

ILLINOIS MATHEMATICS AND SCIENCE ACADEMY

A Pioneering Educational Community

COURSE OFFERINGS 1994/95

*Revised course
write-up!*

MATHEMATICS

1112(F) Geometry I/II

Grade Level: Sophomore/Junior/Senior
Length: One Semester (Fall)
Credit: .50
Prerequisite: Recommendation of Instructor

This is a one semester accelerated course in Euclidean Geometry for students with a solid background in Algebra. In addition to the content of a standard year long Geometry course, problem solving and proof are emphasized.

1120(F) Analysis *MI I*

Grade Level: Sophomore
Length: One Semester (Fall)
Credit: .50
Prerequisite: Recommendation of Instructor

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A one semester course that investigates pre-calculus concepts and skills. The material is drawn primarily from advanced and college algebra.

1121(F) Mathematical Investigations ~~MI~~ *I*

1122(S)

Grade Level: Sophomore/Junior
Length: One Semester
Credit: .50
Prerequisite: *MI I* ~~Analysis~~ or Recommendation of Instructor

*Move to
MI-1*

Mathematical Investigations is a ^{four} ~~three~~-semester sequence of courses which integrates topics from all areas of pre-calculus mathematics. Throughout the sequence, students will be expected to explore mathematical concepts, make conjectures and present logical, valid arguments for mathematical assertions. Both written and oral forms of communication are emphasized. Prior to entry into the Mathematical Investigations sequence, the student must demonstrate a strong background in Algebra, including a thorough understanding of the underlying concepts, a demonstrated ability with algebraic skills, and schemata which encourages mathematical thinking. The first course in this sequence, ~~MI-1~~ *MI-2*, will concentrate on the study of matrices, linear thinking and relationships, and functions, both discrete and continuous, with an emphasis on logarithmic and exponential functions.

*MI
II 1123/1124*

1123(F) Mathematical Investigations II ^{III}

1124(S)

Grade Level: Sophomore/Junior/Senior
Length: One Semester
Credit: .50
Prerequisite: Mathematical Investigations ^{II} or Recommendation of Instructor

1125
1126

MI-³ is the ^{third} ~~second~~ semester of the Mathematical Investigations sequence. In addition to the emphasis and content from MI-~~1,2~~, this course will concentrate on extending the concept of function and applications to include polynomials, rational functions, and trigonometric functions.

1125(F) Mathematical Investigations III ^{IV}

1126(S)

Grade Level: Sophomore/Junior/Senior
Length: One Semester
Credit: .50
Prerequisite: Mathematical Investigations ^{III} or Recommendation of Instructor

1127
1128
New #

MI-⁴ is the ^{fourth} ~~third~~ semester of the Mathematical Investigations sequence. This semester will emphasize sequences and series, vectors, applications of trigonometry, trigonometric identities, cis functions, mathematical modeling, conics, the Binomial Theorem, mathematical induction, and introductory combinatorics.

1130(F) PreCalculus

1131(S)

Grade Level: Sophomore/Junior/Senior
Length: One Semester
Credit: .50
Prerequisite: Mathematical Investigations III or Recommendation of Instructor

This is a one semester course designed to reinforce the skills and concepts needed for successful completion of a college level calculus sequence. The course will revisit a number of topics with more depth and from new perspectives. Topics will be chosen from: functions, coordinate systems, trigonometry, vectors, and limits. Additional topics from discrete mathematics may also be discussed including logic, sequences, algorithms, recursion, induction, combinatorics, and graphs and networks. This course is designed to provide support for students who may experience difficulty moving directly into the Calculus sequence.

1132(F) AB Calculus I

1133(S)

Grade Level: Sophomore/Junior/Senior
Length: One Semester
Credit: .50
Prerequisite: PreCalculus or Recommendation of Instructor

The first of a two semester sequence which will include the introductory concepts presented in the Advanced Placement AB Calculus syllabus.

1134(F) AB Calculus II

1135(S)

Grade Level: Sophomore/Junior/Senior
Length: One Semester
Credit: .50
Prerequisite: AB Calculus I or Recommendation of Instructor

The second of a two semester sequence which will include topics from the Advanced Placement AB Calculus syllabus. Students completing AB Calculus I and AB Calculus II will have completed the equivalent of a semester of college level calculus.

1140(F) BC Calculus I

1141(S)

Grade Level: Sophomore/Junior/Senior
Length: One Semester
Credit: .50
Prerequisite: Mathematical Investigations III or Recommendation of Instructor

The first of a three semester sequence which will include the material covered in the Advanced Placement BC Calculus syllabus. In addition to some concepts from analytic geometry, this course will cover the foundations of calculus including concepts and applications of limits, continuity, the derivative, and the integral.

1142(F) BC Calculus II

1143(S)

Grade Level: Sophomore/Junior/Senior
Length: One Semester
Credit: .50
Prerequisite: BC Calculus I

The second of a three semester sequence which will include the material covered in the Advanced Placement BC Calculus syllabus. Topics will include concepts and applications of advanced techniques of integration, improper integrals and indeterminate forms. Polynomial, rational and transcendental functions will be studied.

1144(F) BC Calculus III

1145(S)

Grade Level: Sophomore/Junior/Senior
Length: One Semester
Credit: .50
Prerequisite: BC Calculus II

The third of a three semester sequence which will conclude the material covered in the Advanced Placement BC Calculus syllabus. Topics will include concepts and applications of hyperbolic functions, parametric and polar equations and sequences and series.

1150 Advanced Geometry

Grade Level: Junior/Senior
Length: One Semester
Credit: .50 Pass/Fail option
Prerequisites: Mathematical Investigations ~~III~~ or
Recommendation of the Instructor

A study of advanced topics in geometry selected from such areas as: points of concurrence, cevians, the golden mean, fractals, matrix transformations, geometric averages, non-Euclidean geometries, geometric probability, modelling, spirals, the theorems of Ceva, Menelaus, Pascal, Desargues, and Pappus. The course emphasizes mathematical connections through individual and group explorations, discussions and problem solving.

1151 Data Analysis

Grade Level: Junior/Senior
Length: One Semester
Credit: .50 Pass/Fail option
Prerequisite: Mathematical Investigations ~~II~~

A study of exploratory data analysis, descriptive statistics, and measures of central tendency and dispersion on both discrete and continuous variables. Additional topics will be taken from the following: normal, binomial, and poisson distributions, probability, Chi-square distributions, curve fitting, regression, correlation, and hypotheses testing. Several group and individual projects will be required.

Differential Equations

Course description

1152 Differential Equations

Grade Level: Junior/Senior

Length: One semester

Prerequisite: BC II (or AB II with permission of instructor)

The theory of differential equations is interesting as a mathematical topic, and has special relevance because it describes a surprising diversity of real world situations. In this course, we will investigate the behavior of solutions to linear and nonlinear differential equations. Special emphasis will be given to applications in the physical and biological sciences. Upon completion of this course, a student will be able to choose, troubleshoot, customize, or develop a variety of differential equation modeling schemes to suit his or her own particular needs.

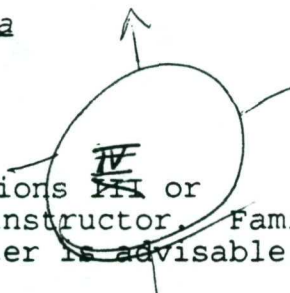
1152 - Dif Equations

1153 Exploring Math Topics Using Mathematica

Grade Level: Junior/Senior
 Length: One Semester
 Credit: .50 Pass/Fail option
 Prerequisite: Mathematical Investigations ~~III~~ or
 Recommendation of the instructor. Familiarity
 with a Macintosh computer is ~~is~~ advisable.

