of variance, contingency tables, regression and correlation analysis with emphasis on problem formulation and interpretation of computational results.

SCMA 320 Production/Operations Management

Semester course; 3 lecture hours. 3 credits.
Prerequisite: SCMA 301, STAT 210 or STAT 212. This course is restricted to students who have completed at least 54 credit hours (junior standing). Discipline of management and the management process within the operations of an organization. Planning and controlling of operations through decision analysis, forecasting, aggregate planning, inventory management and quality management. Formerly MGMT 320.

SCMA 323 Legal Environment of Business

Semester course; 3 lecture hours. 3 credits.
Prerequisite: sophomore standing. Basic legal concepts applicable to business, including the legal aspects of operating a business, contracts, employment relationships, sales, bailments and commercial paper, along with ethical considerations and social and political influences. Students may not receive degree credit for both SCMA 323 and MGMT/ACCT 481. Formerly MGMT 323.

SCMA 324 Tort Law

Semester course; 3 lecture hours. 3 credits. Basic concepts of tort law with emphasis on intentional torts, negligence, causation, proximate cause, strict liability, nuisance, tortious interference with contract rights, misrepresentation, defamation and privacy. Formerly MGMT 324.

SCMA 325 Organizational Communication

Semester course; 3 lecture hours. 3 credits.
Prerequisite: BUSN 225 or the equivalent. This course is restricted to students majoring in the School of Business who have completed at least 54 credit hours (junior standing). A study of interpersonal, team and organizational communication practices in modern dynamic work and virtual environments. This course includes dealing with written business messages, report writing, job-search techniques, nonverbal communication, oral presentations and intercultural communication. The focus will include both theoretical constructs and skill development. Formerly MGMT 325.

SCMA 327 Business and Technical Report Writing

Semester course; 3 lecture hours. 3 credits.
Prerequisites: UNIV 200 or HONR 200, and ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291 or 295. Development of critical writing skills used in business, science, technology and government, including instructions, descriptions, process explanations, reports, manuals and proposals. The course will include such topics as communication theory, technical style, illustrations, formats for proposals, reports and manuals. Formerly MGMT 327.

SCMA 329 Introduction to Intercultural Communication

Semester course; 3 lecture hours. 3 credits. An introduction to the basic concepts, principles and skills

for improving verbal and nonverbal communication with persons from different cultures. Using a cultural general approach, topics discussed include the concept of culture, barriers to intercultural communication, verbal communication process and nonverbal communication aspects. Appropriate for business and non-business majors. Formerly MGMT 329.

SCMA 339 Quantitative Solutions for Management

Semester course; 3 lecture hours. 3 credits.
Prerequisite: SCMA 301, STAT 210 or STAT 212. This course is restricted to students who have completed at least 54 credit hours (junior standing). Modeling business-related problems using quantitative techniques. Focus is on applications to problems in the service and manufacturing sectors. Typical problem situations involve management of inventory, scheduling of people and processes and allocation of scarce resources. Formerly MGMT 339.

SCMA 346 Technology and the Management Process

Semester course; 3 lecture hours. 3 credits.
Prerequisite: junior standing. Study of the impact of information technology on the managerial process, workgroups and communication. Specific topics include IT applications for information workers, nontraditional work environments, environmental ergonomics, security and electronic monitoring of employees, identification and selection of end-user IT, and technology and organizational change. Formerly MGMT 346.

SCMA 350 Introduction to Project Management

Semester course; 3 lecture hours. 3 credits.
Prerequisite: junior standing. Introductory exposure to and practice with the concepts of project management, the activities and skills of project managers, the prevalence of projects in organizations, and the value of project management skills for all managers. Students will employ project management terminology, participate in project work and engage in the appropriate technical and interpersonal processes for managing successful projects. Formerly MGMT 350.

SCMA 386 Introduction to Supply Chain Management

Semester course; 3 lecture hours. 3 credits. This course is restricted to students who have completed at least 54 credit hours (junior standing). Introduction to supply chains with emphasis on management, e-commerce and globalization. Topics covered include achievement of strategic fit among members of the chain; managing information system requirements; managing economies of scale, role of cycle inventory, impact of aggregation on risk and inventory; determining the optimal level of product availability, coordination and performance measurement. Formerly MGMT 386.

SCMA 427 Employment Law

Semester course; 3 lecture hours. 3 credits.
Prerequisite: SCMA 323 or MGMT 331. This course is restricted to students who have completed at least 54 credit hours (junior standing). A survey of legislation and court and administrative-body decisions affecting the employer/employee relationship. Formerly MGMT 427.

SCMA 439 Introduction to Quality Management and Six Sigma

Semester course; 3 lecture hours. 3 credits.
Prerequisite: SCMA 320. This course is restricted to students who have completed at least 54 credit hours (junior standing). Critical concepts of process management from quality management and Six Sigma; service quality; systems thinking; process improvement strategy and methods; fact-based decision-making; collection and use of data in improvement projects; introduction to data analysis tools and techniques; statistical process control. Formerly MGMT 439.

SCMA 440 Forecasting Methods and Process

Semester course; 3 lecture hours. 3 credits.
Prerequisite: SCMA 302 or STAT 314. This course is restricted to students who have completed at least 54 credit hours (junior standing). An application-oriented presentation of forecasting process and forecasting methods to support planning and decision-making. Statistical forecasting methods are emphasized, including exponential smoothing, decomposition and regression. Also includes experience with computer software. Formerly MGMT 440.

SCMA 491 Topics in Supply Chain Management and Analytics

Semester course; variable hours. 1-3 credits. Students are restricted to a maximum total of 6 credits for all topics courses. Prerequisite: junior standing. An in-depth study of a selected business topic related to the disciplines in supply chain management and analytics, to be announced in advance.

SCMA 492 Independent Study in Supply Chain Management and Analytics

Semester course; 1-3 credits. Maximum total of 3 credits. Prerequisites: junior or senior standing as a major in a business curriculum and approval of adviser and department chair prior to course registration. Intensive study under supervision of a faculty member in an area not covered in depth or contained in the regular curriculum.

SCMA 493 Internship in Supply Chain Management and Analytics

Semester course; 3 credits. Prerequisites: senior standing in the major offering the internship and permission of the department chair. Intention to enroll must be indicated to the instructor prior to or during advance registration for semester of credit. Involves students in a meaningful experience in a setting appropriate to the major.

School of Dentistry

Dental Hygiene

DENH 301 Dental Hygiene Theory I

Semester course; 2 lecture and 6 laboratory/clinical hours. 5 credits. Designed to familiarize the student with the scope, role and responsibilities of the dental hygiene profession. Topics include an introduction to the educational and therapeutic services as well as the philosophy of preventive oral health and its relevance to the practice of dental hygiene. Also introduces the clinical knowledge and skills needed to perform fundamental clinical dental hygiene procedures, instrumentation and preventive services.

DENH 302 Dental Hygiene Theory II

Semester course; 2 lecture hours. 2 credits. Continuation of DENH 301. Designed to provide the student with knowledge and skills necessary to provide patient care and includes instruction in some more advanced dental hygiene skills, including dental hygiene diagnosis, treatment planning, oral signs of abuse/neglect, topical medicaments and use of sonic and ultrasonic instrumentation.

DENH 312 Preventive Oral Health Education

Semester course; 3 lecture hours. 3 credits. Introduces preventive oral health strategies, methods, materials and principles of instruction in health education and communication. Emphasizes preventive oral health concepts as they relate to individual patients, community groups as well as professional peer group presentations. Current theories on topical issues, such as fluoridation, cardiology, dental products and devices, and alcohol/tobacco/illicit drug use will be presented.

DENH 327 Clinical Dental Hygiene I

Semester course; 1 seminar and 12 laboratory/clinical hours per week. 5 credits. This course has two segments. The initial segment reinforces the knowledge and clinical skills learned in DENH 301. Additional laboratory experiences allow the student to re-assert technical skill proficiency prior to entry into the clinical education experience. The second segment introduces the clinical practicum and dental hygiene services as part of a comprehensive care model within the School of Dentistry. Students apply basic instrumentation and patient treatment skills in a clinical setting. Seminars provide opportunity for students to problem solve and critically discuss and assess clinical experiences.

DENH 342 Nutrition

Semester course; 3 lecture hours. 3 credits. Designed to provide students with an overview of the chemistry of the major nutrients as well as provide a practical approach to the concepts of nutrition. Emphasis will be placed on developing positive preventive health behaviors and providing nutritional education to dental patients in a clinical setting. The interrelationships of diet, nutrition and dental and systemic diseases will be discussed along with current food trends, consumer aspects of food choices and basic nutrition principles. A general review of dietary supplements also will be provided.

DENH 401 Dental Hygiene Theory III

Semester course; 2 lecture hours. 2 credits. Dental specialty content is presented: concepts and techniques in specialty areas that will enable the dental hygienist to consider implications for dental hygiene treatment

planning with relation to periodontics, orthodontics, endodontics, preventive, cosmetic and restorative dentistry, pain control, oral surgery, prosthodontics, pediatric dentistry and implantology. Through case scenarios students develop treatment plans with regard to the dental hygiene process of care. Students discuss patient education needed for each phase of care appropriate for the informed consent of the patient.

DENH 402 Dental Hygiene Theory IV

Semester course; 2 lecture hours. 2 credits. This course is designed to present the principles of dental practice, including dental team management strategies, business office management, increasing use of computers in dentistry, OSHA and its impact on practice management, insurance coverage for dental care, and employment opportunities and career options.

DENH 407 Research Methods and Study Designs

Continuous course; 2 lecture hours. 2 credits. Designed to guide dental hygiene students in becoming competent in the use of scientific literature as a part of lifelong learning and evidence-based decision-making in patient care. Covers foundational materials in research design and biostatistics, including the development of testable hypotheses, data collection, data summary, and evaluation and interpretation of data found in scientific literature. Students will critique scientific literature from peer-reviewed journals and participate in reflection of current literature on assessment of patients with special needs by dental students. Students will also take part in an online Collaborative Investigator Training Initiative for protecting human subjects in research. Graded as CO in first semester with letter grade assigned upon completion of second semester.

DENH 411 Introduction to Public Health

Semester course; 2 lecture hours. 2 credits. This hybrid course is intended to provide the dental hygiene student with an overview of the broad field of public health. Topics include the sciences of public health, the controversial nature of public health, powers and responsibilities of the government, social and behavioral factors in health, environmental issues in public health, medical care and public health, and public health challenges in the upcoming century. The course serves as a foundation for DENH 412. The course will also provide students with experiences that foster positive attitudes and behaviors regarding their responsibility to care for underserved populations, thereby providing insights on the impact of social and economic factors on dental health. Field experiences place emphasis on special populations, including elementary school children; geriatric, institutionalized and hospitalized clients; and individuals with mental and/or physical disabilities. The course and its field experiences will prepare the dental hygienist for the role of dental public health practitioner, educator and consultant, as well as a resource person in community settings.

DENH 412 Community Dental Health

Semester course; 1 lecture and 3 clinical/service-learning project hours. 2 credits. This hybrid course is designed to provide dental hygiene students with an introduction and overview of basic concepts of dental public health, community dental health education and community program planning. Course topics include oral health trends, dental indices, water fluoridation, prevention and control of oral diseases in a

community, and community dental health programs. Students become involved in the application of concepts such as program assessment, design, implementation and evaluation. This course will prepare the dental hygienist for the role of dental public health practitioner, educator, and consultant and resource person in community settings. Field experience is designed to prepare students to function in a variety of community health settings. Emphasis on special populations of elementary school children, geriatric, institutionalized, hospitalized and individuals with mental and/or physical disabilities.

DENH 422 Current Issues, the Law and Ethics

Semester course; 2 lecture hours. 2 credits. This online course is designed to explore the ethics, jurisprudence and principles of dental hygiene practice. Students explore ethical issues and dilemmas in dental hygiene and health care delivery. This course strives to provide students with the foundations of ethical reasoning and decision-making in practices. The course fosters professional development and an understanding of the legal and ethical aspects of oral health care.

DENH 437 Clinical Dental Hygiene II-III

Continuous courses; 1 seminar and 12-15 clinical/laboratory hours per semester. 5-6 credits. Prerequisite: completion of DENH 437 to enroll in DENH 447. A continuation of the clinical practicum; seminars and clinical experiences continue to prepare students to provide oral health care services in the private and public sector. Students participate in comprehensive care clinical experiences within the School of Dentistry as well as the specialty clinics via scheduled and supervised extramural rotations. Advanced dental hygiene procedures are initiated and patient assessment, management skills and self-assessment are emphasized. Skill development in dental hygiene procedures continues; patient management skills as well as decision-making and problem-solving in relation to patient assessment, treatment planning and evaluation are emphasized. Course sequence provides the student with the opportunity to use and further enhance the knowledge and skills of dental hygiene practice and procedures in a clinical model that emphasizes comprehensive patient care and a foundation for transference of those skills to the work environment in the private and public sector. Grade of PR required in DENH 437 for continuation in DENH 447.

DENH 447 Clinical Dental Hygiene II-III

Continuous courses; 1 seminar and 12-15 clinical/laboratory hours per semester. 5-6 credits. Prerequisite: completion of DENH 437 to enroll in DENH 447. A continuation of the clinical practicum; seminars and clinical experiences continue to prepare students to provide oral health care services in the private and public sector. Students participate in comprehensive care clinical experiences within the School of Dentistry as well as the specialty clinics via scheduled and supervised extramural rotations. Advanced dental hygiene procedures are initiated and patient assessment, management skills and self-assessment are emphasized. Skill development in dental hygiene procedures continues; patient management skills as well as decision-making and problem-solving in relation to patient assessment, treatment planning and evaluation are emphasized. Course sequence provides the student with the opportunity to use and further enhance the knowledge and skills of dental hygiene practice and procedures in a clinical model that

emphasizes comprehensive patient care and a foundation for transference of those skills to the work environment in the private and public sector. Grade of PR required in DENH 437 for continuation in DENH 447.

DENH 449 Clinics in Dental Hygiene

Semester course; 1-3 credits. Clinical/laboratory experiences offering the opportunity to use and further develop the knowledge and skills of dental hygiene practice.

DENH 450 Independent Study

Semester course; 1-5 credits. Independent study projects planned to meet the learning objectives of the student.

DENH 477 Special Topics in Dental Hygiene

Semester course; 1-3 credits. Designed around the interests of students, faculty expertise and availability of educational resources. Format may include intensive mini-courses or workshops.

General Practice

GENP 302 Dental Materials

Semester course; 1 lecture and 3 laboratory hours. 2 credits. Provides the scientific foundation for understanding the factors guiding the use of biomaterials in dentistry as they relate to the practice of dental hygiene. Dental and material science concepts are defined and their relationships developed to establish an understanding of the influence of material properties and manipulation on the longevity and success of treatment. Dental materials are discussed in terms of their physical, mechanical, chemical, biological and esthetic properties. Factors that influence tooth sensitivity, caries prevention, tissue irritation, longevity of restoration, dental bonding, materials selection and allergic reactions are emphasized. Primary dental materials will be discussed in relation to their properties and manipulation with an approach to aid in patient education and to recognize adverse affects on the patient's health from improper manipulation or placement failures.

GENP 311 Oral Anatomy and Occlusion

Short course; 2 lecture hours; 15-20 hours seminar/recitation and online discussion. 10 weeks. 3 credits. This course combines lecture with readings and research for online discussion and addresses the dental terminology and the crown and root morphology of the permanent dentition. Students become familiar with the basic principles of occlusion: how teeth occlude, the diverse occlusal classifications, the arrangement of teeth in the dental arches, and the relationship of the dental arches to one another with focus on review of the anatomy and function of masticatory muscles and the temporomandibular joints. The lecture portion of the course is devoted to the didactic aspects of learning tooth anatomy. The online portion of this course is devoted to the fundamentals of occlusion and making application of both course segments to the clinical environment.

Oral Pathology

ORPT 301 Dental Radiology

Semester course; 1 lecture hour. 1 credit. This is an introductory course that covers radiation physics, radiation biology and geometrical principles as applied

to radiology and radiographic anatomy. Students will study the radiographic anatomy of the head and neck and exposure and processing techniques for diagnostic radiographic examinations of the head and neck. Areas are covered with the intent to link these principles to the knowledge needed in clinical practice.

ORPT 324 Oral Pathology

Semester course; 3 lecture hours. 3 credits. This course is designed to provide the student with a body of basic information on general and organ specific pathology. The purpose of the course is to enable the student to better recognize and interpret symptoms, signs and pathologic characteristics of organ, systemic and oral disease that will be encountered in practice. Included is study relating to the etiology, pathogenesis, prognosis, prevention and treatment of oral disease. Students will study the development, reactive and neoplastic conditions of the oral cavity with emphasis placed on the more commonly occurring diseases.

Oral Surgery

ORSG 431 Management of the Medically Compromised Dental Patient and Medical Emergencies in the Dental Office

Semester course; 2 lecture and 3 clinical/laboratory hours. 3 credits. Provides students with the knowledge and skills to provide safe and effective care for medically compromised patients. The student will have didactic and clinical experience in obtaining, recording and interpreting the findings of physical examination, obtaining and interpreting results of appropriate clinical laboratory and radiological examination, and communicating with other health care professionals. Instruction in physical evaluation provides the student with sufficient knowledge, judgment and skill to recognize normal findings as well as significant deviations from the normal. Didactic material includes a study of disease processes that affect the major organ systems of the body. In addition, students will have the opportunity to recognize and manage medical emergencies that can occur during dental treatment. Care for individuals with physical and mental disabilities will be presented with emphasis on the management of this special population in the general dental office.

Periodontics

PERI 326 Periodontics I

16 lecture, 2 seminar and 2 clinical hours. 1 credit. Corequisites: ANAT 302, BIOL 209 or equivalent, MICR 365. This course introduces the fundamental concepts of periodontal disease necessary for proper patient assessment, diagnosis, prognosis and treatment planning. This course stresses the rationale and technical aspects of examination of the periodontal patient. Emphasis will be placed on the etiology of periodontal diseases, rationale and outcomes of treatment. This course features small-group exercises in lectures, seminars and clinical patient-based instruction.

PERI 329 Periodontics II

Semester course; 2 lecture hours. 2 credits. Second in the series of periodontics courses for dental hygiene students, this course provides the scientific basis to understand the pathology and etiological factors of periodontal diseases. In addition, topics related to

periodontal therapy not provided elsewhere in the dental hygiene curriculum are addressed, including periodontal risk assessment and advanced periodontal therapy procedures.

School of Education

Adult Education

ADLT 402 How Adults Learn

Semester course; 3 lecture hours. 3 credits. Overview of the adult as a learner. Topics include how and what adults learn, why adults participate in learning and major barriers to learning for adults. Implications for teachers/trainers of adults are explored.

Educational Studies

EDUS 101 Teacher Cadet Program

Semester course; 3 hours. 3 credits. Open only to students concurrently enrolled through a Teacher Cadet program at a participating Virginia high school. Designed to provide an introduction and foundation for the teaching profession, including awareness of personal attributes related to education, learning and cognitive styles, student growth and development, history and trends in public education, basic instructional approaches and the structure and governance of public education. The program includes an extended clinical component.

EDUS 200 Education in American Society

Semester course; 3 lecture hours. 3 credits. An elective course for non-education majors, including those who may be exploring careers in education. An examination of the complex nature of our American educational system and various societal influences on that system. The course will include an exploration of some critical issues affecting the future of American education, on-site visits to educational institutions, and other field experiences in settings that will permit exploration of career options.

EDUS 300 Foundations of Education

Semester course; 3 lecture hours. 3 credits. The historical, sociological and philosophical backgrounds of educational theories and practices. The aim of the course is to help the student develop a basic understanding of education in the modern world.

EDUS 301 Human Development and Learning

Semester course; 3 lecture hours. 3 credits. A study of human development through the life span with special emphasis on child and adolescent psychology, the nature of learning, and basic concepts of learning theories.

EDUS 305/PSYC 305 Educational Psychology

Semester course; 3 lecture hours. 3 credits. The application of psychological principles to the teaching-learning process, with special emphasis on theories of learning and development.

EDUS 400 Independent Study

Semester course; 1-6 hours. 1-6 credits. Opportunities are provided for supervised research and independent study in selected areas. Designed for advanced students. All work offered on an individual basis with the approval of instructor and departmental chair.

EDUS 401 Pupil Evaluation

Semester course; 3 lecture hours. 3 credits. Principles and procedures of evaluation of pupil growth in cognitive, affective and psychomotor domains for a prospective classroom teacher; construction and analysis of teacher-made tests and other formal and informal assessment procedures; interpretation and use of criterion-referenced and norm-referenced

standardized tests in measuring group and individual achievement.

EDUS 476 Methods for Residence Hall Assistants

Semester course; 3 lecture hours. 3 credits. Prerequisite: serve in VCU residence halls or permission of instructor. Course designed primarily to present resident assistants and others with student development concepts, peer assistance and helping skills, and group techniques. Residence halls will be used as primary learning laboratories.

EDUS 494 Topical Seminar in Education

Semester course; variable hours. 1-3 credits. May be repeated for a maximum of 6 credits. A seminar intended for group study by personnel interested in examining topics, issues or problems related to the teaching, learning and development of students.

Emotional Disturbance

EMOD 400 Characteristics of Children/Adolescents with Emotional Disturbances

Semester course; 3 lecture hours. 3 credits. Surveys the nature of children and adolescents with emotional disturbances and behavior disorders with emphasis on the psychological, biophysical, sociological and ecological factors that related to their educational needs. Related topics include definitions, classification, school identification, assessment procedures and intervention approaches.

Mental Retardation

MNRT 400 Characteristics of Children and Youth with Mental Retardation

Semester course; 3 lecture hours. 3 credits. A study of the nature and needs of children and youth with mental retardation. Explores medical, biological and physical aspects of mental retardation, cause of retardation and introductory assessment and instructional techniques.

Reading and Study Skills

RDSS 100 Reading and College Study Skills

Semester course; 3 lecture hours. 3 credits. A study of effective reading and study skills at the college-level. Emphasis is placed on vocabulary development as well as reading and study strategies.

RDSS 101 Advanced Reading, Study and Communication Skills

Semester course; 3 lecture and laboratory hours. 3 credits. Prerequisite: RDSS 100, adviser's recommendation, or instructor's permission. A study of advanced reading and study skills at the college-level. Students develop and apply critical reading-thinking skills, library research skills and advanced vocabulary.

Recreation, Parks and Sport Management

RPSM 195 Recreation Leadership

Semester course; 3 lecture hours. 3 credits. Course provides a study of the theories of leadership, group dynamics and human relationships used in recreation delivery systems. Students acquire and demonstrate

practical skills in planning, organizing, leading, participating and evaluating a wide variety of recreation activities selected from the basic areas of programming such as social recreation, music, dance, drama, arts and crafts, environmental-outdoor recreation, special events, sports and games, linguistics and hobby clubs.

RPSM 200 Introduction to Outdoor Recreation Activities

Semester course; 3 lecture hours. 3 credits. A basic introduction to the theory and practice of outdoor adventure recreation. Emphasis is given to knowledge and understanding of the theoretical and philosophical foundations of participation in outdoor adventure recreation programs. Students will be exposed to an experiential approach to learning. Through involvement with activities, students will develop skills in planning, administering and evaluating outdoor adventure recreation programs.

RPSM 261 Recreation, Parks and Sport Management in Modern Society

Semester course; 3 lecture hours. 3 credits. Introduction to the historical and philosophical foundations of leisure and recreation; implications of continued growth of the leisure phenomenon in contemporary society.

RPSM 303 Leisure Delivery Systems

Semester course; 3 lecture hours. 3 credits. Evaluation of public, private and commercial agencies that provide recreation services. Particular emphasis is given the types of leisure activities offered in relationship to the recreation market.

RPSM 320 Recreation Analysis

Semester course; 3 lecture hours. 3 credits. Examines various approaches to the study of leisure. Assesses the use of free time and the expenditure of time and money to fulfill leisure needs.

RPSM 331 Outdoor Recreation Site Selection, Analysis and Development

Semester course; 3 lecture hours. 3 credits. Principles of site selection and facility development. The site selection and facility development processes will be broken down into individual elements for the purpose of examining each to understand the interrelationships of all elements. Consideration will be given to the social, political, architectural, engineering and legal aspects of site selection and facility development. Emphasis on outside nonsport facilities.

RPSM 332 Sport Facilities Design and Development

Semester course; 3 lecture hours. 3 credits. Principles of planning, design and construction of sports facilities. Consideration will be given specific principles of design relating to both outdoor and indoor sport facilities. The use of standards relative to space requirements, location and programs also will be examined. Emphasis on inside sport facilities and outside sport fields and courts.

RPSM 340 Introduction to Sport Management

Semester course; 3 lecture hours. 3 credits. Acquaints the student with management principles, techniques and functions related to the business fundamentals of sport. Includes communications, personnel, finance, public relations, legal aspects, facilities and program development.

RPSM 341 Introduction to Travel and Tourism

Semester course; 3 lecture hours. 3 credits.

Examination of historical perspective, basic policy issues and social and economic impact of the travel and tourism field. Functions, programs and objectives of various types of travel and tourism organizations will be studied.

RPSM 371 Introduction to Therapeutic Recreation

Semester course; 3 lecture hours. 3 credits. An introduction to services for special populations. Examines the various agencies and institutions, which provide such services as well as the professional competency necessary for the delivery of leisure services to the handicapped; the physically, socially and mentally disabled; and the aged. Introduces the student to client assessment and programming.

RPSM 372 Leisure Education

Short course (5 weeks); 1 lecture hour. 1 credit. Pre- or corequisite: RPSM 371. Exposes students to theory and content of leisure education. Student learning will focus on the mastery of theory, mastery of the content and process of leisure education, and skillful application of instructional activity.

RPSM 373 Assessment Techniques in Therapeutic Recreation

Short course (5 weeks); 1 lecture hour. 1 credit. Pre- or corequisite: RPSM 371. Instructs students in techniques and issues in the administration of assessment within therapeutic recreation. Students will develop an understanding of and appreciation for the role of quality assessment in ensuring client outcomes, quality programming and accountability. Students will gain skill in the selection and administration of a variety of assessment tools.

RPSM 374 Activity Development and Analysis

Short course (5 weeks); 1 lecture hour. 1 credit. Pre- or corequisite: RPSM 371. Equips students with knowledge and skills necessary to lead both groups and individuals in a variety of recreation activities across multiple domains. Students will become skilled in the analysis of activities for the purpose of treatment planning and development.

RPSM 400 Park Interpretation

Semester course; 3 lecture hours. 3 credits. Equips students with knowledge and skills necessary to understand and explain to others the special characteristics of natural and cultural or sports-related features of parks. Students also will become skilled in planning and delivering park-related interpretive educational programs.

RPSM 403 Management of Recreation, Park and Sport Management Agencies

Semester course; 3 lecture hours. 3 credits. Principles of the administrative process. Deals with basic procedures of recreation administration, with particular emphasis on legal foundations, organizational structure, management theory, personnel practices and policies, legal liability, activity and liability insurance.

RPSM 404 Revenue Sources for Parks and Recreation

Semester course; 3 lecture hours. 3 credits. Examination of the financing, budgeting and marketing techniques used to develop and operate leisure service opportunities.

RPSM 431 Advanced Recreation Facilitation Techniques

Semester course; 3 lecture hours. 3 credits. The course provides a study of advanced leadership, group dynamics and human relationships used in leisure delivery systems. Students acquire skills in facilitation techniques including decision-making, problem-solving, conflict management and evaluation strategies.