The focus of this course will be to explore topics found in mathematics. Students and faculty will use the computer environment made possible by the *Mathematica* software to view these topics from multiple perspectives. Prior experience in programming is helpful but not required because the course will include training on the software. Enrollment will be limited by the size of the computer laboratory.

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1154(F) Multi-Variable Calculus

1155(S)

Grade Level: Junior/Senior
 Length: One Semester
 Credit: .50 Pass/Fail option
 Prerequisite: BC Calculus III

Topics will include a study of functions of several variables, applications of partial derivatives, multiple integrals, line integrals, and an introduction to differential equations.

1156 Number Theory

Grade Level: Junior/Senior
 Length: One Semester
 Credit: .50 Pass/Fail option
 Prerequisite: BC Calculus I or Permission of Instructor
and Team Leader

The course covers a good part of traditional undergraduate level number theory including the study of prime numbers and divisibility of integers, solving congruence, diophantine equations and introduction of other extended number theory concepts. The material will be delivered with full mathematical rigor including logical proof in addition to intuitive understanding of number phenomena.

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1152

Differential Equations

1157 Problem Solving

Grade Level: Junior/Senior
Length: One Semester
Credit: .50 Pass/Fail option
Prerequisite: Mathematical Investigations ~~XIII~~

In this course, students will learn how to apply a broad range of problem solving techniques and strategies while making connections with the social and environmental sciences, business and economics, mathematical games, and mathematical systems. The course will emphasize both individual and group investigations and explorations.

1158 Advanced Problem Solving

Grade Level: Junior/Senior
Length: One Semester
Credit: .50 Pass/Fail option
Prerequisite: BC Calculus I, or permission of Instructor and Team Leader, and a score of 90 or above on a previous AHSME exam

The course will emphasize advanced techniques and strategies used at the national and international levels of problem solving, including the Mathematical Olympiads. Methods of proof and validation will be highlighted in presenting formal mathematical solutions to problems. The course content will focus upon topics from advanced geometry, combinatorics, theory of equations, series, sequences, and number theory. **Students may not register for both Problem Solving and Advanced Problem Solving.**

1159 Discrete Mathematics

Grade Level: Junior/Senior
Length: One Semester
Credit: .50 Pass/Fail option
Prerequisite: Mathematical Investigations ~~XIII~~

The main emphasis of study will include topics of social applications, matrices, graph theory, recursion, techniques of counting, permutations, combinations, and probability. A major emphasis will be both individual and group investigations and explorations.

1160 Introduction to Algebraic Structures I

Grade Level: Junior/Senior
Length: One Semester
Credit: .50 Pass/Fail option
Prerequisite: Multi-variable Calculus and/or Advanced Problem Solving and/or Number Theory and permission of instructor

This course will introduce the students to abstract algebraic concepts such as sets, groups, homomorphisms, group actions, Sylow Theorems and their interactions. Students will master appropriate algorithms, explore and prove basic theorems, and develop the vocabulary and understanding which provides the foundation for applications in a variety of disciplines. The concept of *symmetry* will serve as a unifying concept for the course.

1161 Introduction to Algebraic Structures II

Grade Level: Junior/Senior
Length: One Semester
Credit: .50 Pass/Fail option
Prerequisite: Algebraic Structures I or permission of instructor

This course builds on the concepts and techniques of abstract algebra and develops understanding of linear algebra. It will include explorations of vector spaces, basis and dimension, rings, fields, unique factorization domains, principal ideal domains, Euclidean domains, polynomial rings, and Galois theory.

1170 Introduction to Pascal

Grade Level: Junior/Senior
Length: One Semester
Credit: .50 Pass/Fail option
Prerequisite: Mathematical Investigations ~~XIII~~

An introduction of programming and computer science using the Pascal language. Top down approach to algorithmic design and structural programming will be emphasized. A significant amount of the AP Computer Science AB syllabus will be discussed.

1171(S) AP Computer Science

Grade Level: Junior/Senior
Length: One Semester (Spring)
Credit: .50 Pass/Fail option
Prerequisite: Introduction to Pascal or Recommendation of Instructor

This course will complete the AP Computer Science AB syllabus. Topics may include: pointer variables, recursion, stacks, queues, trees, linked lists, advanced programming techniques including advanced sorts and searches.

1172(F) Computer Seminar

Grade Level: Junior/Senior
Length: One Semester (Fall)
Credit: .50 Pass/Fail option
Prerequisite: Introduction to Pascal or Recommendation
of Instructor

This course includes a study of advanced programming techniques using C++. Students will be expected to complete several group and individual projects, including a major program.

1173 Assembly Language Programming

Grade Level: Junior/Senior
Length: One Semester
Credit: .50 Pass/Fail option
Prerequisite: Introduction to Pascal or permission of
Instructor

This course will introduce the students to the specifics of assembly language programming in the context of the 80x88 family of computers. Approximately half of the semester will be spent learning the language by writing programs which manipulate text and numeric data. The remainder of the semester will be spent writing application programs. Depending on student interest and background, those applications might include, but are not limited to, the following: a communications program between two computers, an interactive game using ASCII characters on the display, controlling an L.E.D. clock, controlling the traffic lights in an intersection, a disk utility program, and interfacing assembly language routines with high level programs.

SCIENCE

1200 Integrated Science I

Grade Level: Sophomore/Junior
Length: Two Semesters
Credit: 1.5
Prerequisite: None

This two year sequence satisfies all but one year of the Academy core science requirement. The presentation is interdisciplinary throughout taking its content from chemistry, physics, biology, earth science, and technology. Learning occurs in a context which emphasizes the way science is done, the usefulness of science concepts in understanding the way both natural and designed things work, and applications to current and future problems. The course is taught by an interdisciplinary team of teachers.

1240 Integrated Science II

Grade Level: Sophomore/Junior
Length: Two Semesters
Credit: 1.5
Prerequisite: Integrated Science I

This two year sequence satisfies all but one year of the Academy core science requirement. The presentation is interdisciplinary throughout taking its content from chemistry, physics, biology, earth science, and technology. Learning occurs in a context which emphasizes the way science is done, the usefulness of science concepts in understanding the way both natural and designed things work, and applications to current and future problems. The course is taught by an interdisciplinary team of teachers.

1201 Sophomore Chemistry

Grade Level: Sophomore
Length: Two Semesters
Credit: .50 per Semester
Prerequisite: None

This entry level core course is required for all first year students at the Academy, except those students in Integrated Science I. It introduces students to such scientific processes of observation, experimentation, communication, and information retrieval as related to chemistry. From these activities, concepts are developed and used in problem-solving. Course content includes environmental chemistry, periodicity, atomic structure, chemical reactions, and equilibria.

1202 Advanced Chemistry

Grade Level: Junior/Senior
Length: One Semester
Credit: .50 Pass/Fail option
Prerequisite: Sophomore Chemistry

This course continues the study of inorganic chemistry that began in Sophomore Chemistry. Topics such as electrochemistry structure, bonding, molecular geometry, and equilibrium are reviewed and expanded upon. In addition, several new concepts will be presented, including crystal structures, colligative properties of solutions, spontaneity, and reaction rates. Emphasis is on demonstration/discussion, problem-solving, as well as laboratory experiences. This course is strongly recommended for those students who plan on taking the AP Chemistry examination.

1203 Survey of Organic Chemistry

Grade Level: Junior/Senior
Length: One Semester
Credit: .50 Pass/Fail option
Prerequisite: Sophomore Chemistry

This course introduces the student to the chemistry of carbon compounds that are essential to living things. Students learn how organic compounds are classified and named as well as typical reactions. An investigation into polymer chemistry is included. There will be a strong emphasis on laboratory work that will coordinate with concepts presented. This course is designed for the student who will only take one semester of organic chemistry.

1204 * Organic Chemistry I

Grade Level: Junior/Senior
Length: One Semester (Fall)
Credit: .50 Pass/Fail option
Prerequisite: Sophomore Chemistry

1205 * Organic Chemistry II

Grade Level: Junior/Senior
Length: One Semester (Spring)
Credit: .50 Pass/Fail option
Prerequisite: Organic Chemistry I

* These courses are designed as an introduction to the main functional groups of organic chemistry and their reactions. Emphasis is placed on understanding the theory behind organic reactions. Experiments are included to introduce laboratory techniques as well as demonstrate concepts. State-of-the-art instruments will be utilized in the laboratory.

1206 Biochemistry

Grade Level: Junior/Senior
Length: One Semester
Credit: .50 Pass/Fail option
Prerequisite: Organic Chemistry I or Survey of Organic Chemistry

This introductory course in biochemistry emphasizes several unifying concepts: three dimensional structure and biological activity; storage and transmission of information determining structure; generation and storage of energy; integration and regulation of biochemical processes and metabolic pathways. Many of the concepts developed in the course are connected to various disease states such as diabetes mellitus. Problem-based learning experience modules are utilized to place the student in the role of an active biochemistry investigator.

1208 Facets of Thermodynamics

Grade Level: Junior/Senior
Length: One Semester (Spring)
Credit: .50 Pass/Fail option
Prerequisite: Sophomore Chemistry and Sophomore Physics

Facets of Thermodynamics is an introduction to the analysis, design, and construction of thermodynamic machines which are compatible with the aspirations and interests of the students and with the resources of the Academy. Calculus is not assumed.

1221 Sophomore Physics

Grade Level: Sophomore
Length: Two Semesters
Credit: .50 per Semester
Prerequisite: None

This entry-level core course is required for all first year students at the Academy, except those students in Integrated Science I. It presents the foundational concepts of physics and the skills needed to investigate physical systems using a laboratory approach. It involves observation, data analysis, model building, and prediction. It emphasizes conceptual development to be used in problem-solving. Basic course content: mechanics, wave phenomena and light, kinetic theory, geometrical optics, electricity, and magnetism.

1222 Advanced Physics

Grade Level: Junior/Senior
Length: One Semester
Credit: .50 Pass/Fail option
Prerequisite: Sophomore Physics

This course continues the study of basic physics concepts begun in Sophomore Physics. It reviews some previously covered topics and presents additional material on conservation laws, rotational mechanics, statics, wave phenomena, electricity, and magnetism. The emphasis throughout is on laboratory-based discovery, problem-solving techniques, and laboratory analysis. This course is strongly recommended for students who intend to take the AP Physics B exam.

1223(F) * Calculus-based Physics - Mechanics

Grade Level: Junior/Senior
Length: One Semester (Fall)
Credit: .50 Pass/Fail option
Prerequisite: Sophomore Physics and AB Calculus I or BC Calculus I

1224(S) * Calculus-based Physics - Electricity/Magnetism

Grade Level: Junior/Senior
Length: One Semester (Spring)
Credit: .50 Pass/Fail option
Prerequisite: Sophomore Physics and AB Calculus I or BC Calculus I

* Calculus-based physics follows the typical sequence of a university physics course. The first semester is devoted to topics in mechanics, while the second semester develops the ideas of electricity and magnetism. The major emphasis of the course is on problem-solving and calculus is used throughout. This course is strongly recommended for students who intend to take the AP Physics C exam. Since the learning environment in this class varies from section to section, examine the description of learning environment for each section and choose the one you prefer.

1225 Astrophysics

Grade Level: Junior/Senior
Length: One Semester (Spring)
Credit: .50 Pass/Fail option
Prerequisite: Sophomore Physics

The conceptual emphasis of Astrophysics is on stellar evolution. Techniques from classical mechanics, electromagnetism, nuclear, and atomic physics are utilized to examine the relationship between theoretical models and observational evidence. Topics include astronomical instrumentation, stellar characteristics, the interstellar medium, and the various models of stellar formation. The evolutionary phases of stars and the manner in which they end their existences are all explored.

1226 Observational Astronomy

Grade Level: Junior/Senior
Length: One Semester (Fall)
Credit: .50 Pass/Fail option
Prerequisite: Sophomore Physics

Observational Astronomy is a course for students who wish to gain an understanding of the night sky. The identification of stars and their patterns, the use of coordinate systems, and celestial mechanics are the topics of emphasis. The naked-eye, binoculars, telescopes, and CCD imaging will be utilized extensively to examine the universe around us. There will be one evening meeting per week.

1228 Electronics

Grade Level: Junior/Senior
Length: One Semester
Credit: .50 Pass/Fail option
Prerequisite: Sophomore Physics

This is an introductory course in electronics designed for students with interest in "hands on" experience with basic electronics. Students are encouraged to discover basic electrical concepts through laboratory experiences, derive various formulas and conclusions describing their observations, and test their theories with appropriate experimentation in the lab. Projects, incorporating the knowledge gained through guided discovery, provide a culminating experience for the students. Students are encouraged to choose projects which interest them and provide them with the appropriate level of challenge based on their current level of understanding. Course topics include: Ohm's Law, Series/Parallel Circuits, Superposition Theorem, Capacitors - AC & DC Analysis, Inductors, Diodes, Transistors, Op Amps and Basic Digital Circuits.

1229 Topics in Modern Physics

Grade Level: Junior/Senior
Length: One Semester
Credit: .50 Pass/Fail option
Prerequisite: Sophomore Physics

This course includes topics in physics beyond the scope of Sophomore Physics which relate to phenomena and devices of importance to modern physicists. These include: quantum and atomic physics, relativity (special/general), cosmology, holography, accelerators and detectors, particle physics, nuclear physics, symmetry, and superconductivity. This course is strongly recommended for students who intend to take AP Physics B exam.

1230 Geophysics

Grade Level: Junior/Senior
Length: One Semester (Spring)
Credit: .50 Pass/Fail option
Prerequisite: Sophomore Physics, Sophomore Chemistry

This course will challenge students to develop models of how the earth functions. Using concepts from physics, chemistry, and biology, relationships and connections between the lithosphere, hydrosphere, biosphere, and atmosphere will be explored. The causes and effects of Global Warming, earthquakes, hurricanes, and other phenomena will be explored using actual up-to-the-minute data and computer models. Satellite images, computer-aided learning materials, and problem-based methods are used.

1241 University Biology

Grade Level: Junior
Length: Two Semesters
Credit: .50 per Semester
Prerequisite: Sophomore Chemistry and Sophomore Physics

This core course is required for all Junior students at the Academy, except those students in Integrated Science II. It is a survey course for students with a background in chemistry and physics. Topics include molecular biology, cell biology, ecology, and the evolution and diversity of life. Extensive laboratory experiences are provided and concepts are developed by the inquiry method.

1242 Ecology

Grade Level: Senior
Length: One Semester (Fall)
Credit: .50 Pass/Fail option
Prerequisite: University Biology

Interrelationships among organisms, and their environments, and the diversity of the Earth's ecosystems, communities, and populations are covered in the course. The course considers both theoretical and applied aspects of ecology including current environmental issues. The course spends most lab days off campus examining field problems with several optional activities offered to supplement the regular course material.

1243 Human Anatomy and Physiology

Grade Level: Senior
Length: One Semester
Credit: .50 Pass/Fail option
Prerequisite: University Biology

This course covers the structure and function of the human body. Emphasis is placed on the cardiovascular, respiratory, nervous, and endocrine systems. Laboratory work utilizes the open-ended investigative format. Computers are used for data acquisition and analysis. Ethical issues activities covering various aspects of human biology are included in discussion sections. A class project and oral presentations are integral parts of the course.