RPSM 442 Group Travel Management

Semester course; 3 lecture hours. 3 credits. A study of the processes and procedures involved in the planning and organization of group travel. Emphasis will be given to the economic and political dimensions of travel, deregulation, how travel agencies function, professional liability and future trends in the field.

RPSM 445 Conference and Convention Planning

Semester course; 3 lecture hours. 3 credits. The planning, organizing, promoting and implementing of conferences and conventions. Included will be the development of conference programming, financing and public relations as well as negotiations with meeting facilities, hotels and food services agencies.

RPSM 461 Recreation Resource Management

Semester course; 3 lecture hours. 3 credits. A comprehensive overview of recreation resource management institutions, both public and private. Emphasis is given to the public sector at the federal, state and local levels. Professional, service and educational organizations contributing to outdoor recreation are examined. The legal framework operating within recreation resource management also is covered.

RPSM 465 Park Operations and Maintenance

Semester course; 3 lecture hours. 3 credits. The purpose of this course is to gain an understanding of the concepts, principles and practices of park operations and maintenance. Quantitative and qualitative resource evaluation will be emphasized. Special consideration is given to methods and techniques for determining management and operations policies.

RPSM 471 Clinical Practice and Procedures in Therapeutic Recreation

Semester course; 3 lecture hours. 3 credits. Designed to equip students with the knowledge and skills required of therapeutic recreation specialists in clinical practice. Exposure to standards of practice, activity analysis, documentation and holistic approaches to delivering services will be included.

RPSM 473 Leisure and the Aged

Semester course; 3 lecture hours. 3 credits. An analysis of the leisure needs of the aged. The need for specialized leisure programs for the aged in a variety of community and institutional settings will be explored. Preretirement counseling will be emphasized.

RPSM 475 Recreation in Correctional Settings

Semester course; 3 lecture hours. 3 credits. A survey of recreational needs of inmates in adult and juvenile correctional institutions, short-term institutions and community-based correctional institutions. The development of specialized programming and the role

of recreation in the rehabilitative process will be examined.

RPSM 476 Leisure Counseling

Semester course; 3 lecture hours. 3 credits. An introduction to the theory and application of leisure counseling for the general public and those with special needs. The use of leisure counseling as a means of client evaluation and assessment also will be examined.

RPSM 480 Specialized Recreation Programs for Handicapped Children

Semester course; 3 lecture hours. 3 credits. Development of recreation programs for handicapped children in schools, other institutions and community settings. Consideration will be given to the development of leisure skills and goal accomplishments.

RPSM 490 Seminar

Semester course; 3 seminar hours. 3 credits. Advanced seminar in recreation, parks and tourism that analyzes in-depth special problem areas and current issues. Independent research on special projects.

RPSM 491 Topics in Recreation

Semester course; 3 lecture hours. 3 credits. Maximum 6 credits per semester; maximum total of 9 credits in all departmental topics courses that may be applied to the major. An in-depth study of specific content areas in recreation, park and tourism operations. See the Schedule of Classes for specific topics to be offered each semester.

Recreation, Parks and Sport Management Lab**RPSZ 204 Rock Climbing**

Semester course; 2 laboratory hours. 1 credit. A basic introduction to rock climbing, utilizing lectures, readings and rock climbing experiences. Emphasis will be placed on safety, equipment and conservation, as well as techniques of belaying, climbing and rappelling. Attention is given to the importance of communication and personal feelings of mastery and success in outdoor adventure recreation. Course is taught evenings and weekends as found in the Schedule of Classes.

RPSZ 300 Wilderness Education I Laboratory

Semester course; 2 laboratory hours. 1 credit. Corequisite: RECR 300. Designed to practice the principal philosophical foundations of adventure theory and wilderness leadership through field experiences.

RPSZ 371 Introduction to Therapeutic Recreation Laboratory

2 laboratory hours. 1 credit. Corequisite: RECR 371. This laboratory requires a minimum of 36 contact hours in three specified settings under supervision of certified therapeutic recreation specialists. An introduction to field experience in therapeutic recreation settings. The acquisition of field experience concurrent with classroom introductory material regarding leisure services for populations with physical, mental, emotional or social limitations, offers professional practice, individualized feedback and a holistic view of therapeutic recreation service for students.

Teacher Education

TEDU 101 Introduction to Teaching

Semester course; 3 lecture hours. 3 credits. Provides undergraduate students with an introduction to teaching and learning in elementary settings. Students will explore current educational reforms and their influences on elementary schools and students. Service-learning activities will enable students to gain firsthand experiences in urban elementary classrooms.

TEDU 203 Focus on Choice

Semester course; variable hours. 1-3 credits. May be repeated for a maximum of 3 credits. A career planning experience for adults focusing on discontinuity in life patterns and a review of current educational and occupational opportunities. Consideration of the world of work, fields of education and volunteer service, and the development of one's own potential will be featured.

TEDU 310 Practicum

1-3 credits. May be repeated for a maximum of 6 credits. A field placement that precedes student teaching, the nonschool supervised experience or the internship. Includes planned observations, tutorials and small group involvement.

TEDU 330 Survey of Special Education

Semester course; 3 lecture hours. 3 credits. Presents an overview of the historical basis and regulatory requirements related to special education, including the individual education program (IEP) as a legal document and the rights and responsibilities of parents, teachers and schools. The characteristics of learners with disabilities and their educational and medical implications are also examined, as well as the cultural, familial and ethical issues involved.

TEDU 386/ENGL 386 Children's Literature I

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291 or 295. Designed to give students an appreciation of children's literature; includes biography, fable, myth, traditional and modern fanciful tales and poetry, as well as a survey of the history of children's literature.

TEDU 387/ENGL 387 Literature for Adolescents

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291, or 295. Designed to acquaint the prospective middle and secondary school English teacher with the nature, scope and uses of adolescent literature. The student is acquainted with reading materials for meeting the varied needs and interests of adolescents.

TEDU 389/ENGL 389 Teaching Writing Skills

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291 or 295. Studies the theory and methods for teaching writing to students in middle and secondary schools. Teaches strategies for prewriting, composing, peer revision, evaluation and topic construction. Includes extensive journal and essay writing.

TEDU 400 Independent Study

Semester course; 1-6 hours. 1-6 credits. Opportunities are provided for supervised research and independent study in selected areas. Designed for advanced students. All work offered on an individual basis with the approval of instructor and departmental chair.

TEDU 407 Educational Media: Utilization

Semester course; 3 lecture hours. 3 credits. The study and use of audiovisual equipment and aids, and means for using them for more effective presentations to groups.

TEDU 410 Classroom Management in Elementary Schools

Semester course; 3 lecture hours. 3 credits. Designed to help students develop their understanding of effective classroom management techniques. Students will examine management models and research and evaluate antecedent factors of a management scheme such as their philosophy of education, management style, learning styles and school and classroom climate.

TEDU 411 Intergrating the Arts in Curriculum for Young Children

Semester course; 3 lecture hours. 3 credits. Provides pre-service teachers with an understanding of how experiences in visual art, music, drama and movement can be used to support the growth and development of children ages 3 to 8. Students will learn of the importance of all of the arts for children's cognitive, socio-emotional and psychomotor development. Emphasis will be given to integrating developmentally appropriate experiences in the arts into early childhood curriculum.

TEDU 414 Curriculum and Methods for Early/Elementary Children

Semester course; 4 lecture hours. 4 credits. Prerequisite: admission to teacher preparation program. Corequisites: TEDU 310 (Practicum A) and 426. A study of developmentally appropriate curriculum and methods for early/elementary children, including diversity, assessment, behavior guidance and management, planning instruction and creating positive learning environments. Includes an overview of the history of early/elementary education and issues currently facing the profession.

TEDU 426 Teaching Reading and Other Language Arts

Semester course; 3 lecture hours. 3 credits. Presents teaching strategies and materials in reading and the other language arts based on current theory and research. Emphasizes the interrelatedness of listening, speaking, reading and writing and the importance of naturalistic language experiences.

TEDU 444 Introduction to Learning Disabilities

Semester course; 3 lecture hours. 3 credits. Corequisite: TEDU 310. Provides a comprehensive view of the field of learning disabilities with emphasis on the school-age years. Covers basic information pertaining to causes, characteristics, assessment, parent and family factors and laws pertaining to individuals with learning disabilities.

TEDU 461 Teaching Persons with Mental Disabilities

Semester course; 3 lecture hours. 3 credits. Prerequisite: permission of instructor. Taken concurrently with TEDU 310. Curriculum development and organization of activities for the mentally retarded at different maturational levels with specific attention to program content equipment, materials and resources.

TEDU 485 Directed Student Teaching I

6 credits. Prerequisites: admission to TEDU 310 or equivalent with a minimum grade of C, recommendation of practicum supervisor and passing score on the VCLA test. A classroom teaching experience in a public school or other approved setting, which includes opportunities for increasing involvement with children. Culminates in full responsibility for planning, implementing and evaluating classroom activities.

TEDU 486 Directed Student Teaching II

6 credits. Prerequisites: admission to TEDU 310 or equivalent with a grade of C or better and recommendation of practicum supervisor. A classroom teaching experience in a public school or other approved setting, which includes opportunities for increasing involvement with children. Culminates in full responsibility for planning, implementing and evaluating classroom activities.

TEDU 494 Topical Seminar in Education

Semester course; variable hours. 1-3 credits. May be repeated for a maximum of 6 credits. A seminar intended for group study by personnel interested in examining topics, issues or problems related to the teaching, learning and development of students.

School of Engineering

Biomedical Engineering

EGRB 101 Biomedical Engineering Practicum I

Semester course; 2 lecture hours. 2 credits.
Prerequisites: registration in biomedical engineering department and permission of course coordinator. This course involves the introduction of clinical procedures and biomedical devices and technology to biomedical engineering freshmen. Students will tour medical facilities, clinics and hospitals and will participate in medical seminars, workshops and medical rounds. Students will rotate among various programs and facilities including orthopaedics, cardiology, neurology, surgery, otolaryngology, emergency medicine, pharmacy, dentistry, nursing, oncology, physical medicine, ophthalmology, pediatrics and internal medicine.

EGRB 102 Introduction to Engineering

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisites: registration is restricted to biomedical engineering majors only. Introduces basic engineering principles in the context of biomedical topics, including electrical circuits and components such as resistors, capacitors, diodes, transistors, digital electronics and motors. Applications of biomedical systems including heart function, brain waves, human motion and skin responses are discussed. The laboratory introduces fundamental biomedical circuit testing and measurement and proper laboratory writing, with students required to analyze, build and test biomedical devices such as those involving ECG, EMG and Galvanic Skin Response.

EGRB 105 History of Medical Technology

Semester course; 3 lecture hours. 3 credits. Origins and recent advances in medical technologies including hearing aids, artificial knees, heart-lung machines, medical anesthesia devices and medical imaging systems such as CAT MRI.

EGRB 203 Introduction to Biomechanics

Semester course; 3 lecture hours. 3 credits.
Prerequisites: MATH 201 and PHYS 207. Restricted to biomedical engineering majors only. The theory and application of engineering mechanics applied to the design and analysis of rigid and deformable biomedical and physiological structures. The study of forces and their effects, including equilibrium of two- and three-dimensional bodies, stress, strain and constitutive relations, bending, torsion, shearing, deflection, and failure of physiological and biomedical systems.

EGRB 215 Computational Methods in Biomedical Engineering I

Semester course; 3 lecture hours. 3 credits.
Prerequisites: MATH 201 and sophomore standing in biomedical engineering. Corequisite: MATH 301, MATH 310 or permission of instructor. The goal of this course is to enhance students' software skills for subsequent biomedical engineering courses and laboratories, as well their careers. The course covers the basic fundamentals of programming in MATLAB, as well as data analysis of biomedical data. An important component of this course is developing problem-solving skills.

EGRB 301 Biomedical Engineering Design Practicum

Semester course; 3 lecture hours. 3 credits.
Prerequisite: junior standing in biomedical engineering program. Explores the professional and ethical responsibilities of a biomedical engineer. Emphasis will be placed on design issues associated with biomedical engineering, teamwork, regulatory issues and human and animal subjects.

EGRB 303 Biotransport Processes

Semester course; 3 lecture hours. 3 credits.
Prerequisites: PHIS 309, 310 (or equivalents); EGRB 203; and PHYS 207. Course involves the study of mass, momentum and heat transfer within the human body, between the human body and the environment, and in the design of devices and systems that are involved with transport processes in medical and clinical settings. The underlying principles of mass, momentum and energy transfer will be addressed followed by a study of such processes that are ongoing in the human body. The design of biomedical devices and systems that involve transport processes also will be studied. Examples include cardiovascular blood flow, transport across cell membranes, respiration and thermoregulation.

EGRB 307 Biomedical Instrumentation

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisites: EGRE 206, EGRB 215. A study of the physical principles, design and clinical uses of biomedical instrumentation. Analysis and design of low frequency electronic circuits, which are most frequently used in biomedical instruments, will be conducted. Analysis of biosensors, biopotential electrodes, the measurements of biopotential signals including electrocardiogram (ECG), electroencephalogram (EEG) and electromyogram (EMG), blood pressure, blood flow, and respiratory system will be conducted. Laboratory work on basic biomedical electronics and instrumentation will be performed.

EGRB 308 Biomedical Signal Processing

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisites: MATH 301 and 310; PHIS 309 and 310; EGRB 215. Explores the basic theory and application of digital signal processing techniques related to the acquisition and processing of biomedical and physiological signals including signal modeling, AD/DA, Fourier transform, Z transform, digital filter design, continuous and discrete systems.

EGRB 310 Biomechanics

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisites: EGRB 203, EGRB 215, PHIS 309 and PHIS 310. Corequisites MATH 301 and MATH 310. A study of the forces, stresses and strains in the human body during normal function. Emphasis is placed on the mechanics of various components of the body including hard (bone) and soft (skin, vessels, cartilage, ligaments, tendons) tissues from a structure-function perspective. Stress and strain relationships for these biomaterials will be analyzed based upon the fundamentals of engineering mechanics. In addition, the distinctive features of biological materials will be studied with respect to their differences from nonliving materials and elaborated upon in laboratory exercises using material evaluation protocols.

EGRB 315 Computational Methods in Biomedical Engineering II

Semester course; 3 lecture hours. 3 credits.
Prerequisite: EGRB 215, MATH 301 and MATH 310. The goals of this course are to: (1) prepare software skills for using LabVIEW for collecting real-time data from sensors, process information and control actuators and (2) prepare mechanical design skills using SolidWorks for designing structures and mechanisms, as well as performing simple analyses for assessing mechanical design criteria.

EGRB 401 Biomedical Engineering Senior Design Studio

Continuous courses; 9 laboratory hours. 3-3 credits.
Prerequisites: senior standing in the Department of Biomedical Engineering; EGRB 301, EGRB 307 and EGRB 308; or permission of instructor; completion of EGRB 401 to enroll in EGRB 402. A minimum of nine laboratory hours per week is dedicated to the design, development and execution of the senior design (capstone) project for biomedical engineering under the direction of a faculty research adviser in biomedical engineering or an acceptable substitute as determined by the course coordinator. Tasks include team meetings (for team projects), brainstorming, sponsor advising, designing, fabrications, assembling, reviewing, studying, researching, testing and validating projects. Monthly progress reports are due to the research adviser and course coordinator. An oral presentation is due at the end of the first semester, as well as a final project report and oral presentation at the conclusion of the two-semester design process.

EGRB 402 Biomedical Engineering Senior Design Studio

Continuous courses; 9 laboratory hours. 3-3 credits.
Prerequisites: senior standing in the Department of Biomedical Engineering; EGRB 301, EGRB 307 and EGRB 308; or permission of instructor; completion of EGRB 401 to enroll in EGRB 402. A minimum of nine laboratory hours per week is dedicated to the design, development and execution of the senior design (capstone) project for biomedical engineering under the direction of a faculty research adviser in biomedical engineering or an acceptable substitute as determined by the course coordinator. Tasks include team meetings (for team projects), brainstorming, sponsor advising, designing, fabrications, assembling, reviewing, studying, researching, testing and validating projects. Monthly progress reports are due to the research adviser and course coordinator. An oral presentation is due at the end of the first semester, as well as a final project report and oral presentation at the conclusion of the two-semester design process.

EGRB 403 Tissue Engineering

Semester course; 3 lecture hours. 3 credits.
Prerequisites: junior standing in engineering and PHIS 309 and 310, or permission of instructor. Study of the design, development and clinical application of tissue engineered components for use in the human body. Analysis of biology, chemistry, material science, engineering, immunology and transplantation as pertains to various tissue engineered components including blood vessels, bone, cartilage, pancreas, liver and skin.

EGRB 405 Finite Element Analysis in Solid Mechanics

Semester course; 3 lecture hours. 3 credits.
Prerequisites: EGRB 310 and MATH 301. Finite

element analysis as presented in this course is a numerical procedure for solving continuum mechanics problems that cannot be described by closed-form mathematical solutions. Emphasis will be placed on understanding the theoretical basis for the method, using a commercial software program, and understanding the volume of information that can be generated. Applications to both one- and two-dimensional problems in solid mechanics and biomechanics will be explored.

EGRB 406 Artificial Organs

Semester course; 3 lecture hours. 3 credits.
Prerequisites: PHIS 309 and PHIS 310 (or equivalents), EGRB 303, 307 and 310, or permission of instructor. This course explores the design, operating principles and practices regarding artificial organs and their use in the human body. Analysis of dialysis systems for kidney replacement, artificial hearts and heart assist devices, cardiac pacemakers, sensory organ assist and replacement devices, and artificial liver and pancreas devices. Design aspects, legal ramifications, regulatory issues and clinical implantation issues will be addressed.

EGRB 407 Physical Principles of Medical Imaging

Semester course; 3 lecture hours. 3 credits.
Prerequisites: junior standing in the School of Engineering and PHYS 208. A study of the physical principles and basic clinical uses of medical imaging. Analysis of radiation and interaction of radiation, generation and control of X-rays, X-ray diagnostic methods, X-ray computed tomography (CT), magnetic resonance imaging (MRI) and ultrasonic imaging will be conducted. Basic principle of radionuclide imaging also will be introduced.

EGRB 408 Advanced Biomedical Signal Processing

Semester course; 3 lecture hours. 3 credits.
Prerequisite: EGRB 308. This course will briefly review the basic theory of discrete-time signal processing techniques in biomedical data processing. Advanced signal processing techniques including adaptive signal processing, wavelets, spectral estimation and multirate signal processing will be employed. Specific examples utilizing electrocardiogram (ECG) and other biological signals are provided. Topics covered are alternance phenomenon in biological systems, late potential in ECG, intrapotential in ECG and coherence analysis.

EGRB 409 Microcomputer Applications in Biomedical Engineering

Semester course; 2 lecture and 3 laboratory hours. 3 credits. Prerequisite: EGRB 307. Covers microcomputer applications (hardware and software) as applied to biomedical science and biomedical engineering. Basic hardware components of a microcomputer are discussed with particular reference to configurations needed for analyzing biomedical events. Software applications including data encoding, data storage, graphical interfaces and real-time processing are explored for analysis of physiological and biomedical signals. Students will develop algorithms using LabView and MatLab to solve problems in biomedical engineering in the laboratories.

EGRB 420 Rehabilitation Engineering

Semester course; 3 lecture hours. 3 credits.
Prerequisites: PHIS 309 and PHIS 310 (or

equivalents), EGRE 206 (or equivalent) and EGRB 310, or permission of instructor. This course explores the principles and practices regarding rehabilitation engineering and the interaction of biomedical engineering with health care delivery to individuals who are disabled. It will cover the three main areas of rehabilitative engineering: assistive technology, prostheses and rehabilitation therapy devices. Design will be an important component of the course.

EGRB 421 Human Factors Engineering

Semester course; 3 lecture hours. 3 credits.
Prerequisites: PHIS 309 and PHIS 310 (or equivalents), and EGRB 310. This course explores the principles and practices regarding ergonomics and human factors engineering and the interaction of biomedical engineering with human function. Analysis of the functions of the human body regarding motion, sensory mechanisms, cognition and interaction with the environment will be included. Interactions of the human body with technology, workplaces, equipment and computers will be examined. Design of workplaces for optimal human performance will be discussed. Analysis of the design and arrangement of controls and displays will be covered.

EGRB 427 Biomaterials

Semester course; 3 lecture hours. 3 credits.
Prerequisites: junior standing in biomedical engineering, PHIS 309 and 310, or permission of instructor. Principles of materials science as it relates to the use of materials in the body. Characterization of biomaterials. Study of the properties of biomedical materials used as implants, prostheses, orthosis and as medical devices in contact with the human body. Analysis of physical, chemical, thermal and physiological response factors associated with materials and implant devices used in the human body.

Chemical and Life Science Engineering

CLSE 101 Introduction to Engineering

Semester course; 2 lecture and 3 laboratory hours. 3 credits. Prerequisites: course open to first-year students majoring in chemical and life science engineering. Introduction to chemical and life science engineering. Topics covered include ethics and social responsibility; engineering design process; engineering solutions; estimations and approximations; dimensions, units and conversions; mathematics and computer solutions; life-long learning; introduction to the interface between engineering, biology and medicine.

CLSE 102 Methods in CLSE

Semester course; 1 lecture hour. 1 credit. Prerequisite: CLSE 101. An introduction to problem formulation and solution methods for chemical and life science engineering. Typical chemical and life science engineering scenarios will be presented. Emphasis will be placed on identifying and formulating problems based on presented scenarios.

CLSE 115 Introduction to Programming for Chemical and Life Science Engineering

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Corequisite: MATH 200. Introduction to the concepts and practice of structured programming. Topics include problem-solving, top-down design of algorithms, objects, basic syntax, control structures, functions and arrays.

CLSE 201 Chemical Engineering Fundamentals I: Material Balances

Semester course; 3 lecture and 1 recitation hours. 4 credits. Prerequisites: CLSE 102 and 115; CHEM 102; and MATH 201. The first of two introductory chemical and life science engineering courses. Covers material balances on steady-state chemical processes.

CLSE 202 Chemical Engineering Fundamentals II: Energy Balances and Engineering Thermodynamics

Semester course; 3 lecture and 1 recitation hours. 4 credits. Prerequisites: CLSE 201 with a minimum grade of C, CHEM 101-102 and MATH 200-201 or equivalents. The second of two introductory chemical and life science engineering courses. Covers energy balances on steady-state chemical processes, computer-aided balance calculations, balances on transient processes and introduction to thermodynamics.

CLSE 301 Transport Phenomena I

Semester course; 3 lecture hours. 3 credits.
Prerequisites: CLSE 202, PHYS 208 and MATH 301. Basic concepts of transport phenomena as applied to chemical and life science engineering. Topics include transport of mass momentum and energy in single and multidimensions.

CLSE 302 Transport Phenomena II

Semester course; 3 lecture hours. 3 credits.
Prerequisites: CLSE 301 and 305. Concepts of transport phenomena as applied to chemical and life science engineering. Topics include advanced multicomponent, multiphase systems, integral analysis, and an integrated view of momentum, heat and mass transport in unit operations. Formerly EGRC 302.

CLSE 305 Thermodynamics of Phase Equilibria and Chemical Reactions

Semester course; 3 lecture hours. 3 credits.
Prerequisites: CLSE 115, 201, and 202, MATH 307. Thermodynamic properties of fluids and mixtures, partial molar quantities, phase equilibria, activity coefficients and correlations, equations-of-state, chemical reaction equilibria for liquid, vapor and multiphase reactions, and the use of equations-of-state and activity/fugacity correlations to obtain the thermodynamic functions required for the calculation of chemical reaction equilibrium constants. Computing using Excel VBA are a required component of this course.

CLSE 306/CHEM 306 Industrial Applications of Inorganic Chemistry

Semester course; 3 lecture hours. 3 credits.
Prerequisites: CHEM 302 and CHEZ 302. A study and analysis of the most important industrial applications of inorganic chemistry, with emphasis on structure/properties correlation, material and energy balances, availability and logistics of starting materials, economic impact and environmental effects. Formerly EGRC/CHEM 306.

CLSE 312 Chemical Reaction Engineering

Semester course; 3 lecture hours. 3 credits.
Prerequisites: CLSE 301 and 305. Introduces the student to the analysis of reactors via coupling of empirical reaction rates and thermodynamic constraints with reactor material and energy balances. The behavior of the ideal reactor types (batch, CSTR and PFR) is emphasized with attention given to

departure from these ideals by real systems. Formerly EGRC 312.

CLSE 320 Instrumentation Laboratory

Semester course; 6 laboratory hours. 2 credits.
Prerequisites: CLSE 201 and 202 both with a minimum grade of C and CLSE 301. This laboratory introduces students to a variety of measurement instruments used in modern chemical engineering laboratories and process plants. Detailed laboratory reports are required for each of the experiments undertaken by the students. Formerly EGRC 320.

CLSE 325 Bioengineering

Semester course; 3 lecture hours. 3 credits.
Prerequisites: CLSE 201 and BIOL 151 or BIOL 152. An introductory and survey level course required for all chemical engineering students. This course introduces concepts and principles of chemical engineering to problems and issues in the life sciences, biotechnology and medicine. Students apply heat and mass transfer concepts, separations and controls to topics that include clinical diagnostics, bioanalytical instrumentation, biosensors and biochips, bioprocess engineering including fermentation, biochemical pathway engineering, protein folding and aggregation, bioreactors and tissue engineering. Formerly EGRC 325.

CLSE 402 Senior Design Studio I (Laboratory/Project Time)

Semester course; 6 laboratory hours. 2 credits.
Prerequisites: senior standing in chemical and life science engineering and participation in a senior design (capstone) project; CLSE 301, 302, 305 and 312. A minimum of six laboratory hours per week dedicated to the execution phase of the senior design (capstone) project, which should meet appropriate engineering standards and multiple realistic constraints. Tasks include team meetings, brainstorming, sponsor advising, designing, fabrications, assembling, reviewing, studying, researching, testing and validating projects.

CLSE 403 Senior Design Studio II (Laboratory/Project Time)

Semester course; 6 laboratory hours. 2 credits.
Prerequisites: senior standing in chemical and life science engineering and participation in a senior design (capstone) project; CLSE 402. A minimum of six laboratory hours per week dedicated to the execution phase of the senior design (capstone) project, which should meet appropriate engineering standards and multiple realistic constraints. Tasks include team meetings, brainstorming, sponsor advising, designing, fabrications, assembling, reviewing, studying, researching, testing and validating projects.

CLSE 405 Process Synthesis

Semester course; 3 lecture hours. 3 credits.
Prerequisites: CLSE 302, 305 and 312. A senior technical elective. Students synthesize flowsheets for existing and newly proposed chemical and biochemical products. Quantitative tools learned in earlier courses are used to examine the technical and economic feasibility of the flowsheets. Written bi-weekly status reports are required from each student and each student completes a process synthesis and analysis as a semester project. Formerly EGRC 405.

CLSE 409 Process Control in Chemical and Life Science Engineering

Semester course; 3 lecture hours. 3 credits.
Prerequisites: CLSE 301 and 305. Covers process control as applied to chemical and life science engineering with many practical examples. Topics include time and frequency domain analysis, multivariable processes and applications to chemical and biochemical production and processing. Formerly EGRC 409.

CLSE 428 Introduction to Polymer Science and Engineering

Semester course; 3 lecture hours. 3 credits.
Prerequisites: CLSE 302, 305 and 312, and CHEM 302, or equivalents. A senior technical elective. The course offers an introduction to the chemistry, physical properties and processing of polymers. Topics include step and chain polymerization, structure/property relationships, mechanical properties of plastics and elastomers, solution properties, methods for polymer characterization, and processing techniques. Formerly EGRC 428.

CLSE 440 Unit Operations Laboratory

Semester course; 6 laboratory hours. 2 credits.
Prerequisites: CLSE 302, 305 and 312. Students carry out experiments with chemical and biochemical reactors, energy exchangers, fluid flow networks and other unit operations. Detailed laboratory reports are required for each of the experiments undertaken. Formerly EGRC 440.

CLSE 450 Undergraduate Research in Chemical and Life Science Engineering

Semester course; variable hours. Up to 6 credits.
Undergraduate research under the supervision of a faculty member. Specific topics vary depending on the interests of the student and the adviser. Registration requires approval of the student's academic adviser and research adviser. Formerly EGRC 350.

CLSE 460 Undergraduate Honors Research in Life Sciences Engineering

Semester course; 1-3 lecture hours. 1-3 credits.
Corequisites: BIOL 218, CLSE 302. An undergraduate honors research course for academically talented juniors and seniors requiring advanced work and an honors thesis on a topic relevant to life sciences engineering. Topics and credit hours will be chosen in consultation with a sponsoring faculty member. Formerly ENGR 460.

CLSE 461 Stem Cell Engineering

Semester course; 3 lecture hours. 3 credits.
Prerequisites: BIOL 218, CLSE 302. The production and behavior of adult and embryonic stem cells are studied and potential applications for the treatment of disease are surveyed. Stem cell engineering techniques including parthenogenesis, nuclear transfer stem cells and embryonic carcinoma cells are introduced. The use of stem and germ cells for cloning is covered, and ethical considerations involving the use of embryonic human stem cells are discussed. Formerly ENGR 461.

Computer Science

CMSC 101 Introduction to Computer Science

Semester course; 3 lecture hours. 3 credits.
Prerequisite: MATH 141 or the equivalent with a minimum grade of C. An introduction to the work of

computer scientists, including an overview of current research and application areas as well as career opportunities. Topics include problem-solving, the basics of computer organization, the software engineering life cycle, research resources and social and ethical aspects of technology. Additional topics also include binary, hexadecimal, two's complement, floating point representation, ASCII and Unicode.

CMSC 191 Topics in Computer Science

Semester course; 3 lecture hours. 3 credits. May be repeated for credit. Prerequisite: permission of the instructor. This course will teach selected topics in computer science. See the Schedule of Classes for specific topics to be offered each semester and prerequisites.

CMSC 245 Introduction to Programming Using C++

Semester course; 3 lecture hours. 3 credits.
Prerequisite: MATH 151 or satisfactory score on the Mathematical Placement Test. Students registering for CMSC 245 must have taken the VCU Mathematics Placement Test within the one-year period immediately preceding the beginning of the course. An exception to this policy is made in the case in which the stated alternative prerequisite course has been completed at VCU. Students are expected to have fundamental computer skills. Introduction to the concepts and practice of structured programming using C++. Problem-solving, top-down design of algorithms, objects, basic C++ syntax, control structures, functions and arrays. This course is intended for engineering majors.

CMSC 246 Advanced Programming Using C++

Semester course; 3 lecture hours. 3 credits.
Prerequisite: CMSC 245. Advanced programming in C++. Topics include program design, objects, classes, inheritance, files, strings, linked lists, stacks, queues, binary trees, recursion, and basic searching and sorting techniques. This course is intended for engineering majors.

CMSC 255 Introduction to Programming

Semester course; 3 lecture and 2 laboratory hours. 4 credits. Prerequisite: calculus-level placement on the VCU Mathematics Placement Test within the one-year period immediately preceding enrollment in the course, or MATH 151 or equivalent. Students are expected to have fundamental computer skills. Introduction to object-oriented programming using Java. Topics include problem-solving, top-down design of algorithms using control structures, methods, arrays, basic I/O, basic concepts of objects and classes in Java, Java classes for manipulating strings, and introduction to program testing, UML notation and integrated development environments. Students may not receive credit for both CMSC 255 and INFO 250.

CMSC 256 Data Structures and Object Oriented Programming

Semester course; 3 lecture hours. 3 credits.
Prerequisites: CMSC 255 with a grade of C or better and MATH 211 with a grade of C or better. Advanced programming using Java. Topics include introduction to object-oriented design, inheritance, polymorphism, exceptions, interfaces, linked lists, stacks, queues, binary trees, recursion, and basic searching and sorting techniques. Continued focus on program testing and

UML notation. Students may not receive credit for both CMSC 256 and INFO 350.

CMSC 302 Introduction to Discrete Structures

Semester course; 3 lecture hours. 3 credits.
Prerequisites: CMSC 255 and MATH 211, both with minimum grades of C. Combinatorial and sequential circuits, algorithms and algorithm analysis, recursion, recurrence relations, graphs, trees.

CMSC 303 Introduction to the Theory of Computation

Semester course; 3 lecture hours. 3 credits.
Prerequisite: CMSC 302 or the equivalent with a grade of C or better. Complexity classes, grammars, automata, formal languages, Turing machines, computability.

CMSC 311 Computer Organization

Semester course; 3 lecture hours. 3 credits.
Prerequisites: CMSC 101 and CMSC 302, both with minimum grades of C. Introduction to the basic organization of computers including elementary digital logic design, processor and arithmetic/logic unit design, data paths, memory hierarchy, I/O devices, instruction set architecture and addressing modes.

CMSC 312 Introduction to Operating Systems

Semester course; 3 lecture hours. 3 credits.
Prerequisite: CMSC 311 or EGRE 364. Computer systems design, I/O processing, secondary memory organization, command languages, memory management and job scheduling. Students will work in teams to design and implement an operating system simulation.

CMSC 355 Software Engineering: Specification and Design

Semester course; 3 lecture hours. 3 credits.
Prerequisite: CMSC 256 or EGRE 246, either with a minimum grade of C. Provides an overview of the software engineering process and software life-cycle models. Gives a detailed study of the analysis, specification and design phases. Students will work in teams to gain experience in software development methodology, developing specification and design documents and developing a prototype.

CMSC 391 Topics in Computer Science

Semester course; 3 lecture hours. 3 credits. May be repeated for credit. Prerequisite: permission of the instructor. This course will teach selected topics in computer science. See the Schedule of Classes for specific topics to be offered each semester and prerequisites.

CMSC 401 Algorithm Analysis with Advanced Data Structures

Semester course; 3 lecture hours. 3 credits.
Prerequisites: CMSC 256 with a grade of C or better and CMSC 302 with a grade of C or better. Introduction to algorithm analysis and complexity classes. Advanced data structures topics including multiple linked lists, height-balanced trees, B-trees, hashing and graph representation; incorporating data structures into object-oriented design. Analysis of various searching and sorting algorithms. Algorithm design topics include divide-and-conquer, dynamic programming and greedy methods.

CMSC 403 Programming Languages

Semester course; 3 lecture hours. 3 credits.
Prerequisites: CMSC 256 with a grade of C or better and CMSC 303. Survey of representative modern programming languages. Formal definition of programming languages including specifications of syntax and semantics. Precedence, infix, prefix and postfix notation. Global properties of algorithmic languages. Sub-routines, co-routines and tasks. List processing, string manipulation, data description and simulation languages. Run-time representation of program and data structures.

CMSC 404 Compiler Construction

Semester course; 3 lecture hours. 3 credits.
Prerequisites: CMSC 401 and 403. A first course in compiler theory and construction. Formal description of languages, underlying theory and design techniques for compilers, lexical analysis, syntax analysis, syntax-directed translation, intermediate languages, run-time system management, code generation, code optimization, compiler-building tools.

CMSC 409 Artificial Intelligence

Semester course; 3 lecture hours. 3 credits.
Prerequisites: CMSC 401 and 403 and MATH 310. Covers problem spaces, problem-solving methods, game playing, knowledge representatives, expert systems, natural language understanding.

CMSC 411 Computer Graphics

Semester course; 3 lecture hours. 3 credits.
Prerequisites: CMSC 355 and MATH 310. Presents mathematical techniques for graphic development and transformation, curve and surface approximation and projections, graphical languages and data structures and their implementation, graphic modeling.

CMSC 420 Software Engineering: Project Management

Semester course; 3 lecture hours. 3 credits.
Prerequisite: CMSC 355 with a minimum grade of C. Study of the logistics of team software development. Students work in teams to gain experience in software management and develop the components of a larger software product. Topics include risk management, project planning, quality management, configuration management and software testing.

CMSC 451 Senior Project

Continuous courses; 1 lecture and 4 laboratory hours. 3-3 credits. Prerequisites: senior standing in the computer science department; 27 credits in computer science, including CMSC 355 and CMSC 401; UNIV 200 or HONR 200 or equivalent; completion of CMSC 451 to enroll in CMSC 452. Capstone project or experience for the computer science major; research and presentation methods in computer science; ethical, legal and social issues in computing; and professional responsibilities of computer scientists. Each student will participate, either individually or as part of a team, in a project or other experience approved by the course coordinator or sponsored by another computer science faculty member. Each student will write and revise a research paper on a technical topic associated with his or her project or experience. During the first semester, students will submit a detailed written description of their proposed project or experience and will present orally some aspect of what they have learned and/or done during the first semester. A final project report and presentation, which will include a discussion of associated legal, social and/or ethical issues, are due at

the conclusion of the two-semester project or experience. (The courses in this sequence cannot be counted as upper-level CMSC electives for students graduating under bulletins prior to 2008-09.)

CMSC 452 Senior Project

Continuous courses; 1 lecture and 4 laboratory hours. 3-3 credits. Prerequisites: senior standing in the computer science department; 27 credits in computer science, including CMSC 355 and CMSC 401; UNIV 200 or HONR 200 or equivalent; completion of CMSC 451 to enroll in CMSC 452. Capstone project or experience for the computer science major; research and presentation methods in computer science; ethical, legal and social issues in computing; and professional responsibilities of computer scientists. Each student will participate, either individually or as part of a team, in a project or other experience approved by the course coordinator or sponsored by another computer science faculty member. Each student will write and revise a research paper on a technical topic associated with his or her project or experience. During the first semester, students will submit a detailed written description of their proposed project or experience and will present orally some aspect of what they have learned and/or done during the first semester. A final project report and presentation, which will include a discussion of associated legal, social and/or ethical issues, are due at the conclusion of the two-semester project or experience. (The courses in this sequence cannot be counted as upper-level CMSC electives for students graduating under bulletins prior to 2008-09.)

CMSC 491 Topics in Computer Science

Semester course; variable hours. 1-3 credits. May be repeated for credit with different content. Prerequisite: permission of instructor. This course will cover selected topics in computer science. See the Schedule of Classes for specific topics to be offered each semester.

CMSC 492 Independent Study

Semester course; variable hours. 2, 3 or 4 credits per semester. Maximum 4 credits per semester; maximum total of 6 credits. Generally open only to students of junior or senior standing who have acquired at least 12 credits in the departmental discipline. Determination of the amount of credit and permission of instructor and department chair must be procured prior to registration of the course. The student must submit a proposal for investigating some area or problem not contained in the regular curriculum. The results of the student's study will be presented in a report.

CMSC 493 Computer Science Internship

Semester course; variable hours. 1-3 credits. May be repeated for up to 3 credits. Prerequisites: CMSC 401 and CMSC 403. Approval of Computer Science Undergraduate Credentials Committee is required prior to registration. A minimum of 30 clock hours per credit in an information technology environment. The internship is designed to provide practical experience in the computing industry. Student must present a written report reflecting upon internship experience. Graded as pass/fail. Not applicable toward the computer science major.

Electrical and Computer Engineering

EGRE 101 Introduction to Engineering

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Course open to first-year students majoring in electrical or computer engineering. Introduction to engineering through instruction on basic concepts of engineering. Topics will include an introduction to basic circuit components and circuit analysis, digital logic design and programming. General topics important to all engineers will also be covered, such as mathematics, improving written and oral communication skills, teamwork, ethics and life-long learning. The laboratory introduces fundamental testing, measurement, troubleshooting methodology and proper laboratory notebook maintenance. Engineering design and analysis is also emphasized through a team-based design that involves designing, building and programming a robot.

EGRE 206 Electric Circuits

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisite: MATH 200 and EGRE 101, EGRM 101 or EGRB 102, as applicable per department, both with minimum grades of C. Corequisite: MATH 201. An introduction to electrical circuit theory and its application to practical direct and alternating current circuits. Topics include: Kirchhoff's Laws (review from EGRE 101, EGRM 101 or EGRB 102, as applicable), fundamental principles of network theorems, transient and steady-state response of RC, RL and RLC circuits by classical methods, time-domain and frequency-domain relationships, phasor analysis and power. Laboratory work, practical applications and integral laboratory demonstrations emphasize and illustrate the fundamentals presented in this course.

EGRE 207 Electric Circuits II

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisite: EGRE 206, with a minimum grade of C. An introduction to higher level electric circuit theory, including the study of basic active components, such as diodes and operational amplifiers. Emphasis will be placed on design rather than analysis. The laboratory exercises will serve to train students in the art of designing a circuit to perform specific tasks and to conform to specific design parameters.

EGRE 224 Introduction to Microelectronics

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisites: EGRE 207 and MATH 301, both with a minimum grade of C. This course covers the analysis, modeling and design of electrical circuits which contain electronic devices. Students will learn to design analog circuits to specifications through laboratory problems, a design project and circuit simulation.

EGRE 245 Engineering Programming Using C

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Restricted to electrical and computer engineering majors. Prerequisite: MATH 151 with a minimum grade of C. Students are expected to have fundamental computer skills. Introduction to the concepts and practice of structured programming using C. Problem-solving, top-down design of algorithms, basic C syntax, control structures, functions, arrays, files and strings.

EGRE 246 Advanced Engineering Programming Using C++

Semester course; 3 lecture hours. 3 credits. Restricted to electrical and computer engineering majors. Prerequisite: EGRE 245 with a minimum grade of C. Advanced programming for engineering applications in C++. Topics include objects, classes and inheritance; linked lists; recursion; basic searching and sorting techniques; and program design for control and monitoring type applications.

EGRE 254 Digital Logic Design

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisites: EGRE 101 and MATH 201 or equivalents, both with a minimum grade of C. An introduction to digital logic design with an emphasis on practical design techniques and circuit implementations. Topics include number representation in digital computers, Boolean algebra, theory of logic functions, mapping techniques and function minimization, design of combinational, clocked sequential and interactive digital circuits such as comparators, counters, pattern detectors, adders and subtractors. An introduction on designing digital circuits using schematic capture, logic simulation and hardware description languages is included. Students will use the above basic skills in the laboratory to design and fabricate digital logic circuits using discrete logic and field programmable gate arrays.

EGRE 303 Electronic Devices

Semester course; 3 lecture hours. 3 credits. Prerequisites: EGRE 224 and MATH 301, both with a minimum grade of C. An introduction to solid state electronic devices covering the fundamentals of atomic structure, band theory, charge transport in solids and terminal electrical characteristics of semiconductor devices including p-n junction and Schottky diodes, bipolar junction and insulated gate field-effect transistors.

EGRE 307 Integrated Circuits

Semester course; 3 lecture hours and 3 laboratory hours. 4 credits. Prerequisite: EGRE 224 with a minimum grade of C or consent of instructor. Analysis, modeling, design and measurement of advanced MOSFET and bipolar analog integrated circuits. Topics include active filters, differential amplifiers, frequency response and feedback topologies. Operational amplifier circuit topologies are used as a means of studying input, gain, level shift and output stages. Circuit design techniques are explored for mixed signal analog-digital circuits. This course provides the opportunity for a group design project of an integrated circuit chip, using advanced software tools for simulation and physical layout.

EGRE 309 Electromagnetic Fields

Semester course; 3 lecture hours. 3 credits. Prerequisites: EGRE 206, MATH 301 and MATH 307, and PHYS 208, all with a minimum grade of C. Fundamentals of engineering electromagnetics, including electrostatics, magnetostatics, electrodynamics, analysis and understanding of the phenomena associated with electric and magnetic fields, wave dynamical solutions of Maxwell's equations, reflection and transmission of electromagnetic waves in dielectric materials, waveguides and transmission line structures, and radiation from antennas.

EGRE 310 Microwave and Photonic Engineering

Semester course; 3 lecture hours. 3 credits. Prerequisite: EGRE 309 with a minimum grade of C. Wireless and optical communications applications of electromagnetic fields. Theory of microwave transmission line and waveguiding structures including impedance transformation and matching. Essential concepts from geometrical and physical optics and the interaction of photons with materials will be studied. Operating principles and design considerations of fiber optics, photodetectors and receivers are considered.

EGRE 334 Introduction to Microfabrication

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisites: CHEM 101, MATH 201 and PHYS 208, all with a minimum grade of C. This course gives an overview of microscale device fabrication and testing for a general audience. A wide variety of new terms, equipment and processes are presented. Fundamentals of photolithography, mask making, diffusion, oxidation, ion implantation, film deposition and etching are covered. Laboratory work consists of safety training, hands-on fabrication experience and testing. A laboratory chip test is fabricated from start to finish and then tested. The test chip includes basic integrated circuit elements as well as solar cells.

EGRE 335 Signals and Systems I

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisites: EGRE 206 and 245 and MATH 301, all with a minimum grade of C. Presents the concept of linear continuous-time and discrete-time signals and systems, their classification, and analysis and design using mathematical models. Topics to be covered: the concepts of linear systems and classification of these systems, continuous-time linear systems and differential and difference equations, convolution, frequency domain analysis of systems, Fourier series and Fourier transforms and their application, and continuous-time to discrete-time conversion.

EGRE 336 Introduction to Communication Systems

Semester course; 3 lecture hours. 3 credits. Prerequisite: EGRE 337 with a minimum grade of C. Introduction to the theory and application of analog and digital communications including signal analysis, baseband transmission, amplitude and angle modulation, digital modulation, baseband digital communication, and design considerations.

EGRE 337 Signals and Systems II

Semester course; 3 lecture hours. 3 credits. Prerequisite: EGRE 335 with a minimum grade of C. This class presents the Laplace and Z transforms and their application to electrical circuits and discrete-time systems, an introduction to probability, random variables and random processes with applications in electrical engineering.

EGRE 364 Microcomputer Systems

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisites: EGRE 246 and 254, both with a minimum grade of C. Basic computer organization, microprocessor instruction sets and architectures, assembly language programming and the function of computer memory and I/O subsystems will be discussed. The laboratory is designed to reinforce the lectures by providing the opportunity to study the

workings of a simple computer system in detail using simulation models and real hardware. Students will write and execute assembly language programs and make use of commercial design automation tools.

EGRE 365 Digital Systems

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisites: EGRE 246 and 254, both with a minimum grade of C. Corequisite: EGRE 364. Focuses on the design of modern digital systems. Topics covered include: introduction to modeling, simulation, synthesis and FPGA design techniques using VHDL; microprocessor peripherals and interfacing; embedded system hardware and software design issues.

EGRE 397 Vertically Integrated Projects in Electrical and Computer Engineering

Semester course; 3 laboratory hours. 1 credit. May be repeated for a maximum of 2 credits. Requires permission of the project faculty adviser. Restricted to electrical engineering and computer engineering majors. This course provides undergraduate students the opportunity to participate in multiyear, multidisciplinary projects under the guidance of faculty and graduate students in their areas of expertise. As they address research and development issues, students learn and practice many different professional skills, make substantial technical contributions to the project, and experience many different roles on a large, multidisciplinary design/discovery team.

EGRE 402 Senior Design Studio I (Laboratory/Project Time)

Semester course; 6 laboratory hours. 2 credits. Prerequisite: senior standing in Electrical Engineering, participation in a senior design (capstone) project, completion of any of EGRE 307, 310, 334, 365, 426, 435, 444, 454, 455, 520, 521, 522, 525, 526, 531, 533, 535. Co-requisite: any 400-level electrical engineering technical elective. A minimum of six laboratory hours per week dedicated to the execution phase of the senior design (capstone) project, which should meet appropriate engineering standards and multiple realistic constraints. Tasks include team meetings, brainstorming, sponsor advising, designing, fabrications, assembling, reviewing, studying, researching, testing and validating projects.

EGRE 403 Senior Design Studio II (Laboratory/Project Time)

Semester course; 6 laboratory hours. 2 credits. Prerequisite: EGRE 402. A minimum of six laboratory hours per week dedicated to the execution phase of the senior design (capstone) project, which should meet appropriate engineering standards and multiple realistic constraints. Tasks include team meetings, brainstorming, sponsor advising, designing, fabrications, assembling, reviewing, studying, researching, testing and validating projects.

EGRE 426 Computer Organization and Design

Semester course; 3 lecture and 1 laboratory hours. 3 credits. Prerequisite: EGRE 364 or CMSC 311 with a minimum grade of C. This course presents the foundation for computer design at the register transfer level. Starting from an instruction set architecture, students will learn the process used to design a data path and control unit to implement that instruction set. In addition, the topics of computer components and structures, data paths and control unit organizations,

I/O and memory systems, interrupt systems, pipelining, and multiprocessing will be discussed. In addition to reinforcing the lecture material, the laboratory exercises will teach students the art of modeling and designing computer system components using a hardware description language.

EGRE 427 Advanced Digital Design

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisite: EGRE 365 and 426, both with a minimum grade of C. This course provides students with practical foundations for the design, implementation and testing of digital systems. It expands on the digital and computer system theory presented in prerequisite courses. Topics covered include: microcontrollers and embedded processors, application specific IC (ASIC) architectures and implementing digital systems with ACISs, logic families and high-speed interfacing, logic synthesis, design methodologies, hardware/software codesign, production testing and design for testability, and construction, testing and debugging of digital system prototypes. In the laboratory, the students will design, construct, test and debug a multidisciplinary, computer-based hardware/software system to meet appropriate engineering standards and multiple realistic constraints.

EGRE 435 Microscale and Nanoscale Fabrication

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisites: EGRE 303 and EGRE 334, both with a minimum grade of C. This course presents the design tools and techniques for designing a fabrication process as well as a device design and layout for advanced microscale and nanoscale devices. A number of different types of device technologies are covered, incorporating electronic, micromechanical and microfluidic devices and sensors. In the laboratory section of the course, students work in design teams to develop a complete fabrication process and design layout for a microscale device to meet appropriate engineering standards and multiple realistic constraints. Computer simulations and computer-aided design tools are used in the final design. The laboratory section of this course accomplishes the design phase of the senior design capstone project, which is presented at the end of semester and fabricated in the subsequent course, EGRE 436.

EGRE 436 Advanced Microscale and Nanoscale Fabrication

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisite: EGRE 435 with a minimum grade of C. This course presents a detailed analysis of the physics and modeling of the fundamental processes used in semiconductor processing. Emphasis is placed on the non-ideal effects that cause realistic processes to deviate from first order models, including second order effects such as interactions on the atomic level and the influence of crystal defects. Processes covered in detail include oxidation, diffusion, ion implementation, thin film deposition and plasma etching techniques. Student work in design teams in the laboratory section, which focuses on the fabrication and testing of the microscale device developed in EGRE 435. The laboratory section of the course accomplishes the fabrication and testing phase of the senior design capstone project.

EGRE 444 Communication Systems

Semester course; 3 lecture hours. 3 credits. Prerequisite: EGRE 336 with a minimum grade of C. Design and analysis of analog and digital communication systems, pulse modulation, information and digital transmission, digital modulation, information theory and coding will be treated. Emphasis is placed on the student gaining an appreciation for and an understanding of the role of optimization and trade-offs by considering bandwidth requirements, signal-to-noise ratio limitations, complexity and cost of analog and digital communication systems.

EGRE 455 Control Systems Design

Semester course; 3 lecture hours. 3 credits. Prerequisite: EGRE 454 with a minimum grade of C. This course covers the use of state space methods to model analog and digital linear and nonlinear systems. Emphasis is placed on the student gaining mathematical modeling experience, performing sensitivity and stability analysis and designing compensators to meet systems specifications. Topics treated will include a review of root locus and frequency design methods, linear algebraic equations, state variable equations, state space design and digital control systems (principles and case studies). The students will use complex dynamic systems for analysis and design.

EGRE 491 Special Topics

Semester course; 3 lecture/laboratory hours. 3 credits. May be repeated for a maximum of 9 credits (in three separate topics) applicable toward the electrical engineering major elective requirement. Advanced study of a selected topic in electrical engineering. See the Schedule of Classes for specific topics to be offered each semester and prerequisites.

EGRE 497 Vertically Integrated Project in Electrical and Computer Engineering

Semester course; 6 laboratory hours. 2 credits. May be repeated for a maximum total of 6 credits. Prerequisites: EGRE 397 and permission of the project faculty adviser. Restricted to electrical engineering and computer engineering majors. This course allows undergraduate students to continue to participate in multiyear, multidisciplinary projects under the guidance of faculty and graduate students in their areas of expertise. As they address research and development issues, students learn and practice many different professional skills, make substantial technical contributions to the project, and experience many different roles on a large, multidisciplinary design/discovery team.

Engineering

ENGR 101 Introduction to Engineering

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisites: admission to the School of Engineering or permission of instructor. Introduces basic circuits including resistors, diodes, transistors, digital gates and motors. Simple electromechanical systems are considered including motors, gears and wheels. The laboratory introduces fundamental circuit testing and measurement, and proper laboratory notebook writing; students are required to analyze, build and test a digitally controlled robot.

ENGR 102 Engineering Statics

Semester course; 3 lecture hours. 3 credits.

Prerequisite: MATH 200 with a minimum grade of C or permission of instructor. Corequisite: PHYS 207 or permission of instructor. The theory and application of engineering mechanics applied to the design and analysis of rigid structures. Equilibrium of two and three dimensional bodies. The study of forces and their effects. Applications to engineering systems.

ENGR 121 Engineering Fundamentals

Semester course; 3 lecture hours. 3 credits.

Prerequisite: permission of instructor. Open only to non-engineering majors in Certificate in Product Innovation program. Introduces engineering fundamentals to students from non-engineering disciplines. Particular focus is the engineering problem-solving process as applied to open-ended problems. Students will be introduced to the different types of engineering, examine engineering issues and apply the engineering problem-solving process.

ENGR 291 Special Topics in Engineering

Semester course; variable hours. 1-5 credits.

Prerequisite: to be determined by the instructor. Specialized topics in engineering designed to provide a topic not covered by an existing course or program. General engineering or multidisciplinary. May be repeated with different content. Graded as pass/fail or normal letter grading at the option of the instructor. See the Schedule of Classes for specific topics to be offered each semester and prerequisites.

ENGR 301 Fluid Mechanics

Semester course; 3 lecture hours. 3 credits.

Prerequisites: PHYS 207, MATH 301 and EGRM 204, with a minimum grade of C in each, or permission of instructor. Basic and applied fluid mechanics; fluid properties; application of Bernoulli and Navier-Stokes equations; macroscopic mass, momentum and energy balances; dimensional analysis; laminar and turbulent flow; boundary layer theory; friction factors in pipes and packed beds; drag coefficients; compressible flow; flow measurements; numerical simulation; applications to the operation and design of turbo machinery.

ENGR 302 Heat Transfer

Semester course; 3 lecture hours. 3 credits.