1244 General Microbiology

Grade Level: Junior/Senior
Length: One Semester
Credit: .50 Pass/Fail option
Prerequisite: First Semester of University Biology

This course examines microbial diversity, emphasizing the interrelationships of bacteria with their environments. This includes aspects of cell structure, metabolism, growth, genetic structure/change in microorganisms, immunology, and medical microbiology. Laboratory exercises will include microscopy, staining techniques, pure culture techniques, control of microbial growth, quantitative techniques, physiological testing and serology. A series of unknown cultures will be presented to the student to test their mastery of the above techniques.

1245 Pathogenic Microbiology

Grade Level: Senior
Length: One Semester (Spring)
Credit: .50 Pass/Fail option
Prerequisite: General Microbiology

Survey of the bacteria, protozoa, viruses, and fungi associated with infectious disease, including study of morphology, physiology, immunology, of these host/parasite interactions. A library research paper dealing with some disease-causing microbe will be required.

1246 Genetics

Grade Level: Junior/Senior
Length: One Semester
Credit: .50 Pass/Fail option
Prerequisite: First Semester of University Biology

Coverage of traditional and modern aspects, including developmental genetics, Mendelian genetics, sex linkage, mutation, population genetics, statistical applications, and ethical dilemmas posed by recent technological advances. Varied activities, including labs, field trips, discussions, and lectures are used in the course format.

1248 Patterns of Biological Diversity

Grade Level: Senior
Length: One Semester (Spring)
Credit: .50 Pass/Fail option
Prerequisite: University Biology

This course explores the diversity of living organisms, their structure and organization, and their patterns across space and time. Emphasis is given to plant and animal groups that students are able to observe in the field. Topics include animal behavior, animal and plant taxonomy, animal and plant phylogeny, biogeography, biological and environmental conservation, and an exploration into the natural history of many local plants and animals. An appreciable amount of time is dedicated to field work.

1249 Cell Biology

Grade Level: Junior/Senior
Length: One Semester
Credit: .50 Pass/Fail option
Prerequisite: First Semester of University Biology

In this course students will explore the structure, growth, chemistry, metabolism, regulation, genetics, and organelle function of biological cells. The tools and techniques by which scientists study these processes will also be discussed. Students will gain practical experience with these techniques in the laboratory portion of this class.

1262 Scientific Writing and Data Analysis

Grade Level: Junior/Senior
Length: One Semester (Fall)
Credit: .50 credit Pass/Fail option
Prerequisite: None

The principle goal of this course is to provide the student with the skills needed to analyze data and present research work in a publishable format. It involves an introduction to the system of information dissemination used in science, instruction and practice in scientific writing using word processing programs, use of computer data bases and other library research methods to do literature searches, and use of computer programs to collect and analyze data.

1278(F) Junior Project in Science

1279(S)

Grade Level: Junior
Length: One - Two Semester(s)
Credit: .50 - 2.00 Pass/Fail option
Prerequisite: Science Team and Director of Academic Programs approval

Independent projects or research which enable juniors to investigate an approved science topic of their choice under the sponsorship of a faculty advisor. The project must be designed and appropriate approval granted before the beginning of the project term. The process of this project is as important as the product. The outcome of some of the activities may result in competition with peers or publication.

1440 Science, Society and the Future

Grade Level: Senior
Length: One Semester
Credit: 1.00(.50 Social Science & .50 Science)
Pass/Fail option **Cannot be repeated.**
Prerequisite: World Studies and University Biology

Exploration of issues which result from the interaction of science and society is the focus of this course. The investigations will be lead by a team of instructors from science and social science. The roots, controversies and ethical implications of each issue will be examined in a "think tank" environment with special attention given to analysis of the behavior of complex systems using basic science knowledge and mathematical modeling. Attention is also given to the potential impact each solution might have on society. **This course will count as two academic courses towards the minimum five academic classes required each semester.**

ENGLISH

1310 Sophomore English

Grade Level: Sophomore
Length: Two Semesters
Credit: .50 per semester
Prerequisite: None

This course introduces students to a variety of genres in literature, to the processes of effective aesthetic reading, to the work of discussion and performance as a response to literature, and to the processes of writing in a variety of forms and for a variety of purposes. All sophomores will read OEDIPUS REX, THE ODYSSEY (in Richmond Lattimore's poetry translation), and either THE TEMPEST or OTHELLO. Additional reading will include poetry, stories, essays, and plays by a variety of authors from many cultural traditions.

1320 Junior English

Grade Level: Junior
Length: Two Semesters
Credit: .50 per semester
Prerequisite: Sophomore English

The work of developing skill in aesthetic reading and in discussion, performance, and writing continues at higher levels. Students are expected to develop greater independence as readers and writers, to be more conscious of their own processes as readers and writers. All juniors will read HAMLET, a 19th century novel, excerpts from the Bible, Kafka's THE METAMORPHOSIS. Other reading will be selected from a variety of essays, poetry, plays, stories, and novels.

Senior English (Required)

Students must be enrolled in an English class each semester of their senior year.

FIRST SEMESTER SENIOR ENGLISH OFFERINGS

1330 Modern American Prose and Poetry

Grade Level: Senior
Length: One Semester (Offered Both Semesters)
Credit: .50
Prerequisite: Junior English

This course will look extensively at writings from a variety of American authors and poets, looking at their fiction, non-fiction, and poetry. The poets will include T.S. Eliot, Adrienne Rich, Denise Levertov, Elizabeth Bishop, Robert Bly, and Walt Whitman. The writers of fiction will include Ernest Hemingway, William Faulkner, Alice Walker.

1331 The Short Story: Theory and Practice

Grade Level: Senior
Length: One Semester (Offered Both Semesters)
Credit: .50
Prerequisite: Junior English

Leading students to develop their own theories of the genre, the class will read stories by a variety of authors, from a variety of periods and traditions. Students will write and present short stories of their own composition.

1332 The Idea of the Individual

Grade Level: Senior
Length: One Semester
Credit: .50
Prerequisite: Junior English

This course will consider such issues as the historical and psychological origins of identity, gender and identity, and the contemporary forces which impel or impede the development of individual identity. Reading assignments will vary from section to section but may include excerpts from the Old and New Testaments of the Bible, E.M. Forster's A PASSAGE TO INDIA, and works by Descartes, T.S. Eliot, Samuel Taylor Coleridge, W.H. Auden, Wordsworth, and others.

1333 The Russian Consciousness in Literature

Grade Level: Senior
Length: One Semester
Credit: .50
Prerequisite: Junior English

What qualities, what perceptions in the Russian consciousness might account for Russia's rapid and significant change from a backwater of Europe to a major world power and then to near collapse? To explore these and other questions, students will study a variety of pre- and post-revolutionary Russian writers, as well as study the country's art, music, and film.

1334 Utopia/Anti-Utopia

Grade Level: Senior
Length: One Semester
Credit: 1.00 (.50 in English/.50 in Social Science)
Prerequisite: Junior English

This course will explore the question of the ideal society and the dangers in the attempt to achieve the ideal world. We will read Thomas More's UTOPIA, Huxley's BRAVE NEW WORLD, Bellamy's LOOKING BACKWARD, Margaret Atwood's THE HANDMAID'S TALE, among other works. The course will meet on all 5 class days of the six-day cycle. The double credit this course offers is given with the understanding that work outside of class will be equivalent to TWO courses and will include a number of writing assignments and a research project.

1335 Modern World Fiction

Grade Level: Senior
Length: One Semester (Offered Both Semesters)
Credit: .50
Prerequisite: Junior English

The readings for this class will include short stories and novels by European, African, and Latin American, and (especially) Asian authors. Students will have an opportunity to see how different cultural traditions, historical experiences, and political systems have influenced imaginative writing during the past twenty years. We will ask, too, whether contemporary writers have some identity in common--a set of conceptions or impulses or literary techniques that can assist in defining their otherwise diverse achievements. The writers to be read include Tatyana Tolstoya (Russia), Nadine Gordimer (South Africa), V.S. Naipaul (Trinidad and India), Salman Rushdie (India and Pakistan) and others.