Prerequisites: ENGR 301, EGRM 204, MATH 301 and 307, with a minimum grade of C in each, or permission of instructor. Basic and applied heat transfer; diffusion and rate concepts; evaporation; boiling and condensation; dispersion coefficients; stagnant film; falling film; porous membrane; packed bed; numerical simulation; applications to industrial processes. Lecture topics will include a review of fundamental concepts in thermodynamics.

ENGR 303 Junior Seminar

Semester course; 3 lecture hours. 3 credits.

Prerequisite: permission of instructor. This course provides students an opportunity to explore business and leadership topics. Topics include the fundamentals of product design and new product development, manufacturing and quality systems, finances and financial reports, ethics in the workplace, intellectual property, teamwork, leadership and communications. Students will be assigned selected readings, written compositions and oral presentations. This course prepares the student to participate in the Engineering Laboratory/Manufacturing Internship.

ENGR 305 Sensors/Measurements

Semester course; 3 lecture hours. 3 credits.

Prerequisites: MATH 301 with a minimum grade of C, PHYS 208 and STAT 541; or permission of instructor. Introduction to sensors and their utilization for measurement and control; sensor types: electro-mechanical, electro-optical, electro-chemical; applications in medicine, chemical manufacturing, mechanical control and optical inspection.

ENGR 315 Process and Systems Dynamics

Semester course; 3 lecture hours. 3 credits.

Prerequisites: MATH 301, EGRE 206, EGRM 201 and PHYS 207, all with a minimum grade of C; or permission of instructor. Undergraduate course covering the analysis of chemical, fluid, mechanical and electrical dynamic systems. Pedagogically, a single approach is taught that applies to any of the systems in any of these disciplines using conservation equations and constitutive relationships to build the systems of differential equations needed for the analysis. The mathematical structures of the types of differential equations typically generated in dynamic physical systems are reviewed and both analytical and numerical solution techniques are taught. Finally, the tools used to develop control components for systems in these areas are covered along with the mathematical tools (e.g., Laplace transforms) needed for their analysis.

ENGR 402 Senior Design Studio (Seminar)

Continuous courses; 1 lecture hour. 1-1 credit.

Prerequisites: senior standing and participation in a senior design (capstone) project; completion of ENGR 402 to enroll in ENGR 403. This weekly seminar presents and discusses topics relevant to senior-level engineering students in support of the capstone project and upcoming graduation. A single course coordinator manages and administers the course and schedules the various faculty lectures and guest speakers. Topics include, but are not limited to, the following: proposal writing, project planning and management, scheduling resources and budgeting for technical projects, patents and intellectual property, quality systems (six sigma, ISO standards, statistical process control), entrepreneurship, creativity and innovation and professional registration.

ENGR 403 Senior Design Studio (Seminar)

Continuous courses; 1 lecture hour. 1-1 credit.

Prerequisites: senior standing and participation in a senior design (capstone) project; completion of ENGR 402 to enroll in ENGR 403. This weekly seminar presents and discusses topics relevant to senior-level engineering students in support of the capstone project and upcoming graduation. A single course coordinator manages and administers the course and schedules the various faculty lectures and guest speakers. Topics include, but are not limited to, the following: proposal writing, project planning and management, scheduling resources and budgeting for technical projects, patents and intellectual property, quality systems (six sigma, ISO standards, statistical process control), entrepreneurship, creativity and innovation and professional registration.

ENGR 410 Review of Internship

Semester course; 1 credit. Prerequisites: chemical, electrical and computer, or mechanical engineering major and experience to satisfy the engineering internship requirements. Students complete oral

presentations and written reports summarizing the internship experience.

ENGR 411 Fundamentals of Engineering Exam Preparation

Semester course; 1 lecture hour. 1 credit. Prerequisite: senior or graduate standing, or permission of instructor. This course prepares students for taking the fundamentals of Engineering Exam. Passing the FE Exam is the first step to getting a Professional Engineering license. This course is not intended to teach the various subject matters, but to review the subject areas and help students prepare as well as possible for the examination.

ENGR 412 Advanced Engineering Mathematics

Semester course; 3 lecture hours. 3 credits.

Prerequisite: MATH 301 with a minimum grade of C, or permission of instructor. Advanced topics in engineering mathematics. Topics include partial differential equations, boundary value problems, infinite series, Fourier series, Sturm-Liouville theory, orthogonal functions and the theory of a function of a complex variable. Engineering applications include heat and mass transfer, oscillations in plates and membranes, buckling of columns under axial loads, traveling waves and electromagnetic fields.

ENGR 427 Robotics

Semester course; 3 lecture hours. 3 credits.

Prerequisite: senior standing in the School of Engineering or permission of the instructor. Introduction to the state-of-the-art and technology of robotics and its applications for productivity gain in industry.

EGRE 454 Automatic Controls

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisites: EGRE 337 or ENGR 305 or ENGR 315 with a minimum grade of C. This course covers the design and analysis of linear feedback systems. Emphasis is placed upon the student gaining mathematical modeling experience and performing sensitivity and stability analysis. The use of compensators to meet systems design specifications will be treated. Topics include: an overview and brief history of feedback control, dynamic models, dynamic response, basic properties of feedback, root-locus, frequency response and state space design methods. The laboratory will consist of modeling and control demonstrations and experiments of single-input/single-output and multivariable systems, analysis and simulation using matlab/simulink and other control system analysis/design/implementation software.

ENGR 461 STEM CELL ENGINEERING**ENGR 490 Engineering Seminar**

Semester course; variable hours. 1-3 credits. May be repeated with different content. Prerequisite: permission of the instructor. A series of specialized topics in engineering that are of general interest but not covered by an existing course or program. Lectures will be presented in seminar format by speakers from business, industry, government and academia. Subjects will be multidisciplinary in nature. Graded as pass/fail or normal letter grading at the option of the instructor.

ENGR 491 Special Topics in Engineering

Semester course; variable hours. 1-5 credits. Prerequisite: determined by the instructor. Specialized

topics in engineering designed to provide a topic not covered by an existing course or program. General engineering or multidisciplinary. May be repeated with different content. Graded as pass/fail or normal letter grading at the option of the instructor. See the Schedule of Classes for specific topics to be offered each semester and prerequisites.

ENGR 492 Independent Study in Engineering

Semester course; variable hours. 1-5 credits. May be repeated with different content. Prerequisite: permission of the instructor. Students must submit a written proposal to be approved by the supervising instructor prior to registration. Investigation of specialized engineering problems that are multidisciplinary or of general interest through literature search, mathematical analysis, computer simulation and/or laboratory experimentation. Written and oral progress reports as well as a final report and presentation are required. Graded as pass/fail or normal letter grading at the option of the instructor.

Engineering Lab

ENGZ 402 Senior Design Studio (Laboratory/Project Time)

Continuous courses; 6-6 laboratory hours. 2-2 credits. Prerequisite: senior standing and participation in a senior design (capstone) project; completion of ENGZ 402 to enroll in ENGZ 403. [Note: Mechanical engineering majors are required to have the following prerequisites: EGRM 300, 303 and 420, and either EGRM 421 or EGRN 420, with a minimum grade of C in each. Chemical and life science engineering majors are required to have the following prerequisites: CLSE 301, 302, 305, 312 and 320. A different list of prerequisites may be required by the department of your major.] A minimum of six laboratory hours per week dedicated to the execution phase of the senior design (capstone) project, which should meet appropriate engineering standards and multiple realistic constraints. Tasks include team meetings, brainstorming, sponsor advising, designing, fabrications, assembling, reviewing, studying, researching, testing and validating projects.

ENGZ 403 Senior Design Studio (Laboratory/Project Time)

Continuous courses; 6-6 laboratory hours. 2-2 credits. Prerequisite: senior standing and participation in a senior design (capstone) project; completion of ENGZ 402 to enroll in ENGZ 403. [Note: Mechanical engineering majors are required to have the following prerequisites: EGRM 300, 303 and 420, and either EGRM 421 or EGRN 420, with a minimum grade of C in each. Chemical and life science engineering majors are required to have the following prerequisites: CLSE 301, 302, 305, 312 and 320. A different list of prerequisites may be required by the department of your major.] A minimum of six laboratory hours per week dedicated to the execution phase of the senior design (capstone) project, which should meet appropriate engineering standards and multiple realistic constraints. Tasks include team meetings, brainstorming, sponsor advising, designing, fabrications, assembling, reviewing, studying, researching, testing and validating projects.

Mechanical Engineering

EGRM 101 Introduction to Engineering

Semester course; 2 lecture and 3 laboratory hours. 3 credits. Prerequisite: mechanical engineering major or permission of the instructor. Introduction to the art and science of engineering through the basics of mechanical, electrical, chemical and biological systems. Topics covered include: definition and history of engineering; ethics and social responsibility; engineering design process; engineering solutions; estimations and approximations; dimensions; units and conversions; mathematics and computer solutions; life-long learning; Newton's laws; statics and dynamics; thermal sciences; energy; electricity and electronics; materials; manufacturing; economics; and introduction to the various engineering disciplines and mechanical engineering sub-disciplines.

EGRM 201 Dynamics and Kinematics

Semester course; 3 lecture hours. 3 credits. Prerequisites: PHYS 207, ENGR 102 and MATH 201, with a minimum grade of C in each, or permission of the instructor. Kinematics and kinetics of particles. Kinematics of rigid bodies; translation and fixed-axis rotation relative to translating axes, general planar motion, fixed-point rotation and general motion. Kinetics of rigid bodies: center of mass, mass moment of inertia, product of inertia, principal-axes, parallel-axes theorems. Planar motion, work-energy method. Design of cams, gears and linkages.

EGRM 202 Mechanics of Deformables

Semester course; 3 lecture hours. 3 credits. Prerequisites: ENGR 102 and MATH 201, with a minimum grade of C in both, or permission of the instructor. An introductory course covering the mechanics of deformable solids. Subjects include stress, strain and constitutive relations; bending of beams; torsion; shearing; deflection of beams; column buckling; fatigue; failure theory; analysis and design of bar-type members.

EGRM 204 Thermodynamics

Semester course; 3 lecture hours. 3 credits. Prerequisites: PHYS 207 and MATH 201 with a minimum grade of C in both, or permission of the instructor. Fundamental concepts of thermodynamics; first and second law of thermodynamics; entropy and equilibrium; equations of state; properties of pure fluids; molecular interpretation of thermodynamic properties; phase equilibria; work and heat; power cycles; chemical reactions.

EGRM 215 Engineering Visualization and Computation

Semester course; 2 lecture and 3 laboratory hours. 3 credits. Prerequisites: mechanical engineering major or permission of the instructor. Programming in C++ and MATLAB will be introduced. The creation and interpretation of graphical communication for engineering students. Two- and three-dimensional part and assembly representations. Dimensioning and tolerancing as a link between design and manufacturing. An introduction to solid modeling and virtual prototyping. The course will impart proficiency in computer and graphical applications of fundamental and practical importance to engineering students.

EGRM 300 Mechanical Systems Design

Semester course; 3 lecture hours. 3 credits. Prerequisites: EGRM 201 and EGRM 202, with a minimum grade of C in both, or permission of the instructor. Basic principles of applied mechanics and materials employed for the design of machine elements and mechanical systems; state of stress, deformation and failure criterion is applied to bearings, brakes, clutches, belt drives, gears, chains, springs, gear trains, power screws and transmissions.

EGRM 303 Thermal Systems Design

Semester course; 3 lecture hours. 3 credits. Prerequisites: MATH 301, ENGR 301 and EGRM 204, with a minimum grade of C in each, or permission of the instructor. Fundamentals of heat transfer, thermodynamics and fluid mechanics applied to the analysis, design, selection and application of energy conversion systems.

EGRM 308 Automatic Controls

Semester course; 3 lecture and 1 laboratory hours. 3 credits. Prerequisites: PHYS 207, MATH 301 and ENGR 102, with a minimum grade of C in each, or permission of instructor. Mathematical modeling of automatic control systems; transfer functions, stability theory; open-loop and closed-loop control; root locus plots; application to control system design.

EGRM 309 Material Science for Engineers

Semester course; 3 lecture hours. 3 credits. Prerequisite: CHEM 101 or permission of instructor. The study of materials from a microscopic or atomic level. Consideration of mechanical, electrical, thermal, magnetic and optical properties of metals, ceramics, polymers and composites. Thermal processing for modification of properties, dislocation and phase transformation. Material selection for design with consideration of economic, environmental and societal issues.

EGRM 311 Solid Mechanics Lab

Semester course; 4.5 laboratory hours. 1.5 credits. Prerequisites: EGRM 201 and 202, with a minimum grade of C in both, or permission of the instructor. Experiments will be conducted on fundamental principles of solid mechanics, materials and dynamics. Topics covered include testing of materials for tensile, compression, bending and torsional loads, vibrations and material microstructure.

EGRM 312 Thermal Sciences Lab

Semester course; 4.5 laboratory hours. 1.5 credits. Prerequisites: ENGR 301, with a minimum grade of C, or permission of the instructor. Experiments will be conducted on fundamental principles of fluid mechanics, thermodynamics and heat transfer. Topics covered include hydrostatics, Bernoulli equation, impact jets, aerodynamic force, heat pump thermodynamics cycles, heat exchangers and convection heat transfer.

EGRM 321 Numerical Methods

Semester course; 3 lecture hours. 3 credits. Prerequisites: MATH 301 and EGRM 215, with a minimum grade of C in both, or permission of instructor. A study of numerical algorithms used in error analysis, computing roots of equations, solving linear algebraic equations, curve fitting, numerical differentiation and integration, numerical methods for ordinary differential equations and a brief introduction to numerical methods for partial differential equations.

The course content is tailored for mechanical engineering applications.

EGRM 401 Mechanical Engineering Leadership

Semester course; 9 laboratory hours. 3 credits.
Prerequisites: junior or senior standing in mechanical engineering and permission of the instructor. Senior/junior students will lead first-year students in the lab component of EGRM 101. Under the guidance of the seniors/juniors, first-year students are introduced to the practice and methodology of engineering in the context of mechanical engineering, are exposed to the typical machine shop environment, prototype machines and computer design, and learn to design, conduct and analyze, and report on simple experiments. Leadership skills will be honed as the senior/junior students guide, lead and supervise first-year students.

EGRM 410 Mechatronics

Semester course; 2 lecture and 3 laboratory hours. 3 credits. Prerequisites: senior standing and EGRE 206 with a minimum grade of C, or permission of instructor. Lecture materials and laboratory experiments focus on the fundamentals of design-oriented mechanical, electrical and computer systems integration. Specifically, students learn analog and digital electronic design, data acquisition, transducers, actuator technologies and control, design with microprocessors and embedded electronics, and application of control theory.

EGRM 420 CAE Design

Semester course; 3 lecture hours. 3 credits.
Prerequisites: EGRM 201 and EGRM 215, with a minimum grade of C in both, or permission of instructor. Review of geometric modeling, engineering visualization tools applicable to engineering design. Develop visual thinking and communication skills with assistance of computer modeling tools. Emphasis placed on creative design, application of physical laws, and hands-on virtual or physical projects. Topics include review of kinematics/dynamics of commonly used planar mechanisms and programming techniques for motion simulation. Interdisciplinary projects will be assigned to assess students' design knowledge.

EGRM 421 CAE Analysis

Semester course; 3 lecture hours. 3 credits.
Prerequisites: EGRM 202, 321 and 420; and MATH 301 and 307, all with a minimum grade of C, or permission of the instructor. Application of computer-aided techniques to the analysis of engineering problems utilizing linear algebra, computer calculations of matrices and numerical solution of governing differential equilibrium equations common to all fields of engineering. Students will be exposed to formulations of finite element (FE) methods of analysis. Emphasis is placed on practical aspects of structural FE modeling. Analysis programs such as MSC/PATRAN, MSC/NASTRAN and MATLAB are utilized.

EGRM 425 Introduction to Manufacturing Systems

Semester course; 3 lecture hours. 3 credits.
Prerequisite: senior standing in the School of Engineering or permission of the instructor. Basic principles of systems analysis and modeling applied to manufacturing processes and operations; numerical control, programmable controllers, flexible manufacturing systems, group technology, process

planning and control, modeling and simulation of factory operations.

EGRM 426 Manufacturing Processes

Semester course; 3 lecture hours. 3 credits.
Prerequisite: senior standing in the School of Engineering or permission of the instructor. Introduction to the operation and design of metal fabrication processes; analysis of metal casting, extrusion, rolling, forging, wire and rod drawing; review of metal removal and joining methods; economic and business considerations.

EGRM 428 Polymer Processing

Semester course; 3 lecture hours. 3 credits.
Prerequisites: ENGR 301 and 302, with a minimum grade of C in both, or permission of the instructor. Basic principles of momentum and heat transfer applied to the analysis of polymer processing operations; introduction to polymer rheology; operation and design aspects of extruders, blown film, injection molding, thermoforming and compression molding machinery.

EGRM 435 Design for Manufacturing and Assembly

Semester course; 3 lecture hours. 3 credits.
Prerequisite: senior standing in the School of Engineering or permission of the instructor. Methodologies used in the synthesis and analysis of product design in order to optimize manufacturing and assembly; relationship of design to the production processes, materials handling, assembly, finishing, quality and costs with emphasis on both formed and assembled products.

EGRM 436 Engineering Materials

Semester course; 3 lecture hours. 3 credits.
Prerequisite: senior standing in the School of Engineering or permission of the instructor. Materials properties and their modification as related to engineering properties and design; elastic and plastic stress-strain behavior of materials along with diffusion in solids, phase equilibria, and phase transformations; materials selection considerations include design, fabrication, mechanical failure, corrosion, service stability as well as compatibility and function in the human body.

EGRM 437 Principles of Polymer Engineering

Semester course; 3 lecture and 1 laboratory hours. 3 credits. Prerequisites: EGRM 202 with a minimum grade of C, or permission of the instructor. Basic principles of mechanics applied to the mechanical design and fabrication of polymers; introduction to polymer structure, rubber elasticity, and viscoelasticity; mechanical properties, plastic part design and plastic materials selection; fabrication processes.

Nuclear Engineering

EGRN 210 Introduction to Nuclear Engineering

Semester course; 3 lecture hours. 3 credits.
Prerequisites: MATH 200, with a minimum grade of C, and mechanical engineering major, or permission of the instructor. An introductory course to familiarize students with the concepts, systems and application of nuclear energy. Topics include radioactivity, fission, fusion, reactor concepts, biological effects of radiation,

nuclear propulsion and radioactive waste disposal. Designed to provide students with a broad perspective of nuclear engineering.

EGRN 310 Fundamentals of Nuclear Engineering

Semester course; 3 lecture hours. 3 credits.
Prerequisite: EGRN 210 with a minimum grade of C, or permission of instructor. Corequisite: MATH 301 or permission of instructor. Emphasizes the fundamentals of nuclear engineering. Topics include the interaction of neutrons with matter, fission, neutron diffusion and moderation, reactor kinetics and dynamics, and radiation detection and measurement.

EGRN 320 Reactor Design and Systems

Semester course; 3 lecture hours. 3 credits.
Prerequisites: ENGR 302, EGRM 303 and EGRN 420, with a minimum grade of C in each, or permission of instructor. Engineering principles of nuclear reactors, emphasizing power reactors. Specific topics include power plant thermodynamics, reactor heat generation and removal (single-phase as well as two-phase coolant flow and heat transfer), and structural mechanics. The course also covers engineering considerations in reactor design.

EGRN 330 Radiation Safety and Shielding

Semester course; 2 lecture and 3 laboratory hours. 3 credits. Prerequisite: EGRN 310 with a minimum grade of C, or permission of instructor. Fundamentals of radiation safety and shielding with focus on sources of radioactivity, interaction of radiation with matter, biological effects of radiation, dosimetry, attenuation of gamma rays and neutrons and effectiveness of shielding methods.

EGRN 331 Nuclear Instrumentation and Measurements

Semester course; 6 laboratory hours. 3 credits.
Prerequisite: EGRN 330 with a minimum grade of C, or permission of instructor. Follow-on to EGRN 330 providing an in-depth study of radiation detection systems. Students will understand both the practical operation of detection systems as well as the physical processes involved in radiation detection, attenuation and shielding.

EGRN 410 Economics of Nuclear Power Production

Semester course; 3 lecture hours. 3 credits.
Prerequisite: EGRN 310 with a minimum grade of C, or permission of instructor. Fundamentals of engineering economic analysis are applied to energy supply, demand, prices and production with specific emphasis on nuclear energy, the capital cost of nuclear power plants, the nuclear fuel cycle and associated energy technologies.

EGRN 420 Nuclear Power Plants

Semester course; 3 lecture hours. 3 credits.
Prerequisites: EGRM 204 and EGRN 310, with a minimum grade of C in each, or permission of instructor. Design and analysis of nuclear power plants. Review of thermodynamic cycles and reactor types; analysis of the coupling of the reactor and the power plant; thermal and mechanical design of steam turbines; turbogenerators; auxiliary systems; design synthesis and heat balance calculations; operation of nuclear reactors.

EGRN 440 Nuclear Safety and Security

Semester course; 3 lecture hours. 3 credits.

Prerequisite: EGRN 420 with a minimum grade of C, or permission of the instructor. A study of technological risks and security issues related to nuclear power. Analysis of nuclear reactor system components and operational features that are relevant to safety; reactor containment; safety analysis of nuclear power plants using deterministic and probabilistic models; methods for human, environmental and ecological risk assessment; NRC regulations and procedures; safeguarding against natural (earthquake, tornadoes) and human (domestic and international) threats; classification and consequences of accidents including historical case studies.

EGRN 450 Nuclear Reactor Control and Dynamics

Semester course; 3 lecture hours. 3 credits.

Prerequisites: MATH 301, EGRM 201 and EGRN 420, with a minimum grade of C in each, or permission of instructor. An introduction to control theory and its applications for nuclear engineering students. Modeling and development of differential equations for nuclear systems. Analysis of nuclear reactor dynamics in the time and frequency domains. Application of feedback control techniques to reactor operation, stability and performance.

School of Medicine

Anatomy and Neurobiology

ANAT 301 Head and Neck Anatomy for Dental Hygienists

2 lecture and 1 seminar hours. 3 credits. An overview of head and neck anatomy that examines the major osteological, neural, muscular, vascular and visceral features. Lectures will be supplemented by textbook, self-study packages and by brief laboratory exercises that provide hands-on exposure to these major anatomical features.

ANAT 302 Microscopic Anatomy (Dental Hygiene)

8-week course; 3 lecture and 1 laboratory hours. 2 credits. A lecture course in the microscopic anatomy of the cells and tissues relevant to the oral cavity.

Emergency Medical Sciences and Administration

EMSA 200 Introduction to EMS Systems

Semester course; 3 lecture hours. 3 credits. A survey of Emergency Medical Services systems in the U.S. Examines the 14 attributes of an EMS system to include the history of EMS, public and private organizations, delivery models, personnel, training and integration in the overall health care system.

EMSA 201 Emergency Medical Technician

Continuous courses; 4 lecture and 4 laboratory hours. 6-6 credits. Prerequisites: current CPR certification at the Health Care Provider level and permission of instructor; completion of EMSA 201 to enroll in EMSA 202. Students will learn to recognize the nature and seriousness of a patient's condition or extent of injuries, to assess requirements for emergency medical care, and to administer appropriate emergency medical care based on assessment findings of the patient's condition. Includes the lecture and laboratory elements needed to be eligible for certification as a Virginia and/or National Registry EMT-B as defined by the commonwealth of Virginia and the U.S. Department of Transportation's National Curriculum for EMTB.

EMSA 202 Emergency Medical Technician

Continuous courses; 4 lecture and 4 laboratory hours. 6-6 credits. Prerequisites: current CPR certification at the Health Care Provider level and permission of instructor; completion of EMSA 201 to enroll in EMSA 202. Students will learn to recognize the nature and seriousness of a patient's condition or extent of injuries, to assess requirements for emergency medical care, and to administer appropriate emergency medical care based on assessment findings of the patient's condition. Includes the lecture and laboratory elements needed to be eligible for certification as a Virginia and/or National Registry EMT-B as defined by the commonwealth of Virginia and the U.S. Department of Transportation's National Curriculum for EMTB.

EMSA 300 Foundations of Paramedic Practice

Semester course; 3 lecture and 2 laboratory hours. 4 credits. Open only to EMSA majors. Prerequisites: EMSA 200, 201-202. Foundation course covering medical ethics, medical legal issues, wellness and injury prevention, life span development, and communication with patients. Also reviews the anatomy and physiology of the airway and respiratory

system, the assessment and establishment of airway including basic and advanced airway management.

EMSA 310 Clinical Practicum I

Semester course; 2 laboratory hours. 2 credits. (90-hour minimum.) Open to EMSA majors only. Corequisites: EMSA 310, 320, 400 and 405. First in a series of three application courses. Requires the student to apply the concepts being learned in the classroom to their patients under the supervision of a preceptor in hospital clinical areas. Covers professional behavior while acquiring and analyzing the patient's history, performing a comprehensive physical examination of different developmental and ethnic groups, performing appropriate medication administration and management of the patient's airway.

EMSA 320 Field Practicum I

Semester course; 2 laboratory hours. 2 credits. (90-hour minimum.) Open to EMSA majors only. Corequisites: EMSA 310, 320, 400 and 405. First in a series of three application courses. Requires the student to apply the concepts being learned in the classroom to their patients under the supervision of a preceptor in a mobile intensive care unit. Covers professional behavior while acquiring and analyzing the patient's history, performing a comprehensive physical examination of different developmental and ethnic groups, performing appropriate medication administration and management of the patient's airway. Develops the ability to team lead and manage a basic incident.

EMSA 340 Fundamentals of Pathophysiology

Semester course; 2 lecture hours. 2 credits. Open to EMSA majors only. Foundation course for subsequent courses on specific disease processes. Covers cellular metabolism, disease processes, shock, Multi Organ Dysfunction Syndrome (MODS), the immune system and inflammatory response.

EMSA 360 Field Operations and Safety

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Open to EMSA majors only. The student will learn how to manage an incident and implement patient care in the pre-hospital environment. Students will integrate the principals of general incident management, management of mass casualty incidents and the safe rescue of patients from water, below grade, highway and hazardous situations.

EMSA 400 Pincipals of Pharmacology

Semester course; 3 lecture and 2 laboratory hours. 4 credits. Open to EMSA majors only. Presents the classification of pharmaceuticals, pharmacokinetics and pharmacodynamics of medications. Integrated discussion of agents used for the peripheral and central nervous systems, and respiratory, cardiovascular, gastrointestinal and endocrine systems are addressed. Integrates these agents with the pathophysiology of each body system to form a plan for management and administration. The application of drug dosage calculations, medication preparation, sterile technique and standard precautions for the preparation and administration of medications.

EMSA 401 Pediatric Advanced Life Support (PALS)

Semester course; 1 lecture hour. 1 credit. Prerequisite: certification/licensure as a paramedic, R.N., M.D., D.O., dentist, physician's assistant, or enrolled as a paramedic, medical or nursing student. A

comprehensive course that emphasizes early recognition of pre-arrest states and the prevention of cardiopulmonary arrest according to American Heart Association guidelines. Covers relevant priorities and techniques that enable effective intervention in pediatric resuscitation by physicians, nurses, paramedics and other health care workers who are licensed to do advanced practice intervention, including airway management, vascular access and intravenous fluid and medication administration.

EMSA 402 Advanced Cardiac Life Support (ACLS)

Semester course; 1 lecture hour. 1 credit. Prerequisite: certification/licensure as a paramedic, R.N., M.D., D.O., dentist, physician's assistant, or enrolled as a paramedic, medical or nursing student. A comprehensive course that emphasizes early recognition of pre-arrest states and the prevention of cardiopulmonary arrest according to American Heart Association guidelines. Covers relevant priorities and techniques that enable effective intervention in adult cardiac resuscitation by physicians, nurses, paramedics and other health care workers who are licensed to do advanced practice intervention, including airway management, vascular access and intravenous fluid and medication administration.

EMSA 405 Advanced Patient Assessment

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Open to EMSA majors only. Covers the acquisition and analysis of patients' histories and advanced physical assessments. Encompasses normal and abnormal variations of different developmental and ethnic groups to perform a comprehensive history and physical to form a clinical diagnosis. Incorporates appropriate documentation and communication through written, verbal and direct patient contact.

EMSA 411 Clinical Practicum II

Semester course; 2 laboratory hours. 2 credits. (90-hour minimum.) Open to EMSA majors only. Corequisites: EMSA 340, 360, 441 and 443. Requires the student to apply the concepts being learned in the classroom to their patients under the supervision of a preceptor in hospital clinical areas. Covers professional behavior while acquiring and analyzing the patient's history, performing a comprehensive physical examination of different developmental and ethnic groups, performing appropriate medication administration and management of the patient's condition.

EMSA 412 Clinical Practicum III

Semester course; 2 laboratory hours. 2 credits. (90-hour minimum.) Open to EMSA majors only. Corequisites: EMSA 430, 440, 442 and 450. Requires the student to apply the concepts being learned in the classroom to their patients under the supervision of a preceptor in hospital clinical areas. Covers professional behavior while acquiring and analyzing the patient's history, performing a comprehensive physical examination of different developmental and ethnic groups, performing appropriate medication administration and management of the patient's condition.

EMSA 421 Field Practicum II

Semester course; 2 laboratory hours. 2 credits. (90-hour minimum.) Open to EMSA majors only. Corequisites: EMSA 340, 360, 441 and 443. Focuses on the patient presenting with cardiopulmonary,

obstetrical and gynecological pathologies, and pediatric patients, under the supervision of a preceptor in a mobile intensive care unit. Requires the synthesis of the assessment of the pathology to form a clinical diagnosis and treatment plan for each patient.

Demonstrates the ability to assess, perform and coordinate advanced patient care under supervision.

EMSA 422 Field Practicum III

Semester course; 2 laboratory hours. 2 credits.

(90-hour minimum.) Open to EMSA majors only.

Corequisites: EMSA 430, 440, 442 and 450. Focuses on the patient presenting with medical complaints or traumatic injury patients under the supervision of a preceptor in a mobile intensive care unit. Requires the synthesis of the assessment of the pathology to form a clinical diagnosis and treatment for each patient. Demonstrates the ability to assess, perform and coordinate advanced patient care under supervision.

EMSA 430 Trauma

Semester course; 3 lecture and 2 laboratory hours. 4 credits. Open to EMSA majors only. A comprehensive course integrating the anatomy, pathophysiology, epidemiology, mortality and morbidity of trauma. Covers the structure of trauma care systems, kinematics and epidemiology of trauma. Integrates the assessment, clinical diagnosis, development and application of a management plan for patients with hemorrhage, shock, burns, head, thoracic, abdominal, musculoskeletal and spinal injuries.

EMSA 440 Medical Emergencies

Semester course; 4 lecture hours. 4 credits. Open to EMSA majors only. Integrates the assessment, clinical diagnosis, development and application of a management plan for patients with needs in the following systems: endocrine, gastrointestinal, urological, neurological and hematological. Will also encompass patients presenting with toxicological, environmental and behavioral/psychiatric emergencies.

EMSA 441 Basic Electrocardiography

Semester course; 3 lecture hours. 3 credits. Permission of instructor required. Reviews the assessment, anatomy, physiology and electrophysiology of the cardiac system. The acquisition, interpretation and diagnosis of cardiac dysrhythmias using three-lead electrocardiograms will be covered.

EMSA 442 Advanced Electrocardiography

Semester course; 1 lecture hour. 1 credit. Prerequisites: EMSA 441 or equivalent and permission of instructor. Reviews the relevant anatomy, physiology and electrophysiology of the cardiac system. The acquisition, interpretation and diagnosis of cardiac dysrhythmias using 12-lead electrocardiograms will be covered.

EMSA 443 Cardiopulmonary Medicine

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Open to EMSA majors only. A comprehensive course integrating the anatomy, pathophysiology, epidemiology, mortality and morbidity of cardiopulmonary pathologies into the assessment, clinical diagnosis, development and application of a management plan.

EMSA 445 Assessment-based Management

Semester course; 4 lecture hours. 4 credits. Open to EMSA majors only. Students will synthesize and integrate the pathophysiological principles with assessment results to formulate a clinical impression,

then develop and implement an appropriate treatment plan on a programmed patient or manikin. Patient complaints will be inclusive of the materials presented in previous courses for pediatric, adult and geriatric patient populations.

EMSA 450 Obstetrics, Gynecology and Pediatrics

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Open to EMSA majors only. A comprehensive course integrating the anatomy, pathophysiology, epidemiology, mortality and morbidity of women and children into the assessment, clinical diagnosis, development and application of a management plan for women with gynecological emergencies, normal pregnancies and deliveries, and abnormal pregnancies and deliveries. Will also integrate the assessment, diagnosis and management of the neonatal and pediatric patient for medical and traumatic injuries and illness.

EMSA 460 EMS Operations

Semester course; 3 lecture hours. 3 credits. Topics presented include medical incident command, national incident management systems, post-9/11 issues and needs, interoperation with other agencies, interoperability of communications between agencies, deployment methods, OSHA regulations at incident scenes and field supervision.

EMSA 461 EMS Supervision and Human Resources

Semester course; 3 lecture hours. 3 credits. The principles of personnel management and processes for effective EMS organizations are explored. Employment regulations, job analysis, performance assessment, recruitment and retention, training and development, employee and labor relations. Also presented are the factors and processes relating to paid and volunteer personnel, medical directors, shift schedules and general personnel issues.

EMSA 462 Management of EMS Organizations

Semester course; 3 lecture hours. 3 credits. Examines theory, processes and techniques needed to manage the EMS agency. Will address regulatory, management, finance, reimbursement, legislation, regulation and other contemporary issues affecting EMS organizations.

EMSA 463 Legal Issues in Health Care

Semester course; 3 lecture hours. 3 credits. Examines basic principles and practices of law affecting EMS operations of ground and air transport systems. Topics will include the legal aspects of patient care and treatment, medical services, and hospital-patient related functions and health care and public safety employment law.

EMSA 464 Research and Quality Improvement

Semester course; 3 lecture hours. 3 credits. A review of published research in EMS. Selected studies will be reviewed with respect to their methodology, statistics, measurement and design. Basic research principles, scientific theory and the ability to critically interpret peer-reviewed literature will be emphasized.

EMSA 465 EMS Education

Semester course; 3 lecture hours. 3 credits. The principles of adult education and training will be

presented. Topics will include domains of learning, principles of adult learning, construction of lesson plans and use of current technology for presentation of content. Dealing with barriers to effective education and special considerations for non-traditional teaching and learning settings will be presented. Students will prepare and function as assistant instructors in other EMS education programs.

EMSA 466 Injury Prevention and Control

Semester course; 3 lecture hours. 3 credits. An introduction to public health principles and an overview of injury prevention principles for EMS personnel and the community. Review of epidemiological principles and patterns of injuries related to occupation, transportation, interpersonal violence and related incidents. Emphasis will be placed on prevention of injuries. The success of fire prevention will be explored as an example. The role of public health and EMS in the post-9/11 world will be examined.

EMSA 470 Summative Field Internship

Semester course; 1 laboratory hour. 1 credit. (45-hour minimum.) May be repeated. Open to EMSA majors only. This is an evaluation of the student's ability to assess, perform and coordinate advanced patient care without the assistance of the preceptor.

EMSA 471 Summative Senior Seminar

Semester course; 3 credits. Open to EMSA majors only. The synthesis, integration and evaluation of the student's entire paramedic curriculum experience. Provides students with the opportunity to review and present their ability to assess, perform and coordinate advanced patient care. Prepares the student for transition into the profession.

EMSA 472 Professional Issues in EMS

Semester course; 3 credits. Open to EMSA majors only. Provides an overview of the current and potential issues facing EMS. Discussions and assignments are designed to enable the student to investigate and report on issues affecting delivery of health care, patient and provider safety, cost of care, research, legislation and issues affecting staffing and personnel.

EMSA 474 Critical Care Transportation Provider I

Semester course; 3 credits. Designed for the experienced paramedic or registered nurse. Objective is to offer formal training in the concepts and essential skills required for the treatment of critical care patients by ground or aeromedical mode. Topics covered include: flight physiology, aeromedical considerations, medical legal aspects, X-ray interpretation, lab data interpretation, hemodynamic monitoring, advanced airway management and mechanical ventilation, and a review of pathologies, assessment and management of medial and traumatically injured patients. Students must be paramedics, R.N.s or advanced providers and should have ALS certification for more than two years with current certification in ACLS, trauma life support, PALS and BLS health care provider.

EMSA 475 Critical Care Transportation Provider II

Semester course; 3 credits. A continuation of the concepts and ideas covered in EMSA 474.

EMSA 476 Critical Care Transport Provider Practicum

Semester course; variable hours. 1-3 credits.
Prerequisite: completion of EMSA 474. May be taken concurrently with EMSA 475. Focuses on the patient with complicated multisystem health problems in the critical care environment. Provides an opportunity for observation and integration of classroom concepts in a critical care area.

EMSA 491 Special Topics

Semester course; variable hours. 1-4 credits. A study of selected topics in EMSA. See the Schedule of Classes for specific topics to be offered each semester.

EMSA 492 Independent Study

Semester course; variable hours. 1-4 credits. An independent study of selected topics in EMSA.

Microbiology and Immunology**MICR 365 Infection and Immunity (Dental Hygiene)**

Semester course; 2 lecture hours. 2 credits. A study of infectious diseases and the immune system of humans with emphasis on the distribution properties and roles of pathogenic microorganisms and the varied responses of the host, with emphasis on oral pathologies. Principles of prevention, control and chemotherapy of infectious diseases are major components of the course.

Pathology**PATH 445/FRSC 445 Forensic Toxicology**

Semester course; 3 lecture hours. 3 credits.
Prerequisites: CHEM 301-302 and CHEZ 301.
Provides a comprehensive overview of the basic principles of toxicology and the practical aspects of forensic toxicology. Students will learn to define the toxic agents most commonly resulting in legal problems in U.S. society and also the process by which the U.S. judicial system is aided by scientific investigation.

Pharmacology and Toxicology**PHTX 400 Drugs and their Actions**

Semester course; 3 lecture hours. 3 credits.
Prerequisite: junior or senior standing, or permission of instructor. This course is a general survey of pharmacology and related disciplines. The history and basic principles are presented followed by discussions of neuropharmacology, psychoactive drugs, drugs of abuse, immunopharmacology, basic toxicology, drug design, drug development, autonomic pharmacology, cardiovascular pharmacology and endocrine pharmacology, as well as selected topics including scientific ethics, molecular pharmacology and behavioral pharmacology.

PHTX 441 Pharmacology (Dental Hygiene)

Semester course; 5 lecture hours. 5 credits. A didactic course designed to emphasize the principles of pharmacology and pain control, drug actions and uses,

and adverse effects to provide the rationale for the effective and safe use of drugs in dental hygiene.

Physiology**PHIS 206 Human Physiology**

Semester course; 3 lecture hours. 3 credits.
Prerequisites: BIOL 101 and BIOZ 101, BIOL 151 and BIOZ 151, or BIOL 152 and BIOZ 152, each with a minimum grade of C. Functioning of the human body with emphasis on experimental procedures.

PHIS 301 Engaging in Undergraduate Research

Semester course; 1 seminar hour. 1 credit. Prerequisite: PHIS 206 or PHIS 309. This course will address the nature of research in the fields of physiology and biophysics and at the same time explore areas and laboratories at VCU that would offer undergraduate research opportunities.

PHIS 309 Introductory Quantitative Physiology I

Semester course; 3 lecture hours and 3 laboratory hours. 4 credits. Prerequisite: calculus at the level of MATH 200 and MATH 201. The course is intended for majors in Biomedical Engineering. Other students may enroll with permission of the instructor. This course is a survey course in physiology with emphasis on physical principles. It is a systems analysis of cellular anatomy, physiology and biochemistry which leads into analysis of the nervous system, musculoskeletal system and the digestive system. It is meant to be taken as part of a two-semester series with PHIS 310.

PHIS 310 Introductory Quantitative Physiology II

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisites: calculus at the level of MATH 200 and MATH 201 and PHIS 309. The course is intended for majors in biomedical engineering. Other students may enroll with permission of the instructor. This course is the second semester of a survey course in physiology with emphasis on physical principles. It includes a systems analysis of the cardiovascular, respiratory, renal and endocrine systems. It is meant to be taken as part of a two-semester series with PHIS 309.

PHIS 461 Introduction to Human Physiology

3 lecture hours. 3 credits. Prerequisites: biology, general chemistry and human anatomy. An introductory course to human physiology based on an analysis of organ systems.

Physiology Lab**PHIZ 206 Human Physiology Laboratory**

Semester course; 2 laboratory hours. 1 credit. Pre- or corequisite: PHIS 206. Functioning of the human body with emphasis on experimental procedures. Not applicable for credit toward the B.S. in Biology.

School of Nursing

Nursing

The following list is of courses in the nursing major. For all courses with a clinical laboratory, the laboratory is designed to develop the clinical and critical thinking skills needed to use the nursing process with specific population groups.

NURS 101 Introduction to Nursing

Semester course; 1 lecture hour. 1 credit. Prerequisite: admission to the School of Nursing. Introduces future nurses to the process and practice of nursing in the modern health care environment. Interaction with staff nurses in multiple practice environments illuminates "real world" nursing in the "ideal" learning environment. Combines discussions and field experiences.

NURS 102 Introduction to Nursing and Other Health Care Careers

Semester course; 1 lecture hour. 1 credit. Offered: Fall. Prerequisite: admission to the School of Nursing. Introduces the student to the impact of nursing on health care. Provides an overview of health care careers with special emphasis on nursing. Investigates the preparation, role and contributions of a variety of nursing and other health care careers.

NURS 201 Concepts of Nursing

Semester course; 3 lecture hours. 3 credits (3 credits lecture). Prerequisite: admission to the School of Nursing. Provides a foundation for all clinical nursing courses. Content focuses on nursing as a profession and discipline. Nursing, health, persons and environment are organizing concepts. This course introduces the concept of evidence-based practice as a component of professional nursing practice. Course activities are structured to establish effective professional behaviors and learning strategies useful across one's professional career.

NURS 202 Technologies of Nursing Practice

Semester course; 2 lecture and 90 clinical hours. (2 credits lecture and 2 credits clinical). 4 credits. Prerequisite: admission to the School of Nursing. This course introduces the student to the study and application of skills and interventions basic to nursing practice. Content focuses on the development of cognitive, psychomotor, affective, interpersonal and communication skills to become effective members of the collaborative health care team. Students will learn how the concepts of nursing process and evidence-based clinical decision-making are integrated into practice. Opportunities are provided for practice and demonstration of selected skills in the laboratory and in clinical settings. This course emphasizes techniques for the safe acquisition and management of patient information.

NURS 261 Health Assessment for Nursing Practice

Semester course; 2 lecture and 45 clinical hours. 3 credits (2 credits lecture and 1 credit clinical laboratory). Prerequisite: admission to the School of Nursing. Provides the student with the knowledge and skills necessary to enact the first phase of the nursing process, assessment or the collection of patient-specific data and the formulation of a patient database as the foundation of the care planning process. Demonstrates specific techniques of patient interview and physical examination skills. Focuses on the healthy adult client. Introduces students to a variety of

assessment frameworks to be used with a diversity of patient populations in acute care, ambulatory and community settings.

NURS 301 Information Literacy in Health Care

Semester course; 3 lecture hours. 3 credits. Prerequisite: admission to the School of Nursing. Provides opportunities to enhance existing information literacy skills necessary for effective health care delivery. Emphasizes the efficient acquisition of information and critique of health-related information sources. Incorporates current and emerging information technology. Enhances oral and written presentation skills for effective communication in the health care setting.

NURS 305 Knowledge Validation by Portfolio

Semester course; 3 credits. Prerequisite: acceptance into the RN Completion Program and/or faculty recommendation. Culminates in submission of a portfolio for validation of course-specific knowledge and evaluation for full or partial credit. Elective. RN students only. Involves self-assessment of prior learning for RN. Requires correlation of experiential and theoretical knowledge with objectives of selected nursing courses.

NURS 307 Foundations of Professional Nursing I

Semester course, online; 3 lecture hours. 3 credits. Prerequisite: STAT 210 with a minimum grade of C. Focuses on research in the context of nursing's development as a profession and discipline. Selected aspects of knowledge development and nursing science are explored. The research process and analysis of research studies are emphasized.

NURS 308 Foundations of Professional Nursing II

Semester course; 3 lecture hours. 3 credits. Prerequisites: NURS 301 and 307. All prerequisites must be completed with a minimum grade of C. Expands abilities to synthesize a body of knowledge and articulate conclusions in the evaluation of clinical practice. Using the scope and standards of nursing practice and standards of professional performance, students will validate prior nursing education and evaluate current practice in a clinical setting.

NURS 325 Nursing of Adults I

Semester course; 3 lecture and 90 clinical hours. 6 credits (3 credits lecture and 3 credits clinical laboratory). Prerequisites: NURS 201, NURS 202 and NURS 261. All prerequisites must be completed with a minimum grade of C. Focuses on patients with acute and chronic physical illnesses that have relatively stable trajectories. Examines principles of rehabilitation and emphasizes concepts relevant to care of the elderly. Provides theoretical and evidence-based foundations for nursing management and related therapeutic regimens. Develops clinical decision-making and selected specialized technical skills in the provision of care to adults in a variety of settings including specialty areas such as the operating room.

NURS 335 Nursing of Women

Semester course; 3 lecture and 90 clinical hours. 6 credits (3 credits lecture and 3 credits clinical laboratory). Prerequisites: NURS 201, NURS 202 and NURS 261. All prerequisites must be completed with a minimum grade of C. Examines the health needs of

women across the life span with an emphasis on the health needs of the childbearing family. Applies nursing process, theory and research with an emphasis on the development of critical thinking skills in the diagnosis and treatment of human responses to health needs of women, neonates and families. Practices clinical skills and applies theoretical knowledge in selected ambulatory care settings for women's health and post-discharge care, and hospital settings for antenatal, intrapartum, post-partum and neonatal experiences.

NURS 345 Nursing of Children

Semester course; 3 lecture and 90 clinical hours. 6 credits (3 credits lecture and 3 credits clinical laboratory). Prerequisites: NURS 201, NURS 202 and NURS 261. All prerequisites must be completed with a minimum grade of C. Examines the health needs of children within the context of the family system, environment, developmental capability, stress and adaptation. Focuses on application of the nursing process, development of communication skills and critical thinking when giving nursing care to well and ill children. Reinforces current theory and evidence on children and their families in clinical experiences. Reinforces standards of care for both well and ill children and their families.

NURS 355 Psychiatric-Mental Health Nursing

Semester course; 3 lecture and 60 clinical hours. 5 credits (3 credits lecture and 2 credits clinical laboratory). Prerequisites: NURS 201, NURS 202 and NURS 261. All prerequisites must be completed with a minimum grade of C. Examines theoretical, empirical and practical knowledge applied to the prevention and treatment of common psychiatric and mental health conditions encountered in basic nursing practice. Provides students with an integrative perspective from which to incorporate various frameworks of knowledge into practice. Provides didactic knowledge and clinical learning experiences to facilitate students' understanding of actual and potential psychiatric illnesses and mental health problems in individuals, families and communities.

NURS 365 Pathophysiology and Pharmacology I

Semester course; 3 lecture hours. 3 credits (3 credits lecture). Prerequisites: anatomy, physiology and microbiology; BIOL 205, PHIS 206, BIOL 209 and admission to the School of Nursing. Examines pathophysiology and pharmacology for selected human systems (immune, hematologic, cardiovascular and respiratory). Establishes a biophysiological basis for understanding relevant clinical assessments, clinical manifestations and disease trajectories. Provides a foundation for establishing priorities for nursing care.

NURS 366 Nursing Science II

Semester course; 3 lecture hours. 3 credits (3 lecture credits). Prerequisites: anatomy, physiology, and microbiology; BIOL 205 Basic Human Anatomy, PHIS 206 Human Physiology, BIOL/BIOZ 209 Medical Microbiology and admission to the School of Nursing. Integrates the foundations of nursing diagnoses and interventions derived from pathophysiology, biochemistry and pharmacology for selected human systems.

Effective Spring 2015

NURS 366 Pathophysiology and Pharmacology II
Semester course; 3 lecture hours. 3 credits (3 lecture

credits). Prerequisites: anatomy, physiology and microbiology; BIOL 205, PHIS 206, BIOL/BIOZ 209 and admission to the School of Nursing. Examines pathophysiology and pharmacology for selected human systems (renal, neurological, GI/GU and endocrine). Establishes a biophysiological basis for understanding relevant clinical assessments, clinical manifestations and disease trajectories. Provides a foundation for establishing priorities for nursing care.

NURS 367 Applied Principles of Health and Disease

Semester course; 3 lecture hours. 3 credits. Prerequisite: anatomy and physiology; BIOL 205 and PHIS 206. All prerequisites must be completed with a minimum grade of C. Expands on a foundation of basic knowledge of normal functioning and common pathophysiologic conditions. Based on common principles of health and disease: homeostasis and disruptions of homeostasis, growth cycles, communication of information, and repair and regeneration. Develops a foundation of current knowledge in the area of physiology/pathophysiology for practice.

NURS 371 Evidence-based Practice

Semester course; 3 lecture hours. 3 credits. Prerequisite: STAT 210, NURS 201, NURS 202. All prerequisites must be completed with a minimum grade of C. This overview course focuses on the knowledge and skills required to enact evidence-based practice over one's professional life. Students will examine the relevance of nursing research to evidence-based practice as they review important research concepts. The course formally introduces a model for evidence-based practice with an emphasis on the components of searching for, appraising and synthesizing best evidence.

NURS 396 Nursing Internship

Semester course; 120 clinical hours per credit. Variable credit. May be repeated. Prerequisites: NURS 325, NURS 335, NURS 345, NURS 355, NURS 365, NURS 366 and NURS 371. All prerequisites must be completed with a minimum grade of C. Provides combination supervised clinical experience and paid work experience in selected settings of the VCU Medical Center. Many of these settings are not available in traditional curriculum. Introduces students to the work life of a nurse.

NURS 405 Nursing in Long-term Care

Semester course; 3 lecture hours. 3 credits. Prerequisite: senior status. Focuses on the care management of patients across the life span who require long-term care. Integrates pathophysiologic presentation of selected chronic, long-term conditions with psychophysiologic aspects of patient care, including pharmacologic and non-pharmacologic treatments. Includes interdisciplinary management of the disease process and the patient, family and community response. Addresses financial impact, health care delivery systems and health policy implications. Incorporates long-term therapeutic regimens into the illness trajectory.

NURS 407 Using Evidence in Clinical Practice

Semester course; 2 lecture hours. 2 credits. Prerequisites: NURS 301 and NURS 307. All prerequisites must be completed with a minimum grade of C. Focuses on skills required to enact evidence-based practice (EBP) over one's professional

life, including synthesis of appropriate evidence for use in practice. Formally introduces models for EBP, reviews change theories useful to initiate EBP and identifies individual and organizational resources needed for EBP.

NURS 410 Applied Ethics in Clinical Practice

Semester course; 3 lecture hours. 3 credits (3 credits lecture). Prerequisite: NURS 301. All prerequisites must be completed with a minimum grade of C. Identifies and examines ethical and moral dilemmas encountered in professional nursing practice. Examines personal value systems related to nursing ethics. Discusses relationships between professional nursing and resolution of moral dilemmas. Applies ethical principles to selected dilemmas in clinical nursing practice including patients' rights, informed consent, confidentiality, quality of life, and death and dying.

NURS 415 Community Health Nursing: Theory and Application

Semester course; 5 lecture hours. 5 credits. Prerequisites: NURS 301, NURS 307. All prerequisites must be completed with a minimum grade of C. Through this course, which includes 45 hours of community health field experiences, the student will develop an understanding of population-focused nursing based on the scope and core functions of public health. The course provides theoretical content essential to the assessment, planning, implementation and evaluation of the health of communities. The course utilizes an epidemiological approach to population-focused nursing. The course emphasizes the study and application of community health nursing roles for health promotion and disease prevention. The course also evaluates the effects of contemporary issues and health policy on the public's health.

NURS 416 Community Health Nursing

Semester course; 3 lecture and 60 clinical hours. 5 credits (3 credits lecture and 2 credits clinical laboratory). Prerequisites: NURS 325, NURS 335, NURS 345, NURS 355, NURS 365, NURS 366 and NURS 371. All prerequisites must be completed with a minimum grade of C. Develops knowledge for care of communities and populations based on the core functions of public health. Provides theory essential to the assessment, planning, implementation and evaluation of communities. Emphasizes the study and application of community health nursing roles for health promotion and disease prevention. Concentrates on an epidemiological approach to population-focused nursing. Evaluates the effects of contemporary issues and health policy on the public's health. Directs service-learning projects to prevent disease and promote and preserve the health of populations at risk.

NURS 425 Nursing of Adults II

Semester course; 3 lecture and 90 clinical hours. 6 credits (3 credits lecture and 3 credits clinical laboratory). Prerequisites: NURS 325, NURS 335, NURS 345, NURS 355, NURS 365, NURS 366 and NURS 371. All prerequisites must be completed with a minimum grade of C. Focuses on the patient in acute phases of physical illnesses and with complicated multisystem health problems. Provides theoretical and evidence-based foundations for nursing management and related therapeutic regimens. Focuses on the development and application of clinical decision-

making and an evidence-based model in the provision of care to acutely ill adults in a variety of settings.

NURS 461 Advanced Clinical Assessment

Semester course; 3 lecture hours. 3 credits. Prerequisite: NURS 301. All prerequisites must be completed with a minimum grade of C. Expands existing physical and psychosocial assessment skills to address selected complex patient problems. Focuses on acquisition of clinical evidence for assessment of rapidly changing situations, patient risk and situations related to patient safety. Critical analysis of patient data, prioritization of patient needs and effective communication are emphasized.

NURS 471 Evidence-based Practice in Nursing

Semester course; 2 lecture hours. 2 credits. Prerequisite: NURS 371. All prerequisites must be completed with a minimum grade of C. Focuses on skills required to enact evidence-based practice over one's professional life. Formally introduces models for evidence-based practice, reviews change theories useful to initiate EBP and identifies individual and organizational resources needed for EBP. Final competency related to knowledge of current evidence guiding selected aspects of nursing practice is documented.

NURS 476 Professional Transitions

Semester course; 1 lecture hour. 1 credit. Prerequisite: NURS 201. All prerequisites must be completed with a minimum grade of C. Focuses on the development of the second-degree student as a professional nurse within the context of prior education. Analyzes social forces, issues and trends that have shaped the profession.

NURS 477 Leadership and Management in Health Care

Semester course; 4 lecture hours. 4 credits. NURS 301 and NURS 307. All prerequisites must be completed with a minimum grade of C. Integrates principles of leadership and management to prepare students for the management, coordination and implementation of safe and ethical patient care in contemporary health care delivery systems. Focuses on the development of nursing as a profession and on the nurse as a professional. Based on an understanding of nursing's development as a profession, advances enactment of professionalism.