1338 Belief in Question in Modern Literature

Grade Level: Senior
Length: One Semester
Credit: .50
Prerequisites: Junior English

Many great works of literature wrestle with conflicts of faith and doubt, belief and skepticism. When these issues take the form of a search for meaning in life and after life, the literary imagination merges with religious thought. By reflecting on structures of belief in such classic works as Dante's Inferno and Milton's Paradise Lost, we can then better understand belief called into question by fiction writers Graham Greene, Alber Camus, Flannery O'Connor, and many modern poets.

SECOND SEMESTER SENIOR ENGLISH OFFERINGS

- 1350 Modern American Prose and Poetry
Grade Level: Senior
Length: One Semester (Offered Both Semesters)
Credit: .50
Prerequisite: Junior English

This course will look extensively at writings from a variety of American authors and poets, looking at their fiction, non-fiction, and poetry. The poets will include T.S. Eliot, Adrienne Rich, Denise Levertov, Elizabeth Bishop, Robert Bly, and Walt Whitman. The writers of fiction will include Ernest Hemingway, William Faulkner, Alice Walker.

- 1351 The Short Story: Theory and Practice
Grade Level: Senior
Length: One Semester (Offered Both Semesters)
Credit: .50
Prerequisite: Junior English

Leading students to develop their own theories of the genre, the class will read stories by a variety of authors, from a variety of periods and traditions. Students will write and present short stories of their own composition.

- 1353 Dramatic Literature: The Theatre as Microcosm
Grade Level: Senior
Length: One Semester
Credit: .50
Prerequisite: Junior English

We will study a variety of dramatic literature, ranging over many countries and historical periods, in an attempt to discover why the theatre experience seems so often to present a microcosm often seeming to be more real, more alive than our own world. In additions to the printed literature, the course will examine film, and if possible, students will attend live theatre performances to increase their understanding of the compelling qualities of dramatic expression.

1355 Modern World Fiction

Grade Level: Senior
Length: One Semester (Offered Both Semesters)
Credit: .50
Prerequisite: Junior English

The readings for this class will include short stories and novels by European, African, and Latin American, and (especially) Asian authors. Students will have an opportunity to see how different cultural traditions, historical experiences, and political systems have influenced imaginative writing during the past twenty years. We will ask, too, whether contemporary writers have some identity in common--a set of conceptions or impulses or literary techniques that can assist in defining their otherwise diverse achievements. The writers to be read include Tatyana Tolstoya (Russia), Nadine Gordimer (South Africa), V.S. Naipaul (Trinidad and India), Salman Rushdie (India and Pakistan) and others.

1359 Portraits of Creativity

Grade Level: Senior
Length: One Semester
Credit: .50
Prerequisite: Junior English

We will examine the lives and work of creative people in several of the arts (including literature, music, and painting) and sciences, posing questions concerning the nature of artistic and scientific work, the roles of the artist and scientist in our culture, and the relationship between Apollonian order and Dionysian spontaneity in creative work. Through discovery, students will consider issues of creativity in their own lives.

1364 Modern Irish Literature

Grade Level: Senior
Length: One Semester
Credit: .50
Prerequisite: Junior English

Irish artists sing songs of rage and rapture that are a forming force in twentieth century literature. In listening to them we will engage with an often comic cultural vision that is oddly energized by a fear of sex and a love of death. The course will explore the fiction and poetry of seminal authors James Joyce and W.B. Yeats, and the drama of Synge and O'Casey. In addition, we will read, discuss, and write about some of their descendants in contemporary Irish literature: fiction writers William Trevor, Mary Lavin, Edna O'Brien; poets Thomas Kinsella, Seamus Heaney, Nuala Ni Dhomhnaill, Michael Longley; dramatists Brian Friel, Samuel Beckett, as well as examining a few of the prominent, recent Irish films ("The Crying Game", for example) and Celtic rock music.

Galileo, Science and the Church

Grade Level: Senior
Length: One Semester
Credit: .50
Prerequisite: Junior English

This course will examine the uneasy overlap between science and the humanities that has persisted since the times of Ancient Greece and the conflict between religious belief and science since medieval times. We will read works by and about scientists and their work as well as literature that responds to the changes science has wrought. Readings will include works by Bertolt Brecht, Descartes, Thomas Jefferson, Ficino, and Plato.

SOCIAL SCIENCE

1410 American Studies

Grade Level: Sophomore
Length: Two Semesters
Credit: .50 per Semester
Prerequisite: None

This course explores the events, trends, personalities, and complex series of connections which help explain the global nature of modern America. Through simulation, problem-solving, and research, students investigate relationships between the past and the present, especially the evolution of an increasingly globalized human experience. All the skills of the social scientist are used during this course with special attention given to the expression of ideas through writing.

1420 World Studies

Grade Level: Junior
Length: Two Semesters
Credit: .50 per Semester
Prerequisite: American Studies

Our world's history and the major issues confronting its people have assumed an increasingly global character. An understanding of the roots of our global era is developed through a humanities approach which focuses on the ideas, events, trends, ideologies, and the creative expressions of humankind. Students continue using their social science skills and writing ability for investigation and communication.

1430 Political Science

Grade Level: Senior
Length: One Semester (Fall)
Credit: .50 Pass/Fail option
Prerequisite: World Studies

Political Science '94 will begin with a discussion and review of our political ideologies and political values. We will then become engaged in the Mid-Term Elections of 1994, reviewing areas in Political Science concerned with political parties, candidates, campaign strategies and tactics, formulating campaign issues, and media strategies. Next, we will work on several public policy issues such as National Health Care, Welfare Reform, and preparing the Fiscal 1995 Federal Budget. Political Correctness has become one of the most controversial contemporary issues in American society today. We will examine that issue closely. Finally, we will conclude the semester with our unit on "With Liberty and Justice For All", where we review through several Supreme Court decisions major Bill of Rights issues such as Free Speech, Separation of Church and State, "Privacy Issues", and Criminal Due Process.

1431 International Relations

Grade Level: Senior
Length: One Semester
Credit: .50 Pass/Fail option
Prerequisite: World Studies

The theory and conduct of relations between nations will be investigated from a historical and "crisis management" point of view. Of special interest will be America's rise and response to its position as a world power. Examples of cooperation and conflict will be studied to gain insights into the relations between superpowers and the management of international problems such as terrorism, hunger, debt, pollution, racism, and the arms race.

1432 Psychology

Grade Level: Senior
Length: One Semester
Credit: .50 Pass/Fail option
Prerequisite: World Studies

Psychology, the scientific study of behavior and mental processes, organizes and investigates information regarding the inherently fascinating subjects of ourselves and the people around us. This course will survey such topics as physiological psychology, sensation, perception, learning, problem solving, memory, motivation, life cycle development, interpersonal relations, and abnormal psychology. The overall goals of Psychology include the development of an awareness of the complexity of human behavior and a concomitant increase in the understanding of self and others. Along with content knowledge and hands-on activities, students in this class will work on developing their abilities to analyze, interpret, relate and communicate information orally and in writing.

1433 Topics in Psychology

Grade Level: Senior
Length: One Semester (Spring)
Credit: .50 Pass/Fail option
Prerequisite: World Studies

Topics in Psychology is designed to deal with some of the most pressing and interesting social concerns of the day. The approach will be multidimensional, with investigation proceeding through such methods as observations of people and media in our surroundings, discussion of fictional accounts, debates, public policy simulations, data collection, reviews of current status of knowledge, and research critiques. The topics to be studied include mental illness; prejudice, discrimination, and stereotypes; gender issues, cognitive psychology and artificial intelligence. This class is designed to provide in-depth consideration of a limited number of subjects. It will not duplicate the broader experience of the survey course, and may be taken in addition or as an alternative to Psychology.