NURS 478 Leadership and Management in Health Care: Theory and Application

Semester course; 4 lecture and 90 clinical hours (4 credits lecture and 2 credits clinical). 6 credits. Prerequisites: NURS 325, NURS 335, NURS 345, NURS 355, NURS 365, NURS 366 and NURS 371, all completed with a minimum grade of C. Integrates principles of leadership and management to prepare students for management, coordination and implementation of safe and ethical patient care in contemporary health care delivery systems. Based on an understanding of nursing's development as a profession, advances enactment of professionalism. Precepted clinical experiences provide opportunities to apply leadership and management principles to nursing practice in a variety of settings and specialty areas.

NURS 487 Advanced Leadership Practicum

Semester course; 2 lecture and 1 clinical practicum hours (45 clinical practicum hours per credit). 3 credits. Co- or prerequisite: completion of NURS 477.

Provides an opportunity for preceptorship with a nurse who is leading the profession. Leadership may be in service, education, health policy or research and is not defined by position but by its influence in the discipline. The student will directly observe what the leader does to plan and deliver effective innovation and analyze the effectiveness. The student also will evaluate herself/himself for leadership potential and construct a personal leadership development plan. This course is not appropriate for students wishing to study organizational management.

NURS 488 Practicum in Clinical and Management Decision-making

Semester course; 3 clinical hours (45 clinical hours per credit). 3 credits. Prerequisites: NURS 308 and NURS 477. All prerequisites must be completed with a minimum grade of C. Designed as the culminating or capstone experience for the R.N.-B.S. completion program, this preceptor-supervised practicum provides opportunities to evaluate outcomes of baccalaureate education in clinical practice, apply management principles and change theories to clinical and management decision-making and the quality improvement process in the health care setting.

NURS 491 Special Topics Course

Prerequisite: admission to the School of Nursing. This course has several sections, one is a Military Science section related to ROTC requirements. Military Science majors may take the course.

NURS 492 Elective Study

1-5 credits. Prerequisite: admission to the School of Nursing. Independent study projects planned to meet the learning objectives of the student.

NURS 496 Senior Synthesis

Semester course; 2 lecture and 135 clinical hours. Honors section only: 2 lecture, 1 seminar and 135 clinical hours. 5 credits (2 credits lecture and 3 credits clinical laboratory). Honors section: 6 credits (2 credits lecture, 1 credit seminar [2 contact hours] and 3 credits clinical laboratory). Prerequisites: NURS 325, NURS 335, NURS 345, NURS 355, NURS 365, NURS 366, NURS 371 and NURS 425. Honors section prerequisite: NURS 512. All prerequisites must be completed with a minimum grade of C. This course is designed as a culminating experience that meets the criteria of the third tier of the VCU Core Curriculum. It prepares students for successful transition into professional practice; thus it requires higher-level cognitive processes that include synthesis of knowledge, evidence and skills from all previous course work and clinical experiences. The course requires that the student consistently enact professional practice demonstrate competency in standards of care, application of evidence, professionalism and safe and legal practice. This course is taken during the last semester of the nursing program.

NURS 497 Specialty Clinical Practice

Semester course; variable hours. 1-3 credits. Prerequisites: R.N. licensure, and enrollment in R.N.-B.S. track or graduate nursing program. Completion or enrollment in 200- and 300-level courses or permission of instructor is required. Advances professional nursing clinical competence using a faculty-student-preceptor mentorship model in a student selected area of specialty clinical nursing practice.

School of Pharmacy

Medicinal Chemistry

MEDC 310/CHEM 310 Medicinal Chemistry and Drug Design

Semester course; 3 lecture hours. 3 credits.

Prerequisite: CHEM 302. This course is designed to expose undergraduate chemistry, biology and pre-medicine majors to the history, theory and practice of medicinal chemistry. The course will emphasize a combination of fundamentals and applications of drug design. In particular, the molecular aspects of drug action will be discussed. Special emphasis will also be placed on the methods used by medicinal chemists to design new drugs.

Pharmacy

PHAR 201 Introduction to Pharmacy

Semester course; 1 lecture hour. 1 credit. Open to undergraduate students with an interest in pursuing pharmacy as a career. Consists of presentations related to the profession of pharmacy and the pharmaceutical sciences, preparing for admission to the School of Pharmacy and employment opportunities in the profession after graduation. Graded as pass/fail.

School of Social Work

Social Work

SLWK 200 Building a Just Society

Semester course; 3 lecture hours. 3 credits. Course will introduce students to social justice issues in a local context with a focus on expanding and deepening their knowledge and skills to effect change through active engagement in the community. Course promotes an understanding and critical analysis of multiple forms of oppression in social systems and in personal experience using professional social work perspectives and theoretical frameworks. Selected reference materials and experiential learning activities are designed to enhance student understanding of what constitutes a just community and a just society. The course may be offered as service-learning.

SLWK 201 Introduction to Social Work

Semester course; 3 lecture hours. 3 credits. Systematic overview of the social work profession. Knowledge of the nature of social work, the fields of social work practice, target populations, overview of social work methods.

SLWK 230 Communication in the Helping Process

Semester course; 3 lecture hours. 3 credits. The study of the knowledge, skills and values of effective human communication and interpersonal relations. Includes observation, collection and description of data, verbal and nonverbal communication and the relevance of the above to social work practice. Integrates issues of human diversity in all course content. Emphasizes the demonstration and practice of communication through structured exercises.

SLWK 311 Social Work and Oppressed Groups

Semester course; 3 lecture hours. 3 credits. Open only to majors or minors in social welfare with junior status or by permission of program director or course instructor. Examines forces leading to individual prejudice and institutional oppression. Focuses on impact of oppression. Provides students with an understanding of diversity and a general knowledge of social work strategies to alleviate oppression and to empower the oppressed.

SLWK 313 Person in Society I

Semester course; 3 lecture hours. 3 credits. Prerequisites: ANTH/INTL 103; BIOL 101, BIOL 151 or BIOL 152; PSYC 304; and SOCY 101. Open only to majors or minors in social welfare with junior status or by permission of program director or course instructor. First of a three-semester sequence on human behavior and the social environment. Uses theoretical concepts and research findings from the behavioral sciences as background for understanding and assessing the functioning of individuals and families in their social environment. Facilitates integration of theory and research with assessment skills associated with basic social work practice. Emphasizes the social systems approach for analyzing the impact of various social problems on individual and family dynamics.

SLWK 330 Person in Society II

Semester course; 3 lecture hours. 3 credits. Prerequisite: SLWK 313. Open only to majors or minors in social welfare with junior status or by permission of program director or course instructor. Second of three courses on human behavior in the

social environment. Uses theoretical concepts from the behavioral sciences to understand the family and small groups as social institutions and social groups as context for human behavior over the life cycle. Designed to provide a theoretical foundation for practice with families and small groups.

SLWK 332 Social Work Practice: Fundamentals

Semester course; 3 lecture hours. 3 credits. Prerequisite: SLWK 313. Corequisite: SLWK 393. Open only to social work majors with junior status. First of three semester practice sequence. Introduces students to basic concepts and skills of beginning-level professional generalist social work practice. Emphasizes application of concepts to the concurrent fieldwork experience.

SLWK 380 Foundations of Social Work Research I

Semester course; 3 lecture hours. 3 credits. Open only to majors or minors in social welfare with junior status or by permission of program director or course instructor. First of two semester research sequence. Designed to provide an understanding and appreciation of a scientific, analytic approach to building knowledge for practice and for evaluating multilevel service delivery. Provides an overview of the research process, including problem formulation, sampling, design, measurement, data collection, data analysis and dissemination of findings. Presents ethical standards of scientific inquiry with special attention to research with vulnerable and oppressed populations.

SLWK 381 Foundations of Social Work Research II

Semester course; 3 lecture hours. 3 credits. Prerequisite: SLWK 380. Open only to social work majors or minors in social welfare with junior status or by permission of program director or course instructor. The content includes a review of basic statistical univariate and bivariate descriptive and inferential tools for analyzing, interpreting and presenting data for decision-making in generalist social work practice. It also introduces methods for analysis of quantitative and qualitative data and further develops critical-thinking skills in translating empirical research findings into generalist social work practice principles.

SLWK 391 Topics in Social Work

Semester course; variable hours. 1-3 credits. An in-depth study of a selected topic relevant for professional social work practice. See the Schedule of Classes for the specific topic to be offered each semester.

SLWK 393 Junior Field Instruction

Semester course; 3 credits. Prerequisite: SLWK 313. Corequisite: SLWK 332. Open only to majors with junior status. Fourteen hours per week (spring semester) or 20 hours per week (summer session) in a community agency under the supervision of an agency-based field instructor. Intended to facilitate student's understanding of agency structure and community context, ability to engage in professional relationships, to assess strengths, define problems, set goals and utilize beginning-level practice skills with individuals, families, groups, organizations and communities. Promotes identification as a professional social worker.

SLWK 422 Social Welfare Legislation and Services

Semester course; 3 lecture hours. 3 credits. Open only to majors or minors in social welfare with junior status or by permission of program director or course instructor. Analyzes social welfare policy as related to social values, social problems and social structures. Examines frameworks for policy analysis and for evaluation of programmatic outcomes of policy, with application to contemporary social service and income maintenance policies and delivery systems. Considers the economic, political and ideological factors and processes that affect social welfare legislation, financing and implementation.

SLWK 431 Person in Society III

Semester course; 3 lecture hours. 3 credits. Prerequisite: SLWK 313. Open only to majors or minors in social welfare with junior status or by permission of program director or course instructor. Third of three courses on human behavior in the social environment. Builds on the theoretical concepts from the behavioral sciences discussed in SLWK 230 and 313. Focus on understanding organizations and how their purposes, auspices, structure, processes and environment affect the delivery of social services to diverse groups. The community context of social services, including that of the consumer, is emphasized from an open systems theoretical perspective. Students will be expected to integrate course content with their field experience or other agency with which they are familiar. Required of all undergraduate social work majors.

SLWK 441 Social Work Practice I

Semester course; 3 lecture hours. 3 credits. Prerequisites: SLWK 332, 381 and 393. Open only to majors with senior standing. Second of a three-semester practice sequence. Review of interviewing and problem-solving for generalist social work practice with diverse populations. Emphasis on agency structure and function, skills of engagement and problem definition, assessment, planning for intervention, and evaluation. Use of material from concurrent fieldwork practice to facilitate integration of learning.

SLWK 442 Social Work Practice II

3 lecture hours. 3 credits. Prerequisites: SLWK 441 and SLWK 494. Open only to majors with senior standing. Third of a three-semester practice sequence. Emphasizes planning and implementing change with diverse populations, professional ethics, professional development, termination and evaluation of generalist social work practice. Use of case material from concurrent fieldwork practice to facilitate integration of learning.

SLWK 492 Independent Study

Semester course; 1, 2 or 3 lecture hours. 1, 2 or 3 credits. Prerequisites: junior or senior standing, and permission of instructor. Under supervision of a faculty adviser, whose consent is required to register, study of a topic of concern to the student. Each student must present his or her findings in writing or pass an oral examination.

SLWK 494 Senior Field Instruction I and II

Continuous courses; 3-3 credits. Prerequisite: completion of SLWK 494 to enroll in SLWK 495. Corequisites: SLWK 441, 442. Open only to majors with senior status. Fourteen hours per week in a

community agency under the supervision of an agency-based field instructor. Intended to develop knowledge, values and social work practice skills appropriate to entry-level generalist practice in human service agencies.

SLWK 495 Senior Field Instruction I and II

Continuous courses; 3-3 credits. Prerequisite: completion of SLWK 494 to enroll in SLWK 495. Corequisites: SLWK 441, 442. Open only to majors with senior status. Fourteen hours per week in a community agency under the supervision of an agency-based field instructor. Intended to develop knowledge, values and social work practice skills appropriate to entry-level generalist practice in human service agencies.

SLWK 499 Senior Seminar

Semester course. 1 credit. Corequisites: SLWK 442 and 495. Typically to be taken in the last semester of the student's senior year. This course serves as an academic culmination of the undergraduate social work program. The student will compile a portfolio of B.S.W. program academic materials, complete a professional self-assessment and resume and participate in the development of a comprehensive generalist intervention plan with regard to a specified social problem.

L. Douglas Wilder Wilder School of Government and Public Affairs

Criminal Justice

CRJS 181 Introduction to Criminal Justice

Semester course; 3 lecture hours. 3 credits.
Comprehensive overview of criminal justice; assesses the extent of crime; reviews law enforcement, judicial and correctional processes at all levels of government; discusses history and philosophy of public safety; evaluates career opportunities.

CRJS 252 Juvenile Justice

Semester course; 3 lecture hours. 3 credits.
Prerequisite: CRJS 181 or permission of instructor.
Examines all segments of juvenile justice and special procedures designed for young persons; recognizes the importance of proper handling of the juvenile by the police and the courts; reviews recent developments in juvenile rehabilitation.

CRJS 253 Introduction to Corrections

Semester course; 3 lecture hours. 3 credits. A survey of societal responses to the offender; traces the evolution of practices based on philosophies of retribution, punishment and rehabilitation; reviews contemporary correctional activities and their relationships to other aspects of the criminal justice system; introduces the emerging area of correctional programming within the community.

Effective Spring 2015

CRJS 253 Introduction to Corrections

Semester course; 3 lecture hours. 3 credits.
Prerequisite: CRJS 181. A survey of societal responses to the offender; traces the evolution of practices based on philosophies of retribution, punishment and rehabilitation; reviews contemporary correctional activities and their relationships to other aspects of the criminal justice system; introduces the emerging area of correctional programming within the community.

CRJS 254 Introduction to Policing

Semester course; 3 lecture hours. 3 credits. A survey of different facets of law enforcement including the activities of public police agencies and private security organizations. Assesses changes in law enforcement philosophy and practices, police relationships with the public and the political arena and anticipated future trends in policing.

Effective Spring 2015

CRJS 254 Introduction to Policing

Semester course; 3 lecture hours. 3 credits.
Prerequisite: CRJS 181. A survey of different facets of law enforcement including the activities of public police agencies and private security organizations. Assesses changes in law enforcement philosophy and practices, police relationships with the public and the political arena and anticipated future trends in policing.

CRJS 255 Introduction to Legal Studies

Semester course; 3 lecture hours. 3 credits. Overview of the American legal system, processes, terminology; analysis of historical and philosophical bases of law. Examines the systems that adjudicate criminal and civil law; considers the role of law in the functioning of the justice system.

CRJS 300 Forensic Criminology

Semester course; 3 lecture hours. 3 credits. The intersection of law, predictions of dangerousness, mental disorder and crime. Behavioral prediction, classification and the development of typologies of

offenses and offending will be considered. Issues in the use of clinical and statistical prediction methods in criminal justice will be presented.

Effective Spring 2015

CRJS 300 Forensic Criminology

Semester course; 3 lecture hours. 3 credits.
Prerequisite: CRJS 181. The intersection of law, predictions of dangerousness, mental disorder and crime. Behavioral prediction, classification and the development of typologies of offenses and offending will be considered. Issues in the use of clinical and statistical prediction methods in criminal justice will be presented.

CRJS 302/ENGL 302 Legal Writing

Semester course; 3 lecture hours. 3 credits.
Prerequisites: UNIV 200 or HONR 200, and ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291, or 295. Intensive practice in writing on subjects related to law or legal problems. Emphasis on organization, development, logical flow and clarity of style. May not be used to satisfy the literature requirement of the College of Humanities and Sciences.

CRJS 305 Policing Theories and Practice

Semester course; 3 lecture hours. 3 credits. An overview of the nature and application of law enforcement theory. Examines the theoretical underpinnings of a variety of law enforcement practices, with emphasis on evolving trends.

Effective Spring 2015

CRJS 305 Policing Theories and Practice

Semester course; 3 lecture hours. 3 credits.
Prerequisites: CRJS 181 and 254. An overview of the nature and application of law enforcement theory. Examines the theoretical underpinnings of a variety of law enforcement practices, with emphasis on evolving trends.

CRJS 320 Principles of Criminal Investigation

Semester course; 3 lecture hours. 3 credits. Surveys the fundamentals of criminal investigation procedures and techniques. Examines crime scene management, searching, collecting, handling and preserving of evidence as applied to forensic crime scene investigation.

Effective Spring 2015

CRJS 320 Principles of Criminal Investigation

Semester course; 3 lecture hours. 3 credits.
Prerequisite: CRJS 181. Surveys the fundamentals of criminal investigation procedures and techniques. Examines crime scene management, searching, collecting, handling and preserving of evidence as applied to forensic crime scene investigation.

CRJS 324 Courts and the Judicial Process

Semester course; 3 lecture hours. 3 credits. Examines the systems that adjudicate criminal and civil law; includes constitutional authority, jurisdictions and trial processes, with particular emphasis on reform in court administration, disposition without trial and sentencing.

Effective Spring 2015

CRJS 324 Courts and the Judicial Process

Semester course; 3 lecture hours. 3 credits.
Prerequisite: CRJS 181. Examines the systems that adjudicate criminal and civil law; includes constitutional authority, jurisdictions and trial processes, with particular emphasis on reform in court administration, disposition without trial and sentencing.

CRJS 330/HSEP 330 Legal and Constitutional Issues in Homeland Security and Emergency Preparedness

Semester course; 3 lecture hours. 3 credits.
Prerequisites: CRJS 367/HSEP 301/POLI 367 and CRJS 368/HSEP 302, or permission of instructor. An analysis of the legal and civil liberties changes and challenges brought on by terrorist attacks. Topics addressed may include surveillance issues, federal legislation passed in the aftermath of the terrorist attacks, the rights of foreign nationals, the rights of U.S. citizens, the governmental infrastructure for decisions concerning legal rights and the difficulties of prosecuting terrorist suspects, such as jurisdictional issues, rules of evidence and prosecution strategies.

CRJS 350 Evaluation and Treatment of the Offender

Semester course; 3 lecture hours. 3 credits. An analysis of the issues and procedures involved in evaluating individual differences in offenders and among classes of offenders; current diagnostic and treatment methods are discussed; introduces the student to case analysis and correctional counseling techniques. Includes analysis of evaluation and treatment resources external to corrections.

Effective Spring 2015

CRJS 350 Evaluation and Treatment of the Offender

Semester course; 3 lecture hours. 3 credits.
Prerequisites: CRJS 181 and 253. An analysis of the issues and procedures involved in evaluating individual differences in offenders and among classes of offenders; current diagnostic and treatment methods are discussed; introduces the student to case analysis and correctional counseling techniques. Includes analysis of evaluation and treatment resources external to corrections.

CRJS 351 Community Corrections

Semester course; 3 lecture hours. 3 credits.
Prerequisites: CRJS 181 and 253. A comprehensive review of various community-based rehabilitation and treatment efforts; includes analysis of probation, parole, work release, halfway houses and other methods of re-integrating the offender into society.

CRJS 352 Crime and Delinquency Prevention

Semester course; 3 lecture hours. 3 credits. Review and analysis of the problems associated with prevention of crime and delinquency, viewed in a total systems context. Programs and activities involving citizen, community and agency interrelationships will be developed and examined. Students are responsible for preparing and evaluating projects with crime preventive goals.

Effective Spring 2015

CRJS 352 Crime and Delinquency Prevention

Semester course; 3 lecture hours. 3 credits.
Prerequisite: CRJS 181. Review and analysis of the problems associated with prevention of crime and delinquency, viewed in a total systems context. Programs and activities involving citizen, community and agency interrelationships will be developed and examined. Students are responsible for preparing and evaluating projects with crime preventive goals.

CRJS 355 Criminological Theory

Semester course; 3 lecture hours. 3 credits.
Prerequisite: CRJS 181 or permission of instructor. Examines the intellectual underpinnings of the criminal justice system. Includes analysis of evolving

values and ideas regarding social control, individual and collective responsibilities and rights, the role of punishment, politics and the law, practitioners as public servants, and criminological and other foundations of the criminal justice system.

CRJS 358 Lawyer's Role in the Justice System

Semester course; 3 lecture hours. 3 credits. Examines the multiple responsibilities of lawyers from an historical and contemporary perspective. The basic techniques of the lawyer's craft will be studied with emphasis placed on case advocacy, negotiation skills and legal reasoning, and problem-solving.

Effective Spring 2015

CRJS 358 Lawyer's Role in the Justice System

Semester course; 3 lecture hours. 3 credits.

Prerequisite: CRJS 181. Examines the multiple responsibilities of lawyers from an historical and contemporary perspective. The basic techniques of the lawyer's craft will be studied with emphasis placed on case advocacy, negotiation skills and legal reasoning, and problem-solving.

CRJS 360 Foundations of Criminal Law

Semester course; 3 lecture hours. 3 credits. Clarifies both the content and role of criminal law within criminal justice and its administration in America. Explores the moral, theoretical and historical foundations of American criminal law and jurisprudence; elements and classification of criminal conduct; burdens of proof; defenses to criminal culpability; and a variety of crime types focusing in particular on crimes against person and property.

Effective Spring 2015

CRJS 360 Foundations of Criminal Law

Semester course; 3 lecture hours. 3 credits.

Prerequisite: CRJS 181. Clarifies both the content and role of criminal law within criminal justice and its administration in America. Explores the moral, theoretical and historical foundations of American criminal law and jurisprudence; elements and classification of criminal conduct; burdens of proof; defenses to criminal culpability; and a variety of crime types focusing in particular on crimes against person and property.

CRJS 367/HSEP 301/POLI 367 Terrorism

Semester course; 3 lecture hours. 3 credits. Prerequisites: HSEP 101, POLI 103 and INTL/POLI 105, or permission of instructor. A survey of the modern problem of terrorism with an emphasis on the political nature of terrorist acts. Examines the history of terrorism, domestically within the U.S. and internationally, the role of religion, the structures and operations of terrorist organizations, as well as counterterrorism policies and policy making.

CRJS 368/HSEP 302 Emergency Planning and Incident Management

Semester course; 3 lecture hours. 3 credits. Prerequisites: HSEP 101, POLI 103 and INTL/POLI 105, or permission of instructor. An introduction to the basic tasks of emergency preparedness and disaster mitigation, including planning, response and recovery. Special emphasis will be placed on command arrangements, coordination and budgetary issues among emergency responders (law enforcement, firefighters and health care system officials), and within and between federal, state and local governments.

CRJS 370 Criminalistics and Crime Analysis

Semester course; 3 lecture hours. 3 credits. A comprehensive evaluation of current developments in research, instrumentation and laboratory technology utilized to detect, identify, analyze and compare evidence.

Effective Spring 2015

CRJS 370 Criminalistics and Crime Analysis

Semester course; 3 lecture hours. 3 credits.

Prerequisite: CRJS 181. A comprehensive evaluation of current developments in research, instrumentation and laboratory technology utilized to detect, identify, analyze and compare evidence.

CRJS 373 Crime Scene Evidence: Law and Trial Procedure

Semester course; 3 lecture hours. 3 credits. Provides a fundamental understanding of evidence law. Examines the nature and admissibility of various forms of evidence. Provides an understanding of the investigator's role in the judicial process including the presentation of testimony and adversarial proceedings.

Effective Spring 2015

CRJS 373 Crime Scene Evidence: Law and Trial Procedure

Semester course; 3 lecture hours. 3 credits.

Prerequisite: CRJS 181. Provides a fundamental understanding of evidence law. Examines the nature and admissibility of various forms of evidence. Provides an understanding of the investigator's role in the judicial process including the presentation of testimony and adversarial proceedings.

CRJS 375/HSEP 320 The Intelligence Community and the Intelligence Process

Semester course; 3 lecture hours. 3 credits. Prerequisites: CRJS 367/HSEP 301/POLI 367 and CRJS 368/HSEP 302, or permission of instructor. An examination of the concepts of and challenges for state, local and federal policy making and organization for homeland security and emergency preparedness. The intelligence process â the collection, analysis, sharing and dissemination of information within and between local, state and federal governmental agencies â is a special focus.

CRJS 380 Research Methods in Criminal Justice

Semester course; 3 lecture hours. 3 credits. Prerequisite: statistics or permission of instructor. Designed to familiarize the student with current and applied research methods in criminal justice, including the application of data and information processing techniques and procedures; analyzes research in criminal justice journals and government reports; and enhances the capability to evaluate contemporary research.

Effective Spring 2015

CRJS 380 Research Methods in Criminal Justice

Semester course; 3 lecture hours. 3 credits.

Prerequisites: CRJS 181 and STAT 210. Designed to familiarize the student with current and applied research methods in criminal justice, including the application of data and information processing techniques and procedures; analyzes research in criminal justice journals and government reports; and enhances the capability to evaluate contemporary research.

CRJS 382/GSW 382 Gender, Crime and Justice

Semester course; 3 lecture hours. 3 credits. Prerequisite: CRJS 181 or permission of instructor. Examines the role of gender as it relates to crime and justice. Special attention will focus on the gendered experiences of practitioners, offenders and victims within the criminal justice system in terms of processing, adjudication and institutional responses.

CRJS 425 Violent Crime Scene Investigation

Semester course; 3 lecture hours. 3 credits. Introduces students to specialized tools and scientific aids used in the criminal investigation of homicide and rape cases. Applies investigative techniques and preparation of trial evidence used in homicides and rape cases.

Effective Spring 2015

CRJS 425 Violent Crime Scene Investigation

Semester course; 3 lecture hours. 3 credits.

Prerequisite: CRJS 181. Introduces students to specialized tools and scientific aids used in the criminal investigation of homicide and rape cases. Applies investigative techniques and preparation of trial evidence used in homicides and rape cases.

CRJS 432 Criminal Justice: Organizations

Semester course; 3 lecture hours. 3 credits. Considers the behavioral dimensions of administrations in criminal justice and public safety agencies. Examines the concepts of leadership and decision-making and the effect of environmental dynamics in the management of the criminal justice system.

CRJS 434 Police Administration

Semester course; 3 lecture hours. 3 credits. Examines major management concepts and principles with special emphasis on consideration of law enforcement. Policies and procedures formulated and followed by managers in law enforcement settings will be evaluated from a structural as well as a functional perspective. Contemporary and anticipated future problems, challenges and trends facing police managers will be addressed.

Effective Spring 2015

CRJS 434 Police Administration

Semester course; 3 lecture hours. 3 credits.

Prerequisites: CRJS 181 and 254. Examines major management concepts and principles with special emphasis on consideration of law enforcement. Policies and procedures formulated and followed by managers in law enforcement settings will be evaluated from a structural as well as a functional perspective. Contemporary and anticipated future problems, challenges and trends facing police managers will be addressed.

CRJS 450 Computer Forensic Investigation

Semester course; 3 lecture hours. 3 credits. Study of the emerging field of computer forensics including prevention, detection, apprehension, analysis and prosecution of security violators and criminals. Focus is primarily on the federal/state use of computer forensic investigation, which includes cybercrime, cybervandalism, cyberpredators, cyberterrorism and the use of computers as electronic file cabinets.

Effective Spring 2015

CRJS 450 Cyber Crime and Computer Forensics

Semester course; 3 lecture hours. 3 credits.

Prerequisite: CRJS 181. Study of computer-related crime and related laws and policies. Focus on the

investigation and processes of securing evidence for computer-related crimes.

CRJS 463 Comparative Criminal Justice Systems

Semester course; 3 lecture hours. 3 credits. Study of national and international criminal justice systems with an emphasis on historical, cultural and operational comparisons. Contemporary research relating to law enforcement, adjudicative and correctional systems will be considered.

Effective Spring 2015

CRJS 463 Comparative Criminal Justice Systems

Semester course; 3 lecture hours. 3 credits.

Prerequisite: CRJS 181. Study of national and international criminal justice systems with an emphasis on historical, cultural and operational comparisons. Contemporary research relating to law enforcement, adjudicative and correctional systems will be considered.

CRJS 468 Economic and Organized Crime

Semester course; 3 lecture hours. 3 credits. Analysis of the types of offenses which occur in the business and governmental work and the consequences of illegal practices. Primary attention will address the public sector through the methods utilized to detect and investigate criminal activities affecting governmental units. Relationships to organized crime will be described for each of the specific topics and techniques.

Effective Spring 2015

CRJS 468 Economic and Organized Crime

Semester course; 3 lecture hours. 3 credits.

Prerequisite: CRJS 181. Analysis of the types of offenses which occur in the business and governmental work and the consequences of illegal practices. Primary attention will address the public sector through the methods utilized to detect and investigate criminal activities affecting governmental units. Relationships to organized crime will be described for each of the specific topics and techniques.

CRJS 475 Criminal Procedure

Semester course; 3 lecture hours. 3 credits.

Prerequisite: CRJS 181 or permission of instructor.

Analyzes criminal procedure regarding the courts and their supervisory role over prosecutions and the use of testimonial and non-testimonial evidence. Examines the judicial interpretive processes by which the public safety is balanced with individual rights.

CRJS 480 Senior Seminar

Semester course; 3 lecture hours. 3 credits.

Prerequisite: CRJS 181 or instructor's permission.

Restricted to seniors in criminal justice with at least 85 credit hours taken toward the degree. A capstone course designed to assist students to apply and to think critically about current knowledge regarding crime, crime trends, law, law enforcement, the adjudication process, corrections and crime prevention. Scenarios, research, projections and evaluation of different viewpoints will be employed to develop the student's ability to assess methods of argumentation, use information and apply existing knowledge to new fact situations.

Effective Spring 2015

CRJS 480 Senior Seminar

Semester course; 3 lecture hours. 3 credits.

Prerequisites: CRJS 181 355 and 380. Restricted to seniors in criminal justice with at least 85 credit hours

taken toward the degree. A capstone course designed to assist students to apply and to think critically about current knowledge regarding crime, crime trends, law, law enforcement, the adjudication process, corrections and crime prevention. Scenarios, research, projections and evaluation of different viewpoints will be employed to develop the student's ability to assess methods of argumentation, use information and apply existing knowledge to new fact situations.

CRJS 491 Topics in Criminal Justice

Semester course; 1-3 lecture hours. 1-3 credits. In-depth examination of selected administration of justice topics. See the Schedule of Classes for specific topics to be offered each semester and prerequisites.

Effective Spring 2015

CRJS 491 Topics in Criminal Justice

Semester course; 1-3 lecture hours. 1-3 credits.

Prerequisite: CRJS 181. In-depth examination of selected administration of justice topics. See the Schedule of Classes for specific topics to be offered each semester and prerequisites.

CRJS 492 Directed Individual Study

Semester course; variable hours. 1, 2 or 3 credits. Maximum total of 6 credits. Available to all other criminal justice students who are seniors and have a 3.0 or above GPA (with permission of department chair) as a substitute for a major elective course. Provides an independent study opportunity for the adult student who is (or was) employed in a criminal justice, safety or risk administration position and who does not require internship or volunteer experience.

Effective Spring 2015

CRJS 492 Directed Individual Study

Semester course; variable hours. 1, 2 or 3 credits.

Maximum total of 6 credits. Prerequisite: CRJS 181. Available to all other criminal justice students who are seniors and have a minimum GPA of 3.0 (with permission of department chair) as a substitute for a major elective course. Provides an independent study opportunity for the adult student who is (or was) employed in a criminal justice, safety or risk administration position and who does not require internship or volunteer experience.

CRJS 492 Directed Individual Study

Effective Spring 2015

Semester course; variable hours. 1, 2 or 3 credits.

Maximum total of 6 credits. Prerequisite: CRJS 181. Available to all other criminal justice students who are seniors and have a minimum GPA of 3.0 (with permission of department chair) as a substitute for a major elective course. Provides an independent study opportunity for the adult student who is (or was) employed in a criminal justice, safety or risk administration position and who does not require internship or volunteer experience.

Geography

GEOG 102 Introduction to Human Geography

Semester course; 3 lecture hours. 3 credits. An introduction to human geography from a global perspective, emphasizing settlement patterns, human-environment interactions, cultural variations, political transitions and population change in the global economy.

GEOG 105/ENVS 105 Physical Geology

Semester course; 3 lecture hours. 3 credits. A descriptive approach to physical geology dealing with the history and structure of the earth, catastrophic events and geology as it relates to the contemporary environment. An optional laboratory may be taken with this course. See GEOZ/ENVZ 105L.

GEOG 203 Physical Geography

Semester courses; 3 lecture hours. 3, 3 credits. GEOG 204 can be taken without GEOG 203, and vice versa. Analysis of the interrelated systems of the earth. GEOG 203: the earth in space, atmosphere, climate, vegetation. GEOG 204: earth materials, tectonics, weathering, erosion, landforms, soils.

GEOG 204 Physical Geography

Semester courses; 3 lecture hours. 3, 3 credits. GEOG 204 can be taken without GEOG 203, and vice versa. Analysis of the interrelated systems of the earth. GEOG 203: the earth in space, atmosphere, climate, vegetation. GEOG 204: earth materials, tectonics, weathering, erosion, landforms, soils.

GEOG 302/URSP 302 Land Use and Infrastructure Planning

Semester course; 3 lecture hours. 3 credits. Prerequisite: any 100-level (or higher) URSP or GEOG course. Explores how the integration of land use, transportation and other infrastructures (e.g., water supply, waste water and storm water) in urban and regional planning can improve development patterns to ensure sustainability and livability. The historical development of land use, urban form and the various transportation modes that have shaped American cities are also studied.

GEOG 303/INTL 303, 304 World Regions

Semester courses; 3 lecture hours. 3, 3 credits. An examination of the various regions of the earth, including land forms, climate, resources, peoples, agriculture and urban conditions. First semester: Anglo-America, Latin America, Western Europe, Eastern Europe, the former USSR. Second semester: Middle East and North Africa, Africa (south of the Sahara), Indian subcontinent, China, Japan, Southeast Asia, Oceania.

GEOG 304/INTL 303, 304 World Regions

Semester courses; 3 lecture hours. 3, 3 credits. An examination of the various regions of the earth, including land forms, climate, resources, peoples, agriculture and urban conditions. First semester: Anglo-America, Latin America, Western Europe, Eastern Europe, the former USSR. Second semester: Middle East and North Africa, Africa (south of the Sahara), Indian subcontinent, China, Japan, Southeast Asia, Oceania.

GEOG 306/URSP 306 Economic Geography

Semester course; 3 lecture hours. 3 credits. Explores the workings of regional economies through analysis of industries and occupations. Studies the reasons for variation in regional economic characteristics and examines policies and strategies for enhancing regional economic conditions. Course relies heavily on the use of Microsoft Excel; proficiency with using this program is required.

GEOG 312/ANTH 312 History of Human Settlement

Semester courses; 3 lecture hours. 3 credits. A cultural and historical geography of human migration and settlement over the earth. Topics may include agricultural and urban systems, exploration, colonization and imperialism, and changing relationships with the environment, during and since the Middle Ages.

GEOG 313/URSP 313 Research and Field Methods in Urban and Regional Studies

Semester course; 3 lecture hours. 3 credits. Prerequisite: STAT 210. Introduces students to a variety of field and research techniques used to gather and analyze information to study urban and regional issues. Key topics include designing a research project, developing and implementing surveys, conducting focus groups and observation, analyzing data statistically, interpreting and reporting results, and utilizing secondary information.

GEOG 331 Geography of Latin America and the Caribbean

Semester course; 3 lecture hours. 3 credits. Examines the physical and human geography of Latin America and the Caribbean from an interdisciplinary perspective. A systems approach is used to concentrate on particular topics, themes and patterns that have broader relevance to the overall region or subregions (e.g. Central America, the Lesser Antilles, the Andes, Amazonia) rather than on the details of each country. However, in relation to some topics, case studies are used that may focus on a particular country.

GEOG 332/ENVS 332/URSP 332 Environmental Management

Semester course; 3 lecture hours. 3 credits. Prerequisite: GEOG 204 or permission of instructor. An interdisciplinary review of domestic and international environmental problems and their underlying causes, current management frameworks, alternative management approaches and strategies, and barriers to their implementation. Other topics include: environmental history and economics, population growth, natural resources use, biodiversity, pollution.

GEOG 333/AFAM 333/INTL 333 Geography of Africa

Semester course; 3 lecture hours. 3 credits. A study of the land forms, climate, peoples, livelihoods, settlement patterns and cultural groupings of sub-Saharan Africa.

GEOG 334/INTL 334 Regional Geography of

Semester course; 3 lecture hours. 3 credits. A study of the land forms, climate, resources, peoples, agricultural and urban conditions in a specific region such as North America, Europe, Latin America, the Middle East and India, the USSR and Eastern Europe. See the Schedule of Classes for specific region to be studied each semester.

GEOG 335/ENVS 335 Environmental Geology

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENVS 105/GEOG 105 or GEOG 204. The relationship between humankind and the physical environment, Earth materials and processes, geological hazards, water, mineral and energy resources, land use and environmental health and law.

GEOG 340/INTL 340/URSP 340 World Cities Outside of North America

Semester course; 3 lecture hours. 3 credits. An examination of urban habitats in a variety of geographical regions, with emphasis on their differences and their common experiences.

GEOG 391 Topics in Geography

Semester course; 1, 2 or 3 credits. This course may be repeated with different topics for a maximum of 9 credits. Prerequisite: Because of changing subject matter to be treated in this course, permission of instructor is required. Students will have an opportunity to examine in detail a geographical issue of significance. See the Schedule of Classes for specific topics to be offered each semester.

GEOG 401/ENVS 401 Meteorology and Climatology

Semester course; 3 lecture hours. 3 credits. Prerequisite: PHYS 201 or PHYS 207. A basic, semiquantitative course in the elements of weather and climate, their driving forces and their spatial and temporal distribution and variability. Atmospheric motions and circulation, weather forecasting, human impact on weather and climate.

GEOG 411/ENVS 411 Oceanography

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 151, BIOL 152 and CHEM 102. A basic course in the physical, chemical and geological properties of oceans and ocean basins. Origin and character of ocean basins, properties of oceanic waters, oceanic circulation, land-sea interactions, marine environments and ecology.

GEOG 420/URSP 420 Regional Planning and Sustainable Development

Semester course; 3 lecture hours. 3 credits. Prerequisite: GEOG 102 or permission of instructor. Explores the factors, both historical and contemporary, that influence the socioeconomic and environmental characteristics of national and sub-national regions, mainly in the developing world. Analyzes development problems and strategies from various theoretical perspectives, and examines the impacts of policy and planning interventions on regional conditions.

GEOG 492 Independent Study

Semester course; 1-3 credits. May be repeated for a maximum total of 6 credits. Prerequisites: junior or senior standing required. Permission of instructor and geography program director must be obtained prior to course registration. Under the supervision of a geography faculty member, a student studies a topic of mutual interest.

Geography Lab**GEOZ 105/ENVZ 105 Physical Geology Laboratory**

Semester course; 2 laboratory hours. 1 credit. Pre- or corequisite: GEOG/ENVS 105. An optional laboratory course consisting of experiments and activities related to GEOG/ENVS 105.

GEOZ 203 Physical Geography Laboratory

Semester courses; 2 laboratory hours. 1, 1 credit. Pre- or corequisite: GEOG 203 for GEOZ 203; GEOG 204 for GEOZ 204. Problem-solving and map-reading

exercises related to earth-sun relationships, atmosphere, weather and climate, vegetation, soils (in GEOZ 203) and earth materials, tectonics, weathering, erosion, landforms (in GEOZ 240). GEOZ 204 can be taken without GEOZ 203, and vice versa.

GEOZ 204 Physical Geography Laboratory

Semester courses; 2 laboratory hours. 1, 1 credit. Pre- or corequisite: GEOG 203 for GEOZ 203; GEOG 204 for GEOZ 204. Problem-solving and map-reading exercises related to earth-sun relationships, atmosphere, weather and climate, vegetation, soils (in GEOZ 203) and earth materials, tectonics, weathering, erosion, landforms (in GEOZ 240). GEOZ 204 can be taken without GEOZ 203, and vice versa.

GEOZ 335/ENVZ 335 Environmental Geology Laboratory

Semester course; 2 laboratory hours. 1 credit. Corequisite: GEOG/ENVS 335. Required for environmental science majors enrolled in ENVS/GEOG 335; optional for other majors. Attendance on one Saturday morning field trip required. Laboratory exercises coordinated with GEOG/ENVS 335 lectures.

GEOZ 401/ENVZ 401 Meteorology and Climatology Laboratory

Semester course; 3 laboratory hours. 1 credit. Pre- or corequisite: GEOG/ENVS 401. A series of laboratory and field experiments designed to quantify the elements of weather and climate and to interpret their local temporal and spatial variations.

Government and Public Affairs**GVPA 391 Special Topics in Government and Public Affairs**

Semester course; 1-3 lecture hours. 1-3 credits. A maximum 6 credits in all special topics courses offered in the Wilder School may be applied to any of the school's majors. Intended for sophomores and juniors. An intensive focus on a selected field of interest relevant to all majors in the school. See the Schedule of Classes for specific topics to be offered each semester.

GVPA 399/HIST 399/SCTS 300 Introduction to Science and Technology Studies

Semester course; 3 lecture hours. 3 credits. An introduction to the study of science, technology and medicine from political, sociological and historical perspectives, focusing on case studies that illustrate the methods and theories used to examine the structure and behavior of the scientific community and the role of scientific knowledge in shaping public culture.

GVPA 423 Virginia Capital Semester Seminar

Semester course; 3 lecture hours. 3 credits. Open only to students in the Virginia Capital Semester program. Designed as an integral part of the program, this course provides an examination of state policy issues and state legislative processes using the current Virginia General Assembly session as illustration.

GVPA 491 Advanced Special Topics in Government and Public Affairs

Semester course; 1-3 lecture hours. 1-3 credits. A maximum 6 credits in all special topics courses offered in the Wilder School may be applied to any of the school's majors. Intended for advanced students and

seniors. An intensive focus on a selected field of interest relevant to all majors in the school. See the Schedule of Classes for specific topics to be offered each semester.

GVPA 493 Government and Public Affairs Internship

Semester course; variable hours. 1-6 credits. (50 hours per credit.) May be repeated for a maximum of 6 credits. Permission of internship coordinator required. Designed to provide the student with an opportunity to relate theory to practice through observation and actual experience within the field of government and public affairs.

GVPA 494 Virginia Capital Semester Internship

Semester course; 3 credits. Open only to students in the Virginia Capital Semester program. Designed to provide students with an opportunity to relate theory to practice through participation in activities related to the annual session of the Virginia General Assembly.

GVPA 495 UROP Directed Study

Semester course; 3 lecture hours. 3 credits. Students enrolling in this course must meet the eligibility requirements of the Undergraduate Research Opportunity Program. Designed to provide advanced research opportunities to undergraduate students. Topics chosen in consultation with the UROP coordinator. Students may take a total of six GVPA 495 credits; only three of those credits may be applied to the major.

GVPA 499 Wilder School Scholars Seminar

Semester course; 3 lecture hours. 3 credits. Capstone seminar course focusing on a broad topic in one of several disciplines of interest to Wilder School Scholars. Topics, structure and content determined each semester.

Homeland Security and Emergency Preparedness

HSEP 101 Homeland Security and Emergency Preparedness

Semester course; 3 lecture hours. 3 credits. An introduction to the public- and private-sector dimensions of the broad range of theoretical and practical aspects of homeland security and emergency preparedness, including: origins of natural and terrorist-caused disasters; local, state and federal emergency management planning and operations; health infrastructure capabilities; public communication strategies; business community concerns; ethical, legal and constitutional questions; as well as the social and psychological dimensions of disasters.

HSEP 301/CRJS 367/POLI 367 Terrorism

Semester course; 3 lecture hours. 3 credits. Prerequisites: HSEP 101, POLI 103 and INTL/POLI 105, or permission of instructor. A survey of the modern problem of terrorism with an emphasis on the political nature of terrorist acts. Examines the history of terrorism, domestically within the U.S. and internationally, the role of religion, the structures and operations of terrorist organizations, as well as counterterrorism policies and policy-making.

HSEP 302/CRJS 368 Emergency Planning and Incident Management

Semester course; 3 lecture hours. 3 credits. Prerequisites: HSEP 101, POLI 103 and INTL/POLI 105, or permission of instructor. An introduction to the basic tasks of emergency preparedness and disaster mitigation, including planning, response and recovery. Special emphasis will be placed on command arrangements, coordination and budgetary issues among emergency responders (law enforcement, firefighters and health care system officials), and within and between federal, state and local governments.

HSEP 310 Risk and Vulnerability Assessment

Semester course; 3 lecture hours. 3 credits. Prerequisites: STAT 210, CRJS 367/HSEP 301/POLI 367 and CRJS 368/HSEP 302, or permission of instructor. An introduction to analytical techniques and methodologies for threat and vulnerability assessment of various types of public and private infrastructure. An all-hazard approach is employed, considering natural disaster, system failure and terrorist attack (conventional or weapons of mass destruction). Special attention will be focused on critical infrastructure protection as well as cyberterrorism.

HSEP 311 Strategic Planning for Homeland Security and Emergency Preparedness

Semester course; 3 lecture hours. 3 credits. Prerequisites: CRJS 367/HSEP 301/POLI 367 and CRJS 368/HSEP 302, or permission of instructor. An examination of the strategic planning for emergency preparedness, operations and recovery for all hazards, as well as terrorist-prevention security measures. The course will focus on public goods/free rider issues, setting organizational priorities, governmental budgeting choices, legal aspects of government regulation of infrastructure and business community security concerns.

HSEP 320/CRJS 375 The Intelligence Community and the Intelligence Process

Semester course; 3 lecture hours. 3 credits. Prerequisites: CRJS 367/HSEP 301/POLI 367 and CRJS 368/HSEP 302, or permission of instructor. An examination of the concepts of and challenges for state, local and federal policy making and organization for homeland security and emergency preparedness. The intelligence process â the collection, analysis, sharing and dissemination of information within and between local, state and federal governmental agencies â is a special focus.

HSEP 330/CRJS 330 Legal and Constitutional Issues in Homeland Security and Emergency Preparedness

Semester course; 3 lecture hours. 3 credits. Prerequisites: CRJS 367/HSEP 301/POLI 367 and CRJS 368/HSEP 302, or permission of instructor. An analysis of the legal and civil liberties changes and challenges brought on by terrorist attacks. Topics addressed may include surveillance issues, federal legislation passed in the aftermath of the terrorist attacks, the rights of foreign nationals, the rights of U.S. citizens, the governmental infrastructure for decisions concerning legal rights and the difficulties of prosecuting terrorist suspects, such as jurisdictional issues, rules of evidence and prosecution strategies.

HSEP 391 Topics in Homeland Security and Emergency Preparedness

Semester course; 3 lecture hours. 3 credits. Maximum total of six credits in all departmental topics courses may be applied to the major. Prerequisites: CRJS 367/HSEP 301/POLI 367 and CRJS 368/HSEP 302. An intensive focus on a specialized field of interest to the study of homeland security and emergency preparedness. See the Schedule of Classes for specific topics to be offered each semester.

HSEP 490 Senior Seminar

Semester course; 3 lecture hours. 3 credits. Prerequisites: HSEP 310, HSEP 311, HSEP 320/CRJS 375 and HSEP 330/CRJS 330. A capstone course examining the major issues related to homeland security and emergency preparedness. Students will be required to produce a research project related to a role-playing in-class simulation of an emergency situation that will include exercises in red-teaming.

HSEP 491 Advanced Topics in Homeland Security and Emergency Preparedness

Semester course; 3 lecture hours. 3 credits. Maximum total of six credits in all departmental topics courses may be applied to the major. An intensive focus on a specialized field of interest to the study of homeland security and emergency preparedness within a seminar setting. See the Schedule of Classes for specific topics to be offered each semester.

HSEP 492 Independent Study

Semester course; 1-4 credits. Maximum total of six credits in all independent study courses may be applied to the major. Prerequisites: junior or senior standing with 12 credits in HSEP courses. Permission of instructor or program director required, with determination of course credit value prior to registration. An independent study that allows students to perform research under the direction of qualified instructor in a subject or field of major interest.

Urban Studies and Planning

URSP 108 Uncovering Richmond

Semester course; 3 lecture hours. 3 credits. An introduction to the dramatic changes Richmond has undergone in recent decades and how those changes mirror trends in cities across the country. The student will discover the role of politics, public safety, education and other important issues in the development of the city through course lectures, readings, discussion and presentations by guest speakers.

URSP 116 Introduction to the City

Semester course; 3 lecture hours. 3 credits. Introduction to the various theories of urbanism and attempt to offer solutions to the problems of urban life in modern civilization. The course will survey the major works of those who have studied cities or offered solutions and alternatives to existing urban structures. The works of noted social reformers, political analysts, economists, and architects as well as urban planners will be examined through lectures, readings, films, slides, discussions and field trips (when feasible).

URSP 120 Urban Issues in Film

Semester course; 3 lecture hours. 3 credits. Introduces students to a variety of themes in urban studies through

the medium of film. Focusing on a selection of films and related readings, the course exposes students to critiques of the socioeconomic, historical, political and structural aspects of cities and regions.

URSP 245 Housing and Community Revitalization

Semester course; 3 lecture hours. 3 credits. The purpose of this course is to examine housing issues as a major determinant of the make-up and the quality of community life in modern American society. Attention is given to the public and private forces that influence various components of the housing issue, such as: demand for housing; housing availability to various economic and social groups; housing design and quality (including new construction, rehabilitation, historic preservation, and adaptive re-use), housing finance and the relationship of housing to planning in metropolitan areas.

URSP 261 Design of the City

Semester course; 3 lecture hours. 3 credits. Architecture, space and activities play a special role in the overall design of the city. These elements are analyzed to understand their interrelationships and importance to a city's visual character. Architectural styles, civic art, effects of space on the individual and methods for designing cities will be discussed. The class is for those who want to understand urban design elements and for those who will be involved in city design.

URSP 302/GEOG 302 Land Use and Infrastructure Planning

Semester course; 3 lecture hours. 3 credits. Prerequisite: any 100-level (or higher) URSP or GEOG course. Explores how the integration of land use, transportation and other infrastructures (e.g., water supply, waste water and storm water) in urban and regional planning can improve development patterns to ensure sustainability and livability. The historical development of land use, urban form and the various transportation modes that have shaped American cities are also studied.

URSP 304 Urban Social Systems

Semester course; 3 lecture hours. 3 credits. A study of the growth and development of neighborhoods, cities and metropolitan systems. Analyzes origins of community interests and factors that affect the ability of communities to further their interests. Particular attention is given to how patterns of service delivery and the placement of public facilities affect community interest and whether federal or municipal departments are able to set adequate community service standards.

URSP 306/GEOG 306 Economic Geography

Semester course; 3 lecture hours. 3 credits. Explores the workings of regional economies through analysis of industries and occupations. Studies the reasons for variation in regional economic characteristics and examines policies and strategies for enhancing regional economic conditions. Course relies heavily on the use of Microsoft Excel; proficiency with using this program is required.

URSP 310 Introduction to Urban and Regional Planning

Semester course; 3 lecture hours. 3 credits. Prerequisite: any 100- or 200-level URSP course. Introduction to theory and practice of governmental planning in the U.S. with emphasis on urban and

regional planning. Surveys the history of planning, current planning practice and the ethical responsibilities of planners.

URSP 313/GEOG 313 Research and Field Methods in Urban and Regional Studies

Semester course; 3 lecture hours. 3 credits. Prerequisite: STAT 210. Introduces students to a variety of field and research techniques used to gather and analyze information to study urban and regional issues. Key topics include designing a research project, developing and implementing surveys, conducting focus groups and observation, analyzing data statistically, interpreting and reporting results, and utilizing secondary information.

URSP 315 The Evolution of American Cities

Semester course; 3 lecture hours. 3 credits. A general survey of how cities developed in the United States and the factors that contributed to the process of urbanization. Emphasis is placed on the public attitudes and values that have dominated particular periods of history and how these values affected the efforts to urbanize. The American city is examined as a vital force in the economic, social and political development of modern America, as the major location for conflict between people of all persuasions, and as the home of much of what is meant by American "civilization."

URSP 316 Urban Life in Modern America

Semester course; 3 lecture hours. 3 credits. Restricted to nonmajors. Examines how a modern city functions, the public services rendered within the city and the impact of public policy on the city. The city is treated as a system consisting of economic, social and political activities that influence and are influenced by the physical/demographic environment. Each activity is studied separately with the cause-effect relationships among the activities highlighted by an analysis of public service delivery and, more generally, urban public policy.

URSP 321/ECON 321 Urban Economics

Semester course; 3 lecture hours. 3 credits. Prerequisite: ECON 203 with a minimum grade of B or ECON 210. An introduction to urban economics, with an emphasis on the economics of agglomeration and the role of externalities in the urban economy. Economic analysis of the provision of urban public services and urban public financing, especially in politically fragmented areas.

URSP 322 Urban Finance

Semester course; 3 lecture hours. 3 credits. Prerequisite: GEOG/URSP 306. Treats the local government from a practical management perspective as an organization in a political-economic environment. The nature of city expenditures and sources of revenues are explored. Budgeting and taxing decision-making processes are explored in depth. Economic impacts of these decisions on citizens are analyzed and implications for practice drawn.

URSP 332/ENVS 332/GEOG 332 Environmental Management

Semester course; 3 lecture hours. 3 credits. Prerequisite: GEOG 204 or permission of instructor. An interdisciplinary review of domestic and international environmental problems and their underlying causes, current management frameworks, alternative management approaches and strategies, and

barriers to their implementation. Other topics include: environmental history and economics, population growth, natural resources use, biodiversity, pollution.

URSP 340/GEOG 340/INTL 340 World Cities Outside of North America

Semester course; 3 lecture hours. 3 credits. Examines the role of cities in the development of a variety of geographical regions outside of North America. Consists of a broad overview of the historical evolution of cities, their internal structure and relation to the world system and urban problems.

URSP 350/FRLG 345/INTL 345 Great Cities of the World

Semester course; 3 lecture hours. 3 credits. May be repeated under different topics for a total of 6 credits. Prerequisite: sophomore standing or permission of instructor. An interdisciplinary course with a focus on the origin, expansion and significance of one or more cities, the specifics of its/their culture and the role of language. Particular emphasis will be placed on relating the physical, social and economic aspects of the city's growth and development to the cultural expression of urbanism.

URSP 360 Community and Regional Analysis and GIS

Semester course; 3 lecture hours. 3 credits. Introduces students to the core functions and applications of geographic information systems. Trains students in the management, modeling, analysis and visualization of urban and regional georeferenced data. The GIS techniques covered include the classification and symbolization of geographic features, data querying, table and spatial joining, spatial selection, projections, creation and editing of spatial features, geocoding, spatial analysis, and mapping.