1434

Macroeconomics

Grade Level: Senior
Length: One Semester (Fall)
Credit: .50 Pass/Fail option
Prerequisite: World Studies

Macroeconomics is an issues oriented course in which basic macroeconomic concepts and theories (scarcity, supply and demand, inflation, unemployment, fiscal and monetary policy) are presented through the exploration and analysis of specific political and social realities. The issues themselves are ordered so as to facilitate a logical and systematic development of macroeconomic principles, concepts and theories. An exploration of economic thought provides the background for debates, discussions, simulations, and research which will be the tools for analysis.

Students will also have an opportunity to participate in a mock international currency and interest rate vehicle trading exercise which should give their newly acquired knowledge of macroeconomics concepts a certain immediacy.

1435

Microeconomics

Grade Level: Senior
Length: One Semester (Spring)
Credit: .50 Pass/Fail option
Prerequisite: World Studies

Microeconomics is an issues oriented course in which basic microeconomic concepts and theories (demand and consumer choice, the firm, monopoly, oligopoly, capital, interest, profits, labor unions and collective bargaining) are presented through the exploration and analysis of specific political and social realities. The issues themselves are ordered so as to facilitate a logical and systematic development of microeconomic principles, concepts, and theories. An exploration into the historical development of the modern corporation and capitalism provides the background for debates, discussions, simulations and research which will be the tools for analysis.

Students will have an opportunity to guide the fortunes of a fictitious multinational conglomerate through the hazards of a simulated international business environment which should give their newly acquired knowledge of microeconomic concepts a certain immediacy.

1436 Topics in Recent United States History

Grade Level: Senior
Length: One Semester (Spring)
Credit: .50 Pass/Fail option
Prerequisite: World Studies

This course will focus on the years 1945 to the present. Recent U.S. History will present many of the topics, themes, issues, personalities, and events which are often not covered because time runs out in regular History courses. Therefore, this course will permit greater flexibility within the IMSA American Studies curriculum. The teacher and students will select units from among various themes and topics, a few of which include: The Cold War, Diversity: Counter-culture movements, Justice and Equality: Civil Rights and Civil Liberties in Post-War America, Power: Who Runs America?, The Seventies and the Issues of Scarcity and Limitations, The Significance of the Vietnam War in American History, American Post-War Popular Culture, Literature, and Movies, Evaluating the Reagan-Bush 80's: The Good or Bad Decade? and many other possible options. The themes and topics will be presented, in many instances, from an inter-disciplinary perspective incorporating Science, Literature, Political Science, International Relations, Sociology, Economics, and Art and Music.

1440 Science, Society and the Future

Grade Level: Senior
Length: One Semester
Credit: 1.00(.50 **Social Science** and .50 **Science**)
Pass/Fail option - **Cannot be repeated**
Prerequisite: World Studies and University Biology

Exploration of issues which result from the interaction of science and society is the focus of this course. The investigations will be lead by a team of instructors from science and social science. The roots, controversies and ethical implications of each issue will be examined in a "think tank" environment with special attention given to analysis of the behavior of complex systems using basic science knowledge and mathematical modeling. Attention is also given to the potential impact each solution might have on society. This course will count as two academic courses towards the minimum five academic classes required each semester. **This course will count as two academic courses towards the minimum five academic classes required each semester.**

1334(F) Utopia/Anti-Utopia

Grade Level: Senior

Length: One Semester

Credit: 1.00 (.50 in English/.50 in Social Science)

Prerequisites: Junior English and World Studies

This course will explore the question of the ideal society and the dangers in the attempt to achieve the ideal world. We will read Thomas More's UTOPIA, Huxley's BRAVE NEW WORLD, Edward Bellamy's LOOKING BACKWARD, Margaret Atwood's THE HANDMAID'S TALE, among other works. The double credit this course offers is given with the understanding that work outside of class will be equivalent to TWO courses and will include a number of writing assignments and a research project. **This course will count as two academic courses towards the minimum five academic classes required each semester.**

FOREIGN LANGUAGE

1501 Latin I

Grade Level: Sophomore/Junior/Senior
Length: One Year
Credit: 1.0 per Year Pass/Fail option
Prerequisite: None

The student receives a solid foundation in Latin grammar and vocabulary through the study of syntax and etymology. Through reading and translating Latin stories, the student is introduced to Roman mythology and culture in order to gain a sense of his/her relevant past.

1502 Latin II

Grade Level: Sophomore/Junior/Senior
Length: One Year
Credit: 1.0 per Year Pass/Fail option
Prerequisite: Latin I

A broader range of vocabulary and the more complex aspects of Latin grammar are studied. Selected Latin phrases, terms, and abbreviations, plus the culture of Greece and Rome, are included. Through readings from Caesar's Gallic Wars and Livy, the student comes into contact with achievements of great human significance, such as Roman law, architecture, engineering, and models of government.

1503 Latin III

Grade Level: Sophomore/Junior/Senior
Length: One Year
Credit: 1.0 per Year Pass/Fail option
Prerequisite: Latin II

This advanced prose course is based on Cicero's orations and selected works of other classical authors. Roman government, architecture, and societal mores are incorporated into classical studies.

1504 Latin IV

Grade Level: Sophomore/Junior/Senior
Length: One Year
Credit: 1.0 per Year Pass/Fail option
Prerequisite: Latin III

This advanced prose course is based on Cicero's orations and selected works of other classical authors. Roman government, architecture, and societal mores are incorporated into classical studies.

1511 French I

Grade Level: Sophomore/Junior/Senior
Length: One Year
Credit: 1.0 per Year Pass/Fail option
Prerequisite: None

Students are expected to read, write and speak about their immediate world, which would include their interests, school life, family, friends and self. They will be able to ask for and understand basic information to be able to survive in the language.

1512 French II

Grade Level: Sophomore/Junior/Senior
Length: One Year
Credit: 1.0 per Year Pass/Fail option
Prerequisite: French I and/or placement exam

Students will build on the survival skills attained in French I, while moving toward developing greater fluency in speaking and writing. The concept of the student and her or his "immediate world" will be expanded to the larger concept of "I and my extended world." Spoken and written language will progress from short sentence level to a more cohesive paragraph level. In a similar fashion, reading and listening comprehension will also be developed. The course will include units on Francophone poetry and Asterix.

1513 French III

Grade Level: Sophomore/Junior/Senior
Length: One Year
Credit: 1.0 per Year Pass/Fail option
Prerequisite: French II and/or placement exam

Students will be expected to be able to read, speak, and write about various topics such as the education system, professions, family, women in society, and current events. They will be able to analyze French poetry and prose taken from authentic sources.

1514 French IV

Grade Level: Sophomore/Junior/Senior
Length: One Year
Credit: 1.0 per Year Pass/Fail option
Prerequisite: French III and/or placement exam

The focus of the course will be continued development of the major skills. Topics will include Francophonic literature and countries, art, history, cinema, and existentialism. Students will be expected to read authentic texts and to do research on an advanced level. Individual and team projects will be an integral part of this course.

1521 Spanish I

Grade Level: Sophomore/Junior/Senior
Length: One Year
Credit: 1.0 per Year Pass/Fail option
Prerequisite: None

Students are expected to read, write and speak about their immediate world, which would include their interests, school life, family, friends and self. They will be able to ask for and understand basic information to be able to survive in the language. In addition this course will seek to enhance an understanding of the diverse cultures of the Spanish speaking world.

1522 Spanish II

Grade Level: Sophomore/Junior/Senior
Length: One Year
Credit: 1.0 per Year Pass/Fail option
Prerequisite: Spanish I and/or placement exam

Students will build on the survival skills attained in Spanish I, while moving toward developing greater fluency in speaking and writing. The concept of the student and her or his "immediate world" will be expanded to the larger concept of "I and my extended world." Spoken and written language will progress from short sentence level to a more cohesive paragraph level, and will include past tense narration. In a similar fashion, reading and listening comprehension will also be developed.