URSP 391 Special Topics in Urban Studies

Semester course; 1, 2 or 3 credits. Prerequisite: because of the changing subject matter to be treated in this course, permission of the instructor is required. Students will have an opportunity to examine in detail some questions of significance. See the Schedule of Classes for the specific topic to be offered each semester.

URSP 392 Independent Study

Semester course; 1-3 lecture hours. 1-3 credits. Prerequisite: junior or senior standing is required. Under supervision of a faculty adviser, who must approve the student taking the course, a student studies a topic of interest.

URSP 397 Independent Study

Semester courses; 2 or 3 lecture hours. 2 or 3 credits. Prerequisite: junior or senior standing is required. Under supervision of a faculty adviser, whose consent is required to register, study a topic of concern to the student. Examines the role of cities in development of a variety of geographical regions outside of North America.

URSP 398 Independent Study

Semester courses; 2 or 3 lecture hours. 2 or 3 credits. Prerequisite: junior or senior standing is required. Under supervision of a faculty adviser, whose consent is required to register, study a topic of concern to the student. Examines the role of cities in development of a variety of geographical regions outside of North America.

URSP 413 Policy Implementation

Semester course; 3 lecture hours. 3 credits. An examination of the administrative setting of government and its policy impacts on public programs, policy design and redesign, and evaluation and monitoring.

URSP 420/GEOG 420 Regional Planning and Sustainable Development

Semester course; 3 lecture hours. 3 credits.
Prerequisite: GEOG 102 or permission of instructor.
Explores the factors, both historical and contemporary, that influence the socioeconomic and environmental characteristics of national and sub-national regions, mainly in the developing world. Analyzes development problems and strategies from various theoretical perspectives, and examines the impacts of policy and planning interventions on regional conditions.

URSP 440 Senior Capstone Seminar in Urban and Regional Studies

Semester course; 3 lecture hours. 3 credits.
Prerequisite: senior standing. Synthesizes knowledge from previous major courses and applies it to a practical application in the field. Also explores issues related to career planning.

URSP 461 Applied Planning Studio

Semester course; 3 lecture hours. 3 credits.
Prerequisites: all core courses in the urban and regional studies program. Applying the principles and theories of urban studies, students work as a group in the preparation of a plan to address a real community problem.

Academic Affairs

Community Studies

CMST 210 Health Careers Exploration

Semester course; variable hours. 1-3 credits. Open only to high school students enrolled in programs partnering with VCU's Health Sciences Academy. High school students will learn college-success skills, how to make informed decisions about the health careers they wish to pursue and plan college-level courses and extracurricular activities to achieve their career goals. Material is presented through lectures from health care workers in various specialties, hands-on activities and exposure to college mentors.

CMST 300 The Foundations of Community Engagement

Semester course; 3 lecture hours. 3 credits. Course content includes theories of citizenship, social movements, civic leadership, social justice, civil discourse, service and social capital. The survey course is foundational for subsequent seminars.

CMST 301 The Service Seminar

Semester course; 1 credit. Prerequisite: CMST 300. The knowledge and skills of a discipline are applied to a community-identified need through a group project. A service learning component of 25 hours is included.

CMST 310 Orientation to Service-learning

Seven-week course; content delivered online. 1.5 credits. Prerequisite: permission of instructor. Interactive, online orientation training designed to introduce students to the historical and theoretical foundations of service-learning. Students will also become familiar with indicators of high-quality community engagement practices. Course content is available through Blackboard, and the class will not meet face-to-face. Students are expected to complete assignments and activities for course modules by the due dates specified on Blackboard.

CMST 391 Topics in Community Studies

Semester course; 1-3 lecture hours. 1-3 credits. May be repeated for a maximum of six credits with different topics. Open only to students enrolled in the ASPIRE living-learning program. An in-depth study of a selected topic in community studies. See the Schedule of Classes for specific topics to be offered each semester.

CMST 400 The Community Engagement Seminar

Semester course; 1 credit. Prerequisite: CMST 301. Discipline-based knowledge and skills are applied to assessed community needs. A service-learning component of 25 hours is included.

CMST 401 The Capstone Community Engagement Seminar

Semester course; 1 credit. Prerequisite: CMST 400. Community-identified needs are addressed by discipline-specific interventions that result in documented social change. A service-learning component of 25 hours is included.

CMST 410 Service-learning Teaching Assistant Supervision

Semester course; 2.5 laboratory hours. 1.5 credits. Prerequisite: permission of instructor. Pre- or corequisite: CMST 310. Provides undergraduate students with support and instruction during the

semester(s) when they are serving as teaching assistants to VCU service-learning courses. Requirements include a minimum of five hours per week of teaching assistance activities within a designated service-learning course, attendance at monthly group supervision meetings and participation in service-learning group activities. Supervision meetings are designed to help students build important community leadership skills such as team facilitation, ethical problem-solving and diversity awareness/appreciation.

CMST 411 Advanced Service-learning Teaching Assistant Supervision

Semester course; 3 laboratory hours; 1.5 credits. Prerequisite: two semesters of CMST 410. This course emphasizes effective techniques and strategies for advanced service-learning teaching assistants to increase their impact on student development and community outreach in service-learning courses. Students serve as peer mentors and facilitators for SLTAs in their first and second semesters of service in addition to providing invaluable technical support to their instructors. The course will provide advanced SLTAs with individualized leadership assessments designed to enhance their leadership skills and emphasize the role of student leaders in successful service-learning courses.

CMST 493 The Community Engagement Internship

Semester course; 1-3 variable hours. 1-3 credits. May be repeated a maximum of two times with program approval. Prerequisite: CMST 300. Civic leadership and responsibility are emphasized in workplace internships established with community partners. A service-learning component of 45 hours per credit hour is included.

Cooperative Education

COOP 298 Cooperative Education Experience

Semester course; the student works a maximum of 20 hours per week, completes all off-campus/on-campus assignments. No credit. Open to students who have been placed in an approved co-op position with an agency, business, industry or institution.

COOP 398 Cooperative Education Experience

Semester course; the student works a maximum of 40 hours per week, completes all off-campus/on-campus assignments. No credit. Open to students who have been placed in an approved co-op position with an agency, business, industry or institution.

Global Education

GLED 101 Introduction to Global Education

Semester course; 1 lecture hour. 1 credit. Open only to students enrolled in the VCU Globe program. An introduction to the organizational components of VCU Globe and to the intellectual and conceptual foundations of global education. Students will be introduced to the academic, service and professional expectations of the VCU Globe program. This seminar will prepare students for the engaged activities that form the core of the VCU Globe's curriculum. Graded as pass/fail.

GLED 201 Global Education Seminar

Semester course; 1 lecture hour. 1 credit. Prerequisite: GLED 101. Open only to students enrolled in the VCU Globe program. A seminar covering core concepts in global education, including global education as a learning paradigm; the role of the "culture broker" in professional fields; cultural, national, linguistic and personal "community borders"; global paths of migration; and the emerging idea of world citizenship. Students will explore the skills they are expected to learn and practice in the VCU Globe curriculum and the programs in which they will practice those skills. This seminar will prepare students for the engaged activities that form the core of the VCU Globe's curriculum. Includes community service activities.

GLED 202 Global Engagement Seminar

Semester course; 1 lecture hour. 1 credit. Prerequisite: GLED 201. Open only to students enrolled in the VCU Globe program. An introduction to the central concepts of global engagement, including defining culture and community in the contemporary world, global communication styles and skills, identity's relationship to migration, cultures within cultures, and sustainable asset-based development. Includes community service activities.

GLED 301 Planning for Global Leadership Seminar

Semester course; 1 lecture hour. 1 credit. Prerequisite: GLED 202. Open only to students enrolled in the VCU Globe program. An introduction to the core concepts in global leadership, including global trends in community leadership, citizen-leadership, governmental and nongovernmental organizations, transcultural organizations, and inter- and intraorganizational sustainability. Working in teams, students will complete a proposal for an applied global community service project. Includes community service activities.

GLED 302 Preparing for Global Leadership Seminar

Semester course; 1 lecture hour. 1 credit. Prerequisite: GLED 301. Open only to students enrolled in the VCU Globe program. Working in teams, students will refine and present to multiple audiences proposals for applied global community-service projects. Proposals will be reviewed by a faculty board and a small number will be selected for support the following year. Includes community service activities.

GLED 391 Topics in Global Education

Semester course; 1-3 lecture hours. 1-3 credits. May be repeated with different topics for a maximum of nine credits, with a limit of six credits in a single semester. Open only to students enrolled in the Global Education Living-Learning Community. An in-depth study of a selected topic in global education. See the Schedule of Classes for specific topics to be offered each semester.

GLED 401 Global Education Senior Seminar

Semester course; 1 lecture hour. 1 credit. Prerequisite: GLED 302. Open only to seniors enrolled in the VCU Globe program. Students will focus on professional self-assessment, completion of curricular and co-curricular portfolios, career and graduate school preparation, and articulating links between global education and their professional plans.

GLED 493 Global Leadership Practicum

Semester course; variable hours. 1-3 credits. May be repeated for a maximum total of 6 credits, with a limit of 3 credits in a single semester. Prerequisites: GLED 302 and permission of instructor. Open only to seniors enrolled in the VCU Globe program. Working in teams, students will implement selected proposals. Includes 30 hours of service work per credit.

Honors College**HONR 190 Freshman Seminar**

Semester course; 1 lecture hour. 1 credit. Restricted to freshmen in The Honors College. This course develops a learning paradigm for students appropriate to university education. Students are expected to gain a willingness to take intellectual risks, to engage in their own learning actively and to take responsibility for their own education. A thorough orientation to the library and other university resources is included. The students will hone critical-thinking skills while examining selected topics from a perspective that emphasizes critical interpretation rather than mastery of information. Students will engage in collaborative projects on specified topics. Attendance at certain Honors College events is required.

HONR 198 Freshman Honors

Semester course; 3 lecture hours. Variable credit. Maximum total of 8 credits. May be repeated once under different topic. Prerequisite: permission of the dean of The Honors College. An interdisciplinary course that will provide an intensive study of selected topics.

HONR 200 Rhetoric

Semester course; 3 lecture hours. 3 credits. In-depth study of principles of rhetoric and argumentation in both written and oral formats. Emphasis is on research-based expository writing and debate, with skills development in technological applications for information retrieval. Students may not receive credit for both HONR 200 and UNIV 200.

HONR 298 Sophomore Honors

Semester course; 3 lecture hours. Variable credit. Maximum total of 8 credits. May be repeated once under different topic. Prerequisite: permission of the dean of The Honors College. Appropriate prerequisite or corequisites may be demanded. An interdisciplinary course that will provide an intensive study of selected topics.

HONR 398 Honors Topics

Semester course; 3 lecture hours. Variable credit. May be repeated with different topics. Prerequisite: permission of the dean of The Honors College. Appropriate prerequisite or corequisites may be demanded. An in-depth study of selected topics. May be cross listed with departmental courses. See the Schedule of Classes for specific topics to be offered each semester.

HONR 399 Honors Module

Five-week course; 3 lecture hours. 1.5 credits per module. Prerequisite: permission of the dean of The Honors College. Intensive studies of topics from a wide spectrum of disciplines are undertaken. Each module is a self-contained unit. See the Schedule of Classes for specific topics to be offered each semester.

HONR 492 Honors Independent Study

Semester course; variable hours. Variable credits. Maximum of 4 credits per semester. Maximum total of 9 credits over all semesters. Prerequisites: junior or senior standing, and approval of Honors College dean and instructor/tutor. Intensive study under supervision of a faculty member in an area not covered in depth or contained in the regular curriculum.

VCU Life Sciences

Bioinformatics

BNFO 201 Computing Skills and Concepts for Bioinformatics

Semester course; 3 lecture hours. 3 credits.
Prerequisite: MATH 151 or 200 with a minimum grade of C, or satisfactory score on the VCU Mathematics Placement Test within the one-year period immediately preceding the beginning of the course. An introduction to computation in bioinformatics, including basics of data representation, and computer organization, as well as programming in PERL or other appropriate scripting language. Bioinformatics applications in the literature will be discussed. Guest speakers will share bioinformatics career experiences and opportunities.

BNFO 251/LFSC 251 Phage Discovery I

Semester course; 4 laboratory hours. 2 credits.
Corequisite: BIOL 151 or 152. An exploratory laboratory where students will purify phage from soil, visualize phage using electron microscopy and isolate genomic material for nucleic acid sequencing. Registration by override only.

BNFO 252/LFSC 252 Phage Discovery II

Semester course; 4 laboratory hours. 2 credits.
Corequisite: BIOL 151 or 152. An exploratory laboratory where students will learn about the genomes of viruses infecting bacteria. Students will be given the genome sequence of a novel virus, which will be the basis for a series of computer-based analyses to understand the biology of the virus and to compare it with other viruses that infect the same host. Registration by override only.

BNFO 292 Independent Study

Semester course; variable hours. 1-2 credits. May be repeated for a maximum total of 6 credits. Prerequisite: permission of instructor. A course designed to provide an opportunity for independent readings of the bioinformatics literature under supervision of a staff member.

BNFO 300 Molecular Biology Through Discovery

Semester course; 3 lecture hours. 3 credits. The course aims to expand students' "ignorance," a prerequisite for success in science, by confronting them with the interface between the known and the unknown, stressing the process by which the boundary is traversed. It will do so using as the raw material the study of molecular biology, an essential groundwork for bioinformatics.

BNFO 301/BIOL 351 Introduction to Bioinformatics

Semester course; 3 lecture hours. 3 credits.
Introduction to the basic concepts, tools and possibilities of bioinformatics, the analysis of large bodies of biological information. The course stresses problem-solving and integrative projects, making extensive use of exercises in class that draw on bioinformatics resources on the Web and on local servers. Graded as pass/fail.

BNFO 380/MATH 380/BIOL 380 Introduction to Mathematical Biology

Semester course; 3 lecture and 2 laboratory hours. 4 credits. Prerequisites: MATH 200 and BIOL 151, or permission of instructor. An introduction to

mathematical biology. Various mathematical modeling tools will be covered and implemented in a range of biological areas. Additionally, the collaborative research process will be presented and discussed.

BNFO 420 Applications in Bioinformatics

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisites: CMSC 245 or 255 and BNFO 301. Capstone course. Students will integrate biological, computational and quantitative skills to complete bioinformatics projects in a professional team-problem-solving context. Course includes explicit instruction in the conduct of research as well as a review of applicable strategies, methods and technologies. Written and oral presentation is emphasized, with systematic feedback and practice opportunities provided.

BNFO 440 Computational Methods in Bioinformatics

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisites: CMSC 255 and 256; BNFO 301, or permission of instructor. An introduction to mathematical and computational methods in bioinformatics analysis. Topics include but are not limited to operating systems, interfaces, languages, SQL, search algorithms, string manipulation, gene sequencing, simulation and modeling, and pattern recognition. Students will be exposed to Maple, Matlab, SPSS, E-cell, BioPerl, Epigram and C as part of the requirements of this course.

BNFO 491 Special Topics in Bioinformatics

Semester course; variable hours. 1-4 credits.
Prerequisites: permission of instructor and adviser. An introductory, detailed study of a selected topic in bioinformatics unavailable as an existing course. Students will find specific topics and prerequisites for each special topics course listed in the Schedule of Classes. If multiple topics are offered, students may elect to take more than one. Adviser's approval is required for counting each special topics course toward meeting specific requirements of the B.S. program.

BNFO 492 Independent Study

Semester course; variable hours. A minimum of three hours of supervised activity per week per credit is required. 1-4 credits. May be repeated for a maximum total of 6 credits. Prerequisite: BIOL 218. Projects should include data collection and analysis, learning bioinformatics-related research techniques, and mastering experimental procedures, all under the direct supervision of a faculty member. A final report must be submitted at the completion of the project. Graded as pass/fail.

BNFO 496 Undergraduate Teaching Assistantship in Bioinformatics

Semester course; variable hours. 1-2 credits. May be repeated for a maximum total of 2 credits.
Prerequisites: permission of instructor and a minimum grade of B in the course the student will TA. Student will work with course instructor to implement course objectives. Typical duties involve media preparation, answering questions, providing feedback on course assignments and peer mentoring. Provides exposure to the practice, possibilities, rewards and responsibilities of the act of teaching.

BNFO 497 Research and Thesis

Semester course; variable hours. A minimum of three hours of supervised activity per week per credit is

required. 1-4 credits. May be repeated for a maximum total of 6 credits. Prerequisites: BIOL 218, junior or senior status. Projects should include data collection and analysis, learning bioinformatics-related research techniques, and mastering experimental procedures, all under the direct supervision of a faculty member. A written thesis of substantial quality is required at the completion of the research.

Environmental Studies

ENVS 103/BIOL 103 Environmental Science

Hybrid semester course taught mostly online; 3 lecture and 2 laboratory hours. 4 credits. Online presentations, assignments, debates and exams require students to understand situations and ideas that involve scientific, social and economic concepts associated with Earth's environment. Laboratory exercises reinforce major course concepts. Integrates aspects of biology, chemistry, geology, physics and sociology. Topics include ecology, evolution, natural resources, air and water resources, energy and recycling, population biology, and sustainable global societies. Not applicable as a prerequisite for any biology course at the 200 level or above, nor for credit toward the B.S. in Biology.

ENVS 105/GEOG 105 Physical Geology

Semester course; 3 lecture hours. 3 credits. A descriptive approach to physical geology dealing with the history and structure of the earth, catastrophic events and geology as it relates to the contemporary environment. An optional laboratory may be taken with this course. See GEOZ/ENVZ 105L.

ENVS 201 Earth System Science

Semester course; 2 lecture and 2 laboratory hours. 3 credits. An introduction to the processes of and linkages among the major systems that drive planet Earth. The biosphere, geosphere, hydrosphere, atmosphere and sociosphere are presented as dynamic and interdependent systems. Labs/discussion sections will include both computer modeling of integrated systems and lab activities/field trip(s) at the Rice Center for Environmental Life Sciences.

ENVS 300 Sustainable Societies: James River Basin

Semester course; 3 lecture hours. 3 credits. This course explores the 25 most critical social, economic and environmental issues in the region in a global context. It examines how people are tackling the issues of sustainably and turning them into opportunities.

ENVS 301 Introduction to Meteorology

Semester course; 3 lecture hours. 3 credits. An introductory course designed to provide the student with an overview of the structures and processes that cause weather. These include atmospheric circulations and the weather patterns that we observe. Emphasis will be placed upon the tracking and display of weather phenomena, as well as their forecast movement and impact.

ENVS 310 Introduction to Oceanography

Semester course; 3 lecture hours. 3 credits. An introductory course designed to provide the student with an overview of the structures and processes of the world's oceans. These include the systems that impact the oceans: the hydrosphere, the atmosphere, the geosphere, the biosphere and the sociosphere.

Emphasis will be placed upon hands-on techniques for understanding these systems, including online simulations and in-class activities.

ENVS 311/POLI 311 Politics of the Environment

Semester course; 3 lecture hours. 3 credits. An exploration of the current controversy about environmental politics and the issues and crises it centers on. Special attention will be given to the constitutional, political and geographical factors in the development of environmental policy and the organized effort to deal with governmental actions and inaction and its impact on policy outcomes.

ENVS 314/INTL 314 Man and Environment

Semester course. 3 lecture hours. 3 credits. A comparative study of the ecology and natural history of human populations, including the environments as determining factors in the evolution of human institutions and technology, resources management, and population crises; cultural traditions as mechanisms of population control; basic theory of population biology.

ENVS 315/PHYS 315 Energy and the Environment

Semester course; 3 lecture hours. 3 credits. Prerequisite: junior or senior standing. Open to non-physics majors; not applicable to the physics major. A study of society's demand for energy, how it is currently being met, the environmental consequences thereof and some discussion of alternatives.

ENVS 330/BIOL 332 Environmental Pollution

Semester course; 3 lecture hours. 3 credits. Prerequisites: eight credits in biology. The study of pollution in the environment with emphasis on the procedures for detection and abatement.

ENVS 332/URSP 332/GEOG 332 Environmental Management

Semester course; 3 lecture hours. 3 credits. Prerequisite: GEOG 204 or permission of instructor. An interdisciplinary review of domestic and international environmental problems and their underlying causes, current management frameworks, alternative management approaches and strategies, and barriers to their implementation. Other topics include: environmental history and economics, population growth, natural resources use, biodiversity, pollution.

ENVS 335/GEOG 335 Environmental Geology

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENVS 105/GEOG 105 or GEOG 204. The relationship between humankind and the physical environment, Earth materials and processes, geological hazards, water, mineral and energy resources, land use and environmental health and law.

ENVS 368/ENGL 368 Nature Writing

Semester course 3 lecture hours. 3 credits. Prerequisite: ENGL 201, 202, 203, 204, 205, 206, 211, 215, 236, 291 or 295. A study of the literary genre of nature writing in English.

ENVS 401/GEOG 401 Meteorology and Climatology

Semester course; 3 lecture hours. Prerequisite: PHYS 201 or PHYS 207. A basic, semiquantitative course in the elements of weather and climate, their driving forces and their spatial and temporal distribution and

variability. Atmospheric motions and circulation, weather forecasting, human impact on weather and climate.

ENVS 411/GEOG 411 Oceanography

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 151, BIOL 152 and CHEM 102. A basic course in the physical, chemical and geological properties of oceans and ocean basins. Origin and character of ocean basins, properties of oceanic waters, oceanic circulation, land-sea interactions, marine environments and ecology.

ENVS 490 Research Seminar in Environmental Studies

Semester course; 3 lecture hours. 3 credits. Prerequisites: senior standing and at least 12 hours of approved environmental studies course work. An interdisciplinary examination of problems and issues central to environmental studies. Environmental research of VCU faculty will be reviewed, and selected local environmental problems will be studied. Each student will complete a research project focusing on a specific environmental question.

ENVS 491 Topics in Environmental Studies

Semester course; variable hours. 1-3 credits per semester. May be repeated with different topics for a maximum of 6 credits. Prerequisites vary by topic. An in-depth study of a selected environmental topic. See the Schedule of Classes for specific topics to be offered each semester and prerequisites.

ENVS 492 Independent Study

Semester course; variable hours. Variable credit. Maximum of 3 credits per semester; maximum total of 6 credits for all topics courses. Prerequisite: junior or senior standing, and permission of instructor.

ENVS 493 Environmental Studies Internship

Semester course; variable hours. 1-3 credits per semester. Maximum total of 6 credits. Prerequisite: junior or senior standing, and permission of instructor. Graded as pass/fail.

Environmental Studies Lab

ENVZ 105/GEOZ 105 Physical Geology Laboratory

Semester course; 2 laboratory hours. 1 credit. Pre- or corequisite: GEOG/ENVS 105. An optional laboratory course consisting of experiments and activities related to GEOG/ENVS 105.

ENVZ 335/GEOZ 335 Environmental Geology Laboratory

Semester course; 2 laboratory hours. 1 credit. Corequisite: GEOG/ENVS 335. Required for environmental science majors enrolled in ENVS/GEOG 335; optional for other majors. Attendance on one Saturday morning field trip required. Laboratory exercises coordinated with GEOG/ENVS 335 lectures.

ENVZ 401/GEOZ 401 Meteorology and Climatology Laboratory

Semester course; 3 laboratory hours. 1 credit. Pre- or corequisite: GEOG/ENVS 401. A series of laboratory and field experiments designed to quantify the elements of weather and climate and to interpret their local temporal and spatial variations.

Life Sciences

LFSC 251/BNFO 251 Phage Discovery I

Semester course; 4 laboratory hours. 2 credits. Corequisite: BIOL 151 or 152. An exploratory laboratory where students will purify phage from soil, visualize phage using electron microscopy and isolate genomic material for nucleic acid sequencing. Registration by override only.

LFSC 252/BNFO 252 Phage Discovery II

Semester course; 4 laboratory hours. 2 credits. Corequisite: BIOL 151 or 152. An exploratory laboratory where students will learn about the genomes of viruses infecting bacteria. Students will be given the genome sequence of a novel virus, which will be the basis for a series of computer-based analyses to understand the biology of the virus and to compare it with other viruses that infect the same host. Registration by override only.

LFSC 301 Integrative Life Sciences Research

Semester course; 2 lecture and 1 recitation hours. 3 credits. Pre- or corequisite: UNIV 200 or HONR 200. Students will leave this course knowing enough about science and the process of science to feel confident in critically evaluating scientific information and/or embarking on their own process of discovery with a faculty mentor. They will gain an appreciation of the interdisciplinary and complex nature of life sciences and will hone their critical thinking about how science interacts with and informs society.

LFSC 307/PSYC 307 Community Solutions: Multiple Perspectives

Semester course; 3 lecture hours. 3 credits. Prerequisite: PYSC 101. Explores possibilities for addressing social concerns of the Richmond community by understanding the complex nature of social issues as essential to their successful amelioration via perspectives of life and social sciences. Toward this end, expertise from the social sciences, the life sciences and the community are integrated. Includes a service-learning experience (a 20-hour volunteer requirement).

LFSC 401/RELS 401 Faith and Life Sciences

Semester course; 3 lecture hours. 3 credits. Prerequisite: UNIV 200 or HONR 200. Open to students of any school or program. Explores the complex relationships between faith traditions and the life sciences. Topics include epistemology, impact of life sciences on ideas of fate and responsibility, limits of science and technology, and scientific and religious perspectives on human origins, consciousness, aggression, forgiveness, health, illness and death.

da Vinci Center for Innovation

Innovation in Product Design and Development

INNO 200 Introduction to Innovation and Venture Creation

Semester course; 1 lecture hour. 1 credit. A speaker series focused on the discussion of pertinent topics related to product innovation and venture creation. Students will be exposed to numerous topics through guest speakers supplemented by readings and class discussion. Topics include conceptualization, patents, capitalization, venture formation, commercialization, market assessment, project management and product life cycle management.

INNO 221 Introduction to Arts and Design Principles

Semester course; 1 lecture and 2 studio hours. 3 credits. Restricted to non-arts students enrolled in the Certificate in Product Innovation program. Introduces arts and design principles to students from non-arts disciplines.

INNO 223 Introduction to Business Principles

Semester course; 3 lecture hours. 3 credits. Open only to non-business majors in the Certificate in Product Innovation program. Introduces business fundamentals to students from non-business disciplines. Particular focus will be concepts and issues in contemporary business.

INNO 225 Introduction to Engineering and Technology Principles

Semester course; 3 lecture hours. 3 credits. Open only to non-engineering majors in Certificate in Product Innovation program. Introduces engineering and technology fundamentals to students from non-engineering disciplines. Particular focus is the engineering problem-solving process as applied to open-ended problems. Students will be introduced to the different types of engineering, examine engineering and technology issues and apply the engineering problem-solving process.

INNO 460 Product Innovation: da Vinci Project

Semester course; 3 credits. Prerequisite: permission of instructor. Students from the School of the Arts, School of Engineering and School of Business work together on a semester-long product innovation project with a corporate sponsor under faculty supervision. Topics and activities may include project management, team building, concept generation and testing, market analysis, visualization, and prototyping.

Venture Creation

VNTR 300 Venture Creation Skills

Semester course; 3 lecture hour. 3 credits. Students are introduced to and apply various skills important for real venture creation. A multidisciplinary orientation and approach are emphasized throughout the course.

VNTR 460 Venture Creation Project

Semester course; 3 lecture hour. 3 credits. Students will work in cross-disciplinary teams on a semester-long venture creation project. Topics and activities may include business model generation, customer discovery, customer validation, financial analysis and agile development.