1523 Spanish III

Grade Level: Sophomore/Junior/Senior
Length: One Year
Credit: 1.0 per Year Pass/Fail option
Prerequisite: Spanish II and/or placement exam

Students will be expected to be able to read, speak, and write about topics such as the differences of culture and customs between the Spanish-speaking countries and the American way of life, famous people of Spanish-speaking countries, current events and various selections of authentic literature.

1524 Spanish IV

Grade Level: Sophomore/Junior/Senior
Length: One Year
Credit: 1.0 per Year Pass/Fail option
Prerequisite: Spanish III and/or placement exam

Students will be expected to be able to read, speak, and write about topics in Spanish and Latin American literature, art, science, history, and/or current events.

1525 Spanish V

Grade Level: Sophomore/Junior/Senior
Length: One Year
Credit: 1.0 per Year Pass/Fail option
Prerequisite: Spanish IV and/or placement exam

This year long course will focus on authentic literature of Spanish-speaking countries and Hispanic-American literature. Emphasis will be on oral, reading, and written skills.

1531 German I

Grade Level: Sophomore/Junior/Senior
Length: One Year
Credit: 1.0 per Year Pass/Fail option
Prerequisite: None

Students are expected to read, write and speak about their immediate world, which would include their interests, school life, family, friends and self. They will be able to ask for and understand basic information to be able to survive in the language.

1532 German II

Grade Level: Sophomore/Junior/Senior
Length: One Year
Credit: 1.0 per Year Pass/Fail option
Prerequisite: German I and/or placement exam

Students will build on the survival skills attained in German I, while moving toward developing greater fluency in speaking and writing. The concept of the student and his or her "immediate world" will be expanded to the larger concept of "I and my extended world." Spoken and written language will progress from short sentence level to a more cohesive paragraph level. In a similar fashion, reading and listening comprehension will also be developed. Historical and cultural topics such as fairy tales, children's literature and film will be included.

1533 German III

Grade Level: Sophomore/Junior/Senior
Length: One Year
Credit: 1.0 per year Pass/Fail option
Prerequisite: German II and/or placement exam

The students will build and elaborate on skills developed in Level 2 in order to explore their world in relation to that of the German speaking world. Each semester students will be expected to complete a project which requires them to gather and process the information in the target language. Students will read selected authentic texts of fictional and non-fictional natures which will provide the impetus for discussions.

1534 German IV

Grade Level: Sophomore/Junior/Senior
Length: One Year
Credit: 1.0 per Year Pass/Fail option
Prerequisite: German III and/or placement exam

Students will continue to explore German in the context of their personal world in relationship to the broader German speaking world. Students speaking and writing will be guided by the cultural elements as represented by the literature, the media and film of the German speaking world.

1535 German V

Grade Level: Sophomore/Junior/Senior
Length: One Year
Credit: 1.0 per Year Pass/Fail option
Prerequisite: German III and/or placement exam

Students will continue to explore German in the context of their personal world in relationship to the broader German speaking world. Students speaking and writing will be guided by the cultural elements as represented by the literature, the media and film of the German speaking world.

1541 Japanese I

Grade Level: Sophomore/Junior/Senior
Length: One Year
Credit: 1.0 per Year Pass/Fail option
Prerequisite: None

Primary emphasis is on oral proficiency in Japanese, although students will master katakana and hiragana as well. Focus is on building good pronunciation and listening skills. Students will learn to communicate in culturally appropriate ways, using basic sentence structures, and will be able to do such things as tell time, and ask for and give directions. They will also begin to learn how the structure of Japanese culture is reflected in the Japanese language.

1542 Japanese II

Grade Level: Sophomore/Junior/Senior
Length: One Year
Credit: 1.0 per Year Pass/Fail option
Prerequisite: Japanese I

Students will continue to develop oral and aural proficiency, as well as begin to learn to read and write kanji (Chinese characters). Students will continue to learn about Japanese society by learning how to speak both more casually and more politely. They will also learn to communicate in a more sophisticated way, using more compound sentence structures, and will learn to, for example, explain the cause for something or tell what they think.

1543 Japanese III

Grade Level: Sophomore/Junior/Senior
Length: One Year
Credit: 1.0 per year Pass/Fail option
Prerequisite: Japanese II

A continuation of Japanese II, and while oral communication will remain very important, more and more emphasis will be placed on reading and writing, and students will continue to expand their kanji knowledge.

1551 Russian I

Grade Level: Sophomore/Junior/Senior
Length: One Year
Credit: 1.0 per Year Pass/Fail option
Prerequisite: None

Students are expected to read, write and speak about their immediate world, which would include their interests, school life, family, friends and self. They will be able to ask for and understand basic information to be able to survive in the language.

1552 Russian II

Grade Level: Sophomore/Junior/Senior
Length: One Year
Credit: 1.0 per Year Pass/Fail option
Prerequisite: Russian I

Students will build on the survival skills attained in Russian I, while moving toward developing greater fluency in speaking and writing. The concept of the student and her or his "immediate world" will be expanded to the larger concept of "I and my extended world." Spoken and written language will progress from short sentence level to a more cohesive paragraph level. In a similar fashion, reading and listening comprehension will also be developed.

1553 Russian III

Grade Level: Sophomore/Junior/Senior
Length: One Year
Credit: 1.0 per Year Pass/Fail option
Prerequisite: Russian II

The students will build and elaborate on the skills developed in Russian II. Students will be expected to read selections from Russian literature, which will include plays and stories by Chekov and Zoshenko. The course will also include units on Russian art, history and social issues.

FINE ARTS

1600(F) Symphonic Band

1601(S)

Grade Level: Sophomore/Junior/Senior

Length: One - Two Semester(s)

Credit: .50 - 1.00 Pass/Fail option

Prerequisite: Play traditional wind/percussion instrument at basic level

Students enrolled in Symphonic Band will be provided the opportunity to examine, rehearse, and perform varied styles of band music of both Western and non-Western composers in a laboratory setting. Experiences in chamber music, symphonic band, and pep band will be included. In addition, materials pertaining to music history, theory, aural skills, and musicianship will be presented, both from a scientific as well as an artistic approach. (Students enrolled in this course are eligible to participate in any music sponsored co-curricular activity.)

1602(F) Symphonic Wind Ensemble

1603(S)

Grade Level: Sophomore/Junior/Senior

Length: One - Two Semester(s)

Credit: .50 - 1.00 Pass/Fail option

Prerequisite: Participation in IMSA Symphonic Band; play traditional wind/percussion instrument at an advanced level. Admission by instructor's approval required.

Students enrolled in Symphonic Wind Ensemble will be provided the opportunity to examine, rehearse and perform varied styles of wind ensemble literature in a laboratory setting. In most cases, only the most technically and musically advanced students will be admitted to this course. The literature to be considered for this course will include large chamber music, pieces written specifically for wind ensemble (small chamber band) and orchestral transcriptions. Certain students enrolled in this course are also entitled, with instructor's approval, to perform as wind and percussion players for the IMSA Symphony Orchestra. (Students enrolled in this course are eligible to participate in any music sponsored co-curricular activity.)

1604(F) Symphony Orchestra

1605(S)

Grade Level: Sophomore/Junior/Senior
Length: One - Two Semester(s)
Credit: .50 - 1.00 Pass/Fail option
Prerequisite: Play stringed instrument (violin, viola, 'cello,
or string bass) at basic level

Students enrolled in the Symphony Orchestra will be provided the opportunity to examine, rehearse, and perform varied styles of string music of both Western and non-Western composers in a laboratory setting. Experiences in chamber ensemble, string orchestra, and full symphony orchestra will be included in the class. In addition, materials pertaining to music history, theory, aural skills, and musicianship will be presented, both from a scientific as well as an artistic approach. (Students enrolled in the Music Program are eligible to participate in any music sponsored co-curricular activity.)

1610(F) Concert Choir

1611(S)

Grade Level: Sophomore/Junior/Senior
Length: One - Two Semester(s)
Credit: .50 - 1.00 Pass/Fail option
Prerequisite: Basic level ability of matching pitches

This course will provide students with an overview of the visual, auditory, physiological, historical, and aesthetic dimensions of choral music. Emphasis will be on the development of healthy and proper vocal production, music reading and aural skills, and ensemble singing in the context of rehearsal and performance. (Students enrolled in the Music Program are eligible to participate in any music sponsored co-curricular activity.)

1612(F) Chamber Choir

1613(S)

Grade Level: Sophomore/Junior/Senior
Length: One - Two Semester(s)
Credit: .50 - 1.00 Pass/Fail option
Prerequisite: Participation in IMSA Concert Choir or by
audition; moderate to good music reading skills.
Instructor's approval required.

This course provides students with opportunities to explore and perform advanced choral literature including multiple voiced and acapella works. Included will be continued emphasis on developing musicianship in multiple aspects of ensemble performance: tone, diction, phrasing, intonation, balance, precision of execution, and interpretation of the score. Opportunities for student conducting and solo, small and large ensemble performing will be provided. (Students enrolled in the Music Program are eligible to participate in any music sponsored co-curricular activity.)

1630 Art Design I

Grade Level: Sophomore/Junior/Senior
Length: One Semester
Credit: .50 Pass/Fail option
Prerequisite: None

This course will provide students with the opportunity to create both two and three dimensional design solutions and the option of studying drawing. Through the examination of various styles of art and the investigation of the elements and principles of design, the course will prepare students to make aesthetic choices throughout life.

1631 Ceramics

Grade Level: Sophomore/Junior/Senior
Length: One Semester
Credit: .50 Pass/Fail option
Prerequisite: None

This course will provide students with the opportunity to explore each of the methods of handbuilding as well as to be introduced to throwing on the potter's wheel. Students will experience the characteristics of clay, learn terminology, practice proper technique, and use the elements and principles of design as a basis for creating and evaluating ceramicware.

1633 Photography

Grade Level: Junior/Senior
Length: One Semester
Credit: .50 Pass/Fail option
Prerequisite: None

This course will provide students with the opportunity to obtain a general overview of the uses and history of photography. The course is specific to black and white photography. Students will learn to use photographic and aesthetic terminology and obtain practice in picture taking, film processing, photo printing, and professional display techniques. Through these experiences, students will gain confidence in both creating and evaluating photography as an art form. Students must supply their own 35mm SLR cameras and batteries.

WELLNESS

1710 Sophomore Wellness

Grade Level: Sophomore
Length: One Year
Credit: 1.00 Pass/Fail Only
Prerequisite: None

This course will be an integrated class combining Health, Physical Education and Life Skills. Emphasis will be placed on individual development and practice of wellness as students learn to take self responsibility for their social, emotional, physical and mental well-being. Wellness is defined as a positive approach to living which emphasizes the whole person. The wellness concept is consistent with many of the IMSA Belief Statements, including "To live in harmony with themselves, other human beings and the physical world."

1715 Junior Wellness

Grade Level: Junior
Length: One Year
Credit: Pass/Fail
Prerequisite: None

This is an independent, continuing year long implementation of the wellness concepts and practices learned during the sophomore wellness course. Students will be responsible for enhancing wellness in the physical dimension, and at least one of the other wellness dimensions (social, emotional, mental/intellectual, philosophical, spiritual). Such activities as individualized exercise programs, intramurals, inter-scholastic athletics participation, and independent pursuit of a lifetime physical activity will serve to fulfill the physical requirement. Such activities as IMSA community awareness and service groups (Pugwash, Snowball, etc.), regular implementation of time/stress management and decision-making strategies, and participation in The Great Books discussion group are examples of possible activities for enhancement of wellness in the social, emotional, mental/intellectual dimensions, respectively. Activities acceptable for "other" dimensions wellness credit include participation in any school sponsored co-curricular club, group, or organization (see list in student handbook).

Senior Wellness

Grade Level: Senior

Length: One Year

Credit: Pass/Fail

Prerequisite: None

This is an independent, continuing year long implementation of the wellness concepts and practices learned during the sophomore wellness course. Students will be responsible for enhancing wellness in the physical dimension, and at least one of the other wellness dimensions (social, emotional, mental/intellectual, philosophical, spiritual). Such activities as individualized exercise programs, intramurals, inter-scholastic athletics participation, and independent pursuit of a lifetime physical activity will serve to fulfill the physical requirement. Such activities as IMSA community awareness and service groups (Pugwash, Snowball, etc.), regular implementation of time/stress management and decision-making strategies, and participation in The Great Books discussion group are examples of possible activities for enhancement of wellness in the social, emotional, mental/intellectual dimensions, respectively. Activities acceptable for "other" dimensions wellness credit include participation in any school sponsored co-curricular club, group, or organization (see list in student handbook).

Independent Study Project

Grade Level: Junior/Senior

Length: One Semester

Credit: .50 Pass/Fail **Project may not be used to satisfy
a graduation requirement.**

Prerequisite: Team Leader and Director of Academic Programs
approval

<u>Team</u>	<u>Fall</u>	<u>Spring</u>
Mathematics	1180	1181
Computer Science	1182	1183
Science	1280	1281
Chemistry	1282	1283
Physics	1284	1285
Biology	1286	1287
English	1380	1381
Social Science	1480	1481
Foreign Language	1580	1581
Music	1680	1681
Art	1682	1683
Wellness	1780	1781
Academy	1880	1881

Independent Study projects enable students to investigate an approved academic topic of their choice under the sponsorship of a faculty advisor. The study may be started as early as the summer preceding the junior year; however, it must be completed by 2 weeks before the end of the semester. The process of this study is as important as the product: a journal-record and where appropriate an annotated bibliography must, therefore, precede submission of the final product, which may be experimental results, a performance, a lecture, a work of fine or applied art, or a paper. Interested students should pick up a packet of materials in the System for Partnership Initiatives Office. (The credit received for this project may not be applied toward graduation requirements.)

Senior Research Project

Grade Level: Senior

Length: One - Two Semester(s)

Credit: .50 - 2.00 Pass/Fail option

Prerequisite: Team Leader and Director of Academic Programs approval

<u>Team</u>	<u>Fall</u>	<u>Spring</u>
Mathematics	1190	1191
Computer Science	1192	1193
Science	1290	1291
Chemistry	1292	1293
Physics	1294	1295
Biology	1296	1297
English	1390	1391
Social Science	1490	1491
Foreign Language	1590	1591
Music	1690	1691
Art	1692	1693
Wellness	1790	1791
Academy	1890	1891

Senior Research Projects enable seniors to investigate an approved topic of their choice under the sponsorship of a faculty advisor. The project must be designed and appropriate approval granted before the close of the student's junior year.

Significant progress on the project must be demonstrated to the faculty advisor at the beginning of the student's senior year, at the close of the first quarter of that year, and at the close of the first semester. The project must be completed by the third quarter of the student's senior year. The process of this project is as important as the product: a journal-record/research notebook and an annotated bibliography must, therefore, precede submission of the final product, which may be a performance, a lecture, a work of fine art, or a paper.

Projects to be submitted for credit to more than one instructional team must be approved by all participating teams prior to the completion of the student's junior year. Each participating team will monitor the progress of the project at critical checkpoints.

The student's finished product will be presented to their project review committee during the second semester of the student's senior year for determination of credit. Students may be called upon to present the results of their research in other settings as well.