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CENTER FOR QUANTITATIVE AND QUALITATIVE RESEARCH METHODS

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Technical Report-Proposal. Prepared by the Educational Measurement and Statistics Faculty.

Technical Report-Proposal

CENTER FOR QUANTITATIVE AND QUALITATIVE RESEARCH METHODS

College of Education and Human Services (COEHS)

Southern Illinois University Carbondale (SIUC)

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Prepared by the Educational Measurement and Statistics Faculty:

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I. Introduction

The Educational Measurement and Statistics (EMS) program within the Educational Psychology department (EPSY) has held a central mission for SIUC. The mission of the EMS faculty includes teaching basic, intermediate, and advanced quantitative research classes for undergraduate and graduate students. In addition to these instructional duties, the EMS faculty has played a central role in terms of serving on Doctoral and Masters' committees within and outside the COEHS, statistical consulting, and externally funded activities. For example, one faculty member has been the evaluation consultant on 3 NSF grants including an IGERT training grant for the Colleges of Engineering, Science, and Liberal Arts (see Appendix A). Further, Dr. Rhonda Kowalchuk is currently a co-PI on a NSF STEM grant with the College of Engineering.

To demonstrate the centrality of the EMS program, the 2008-2011 enrollment data for the popular service courses **Basic Statistics, Inferential Statistics, and Multiple Regression (EPSY-402, 506, 507, respectively) on 1359 students indicates that over 95% (50%) of these students were from majors outside EPSY (COEHS).** In addition, the enrollment data associated with the Experimental Design (EPSY 508) course indicates that approximately 75% of the graduate students come from outside the COEHS. For more specific details, see Appendix B for a list of the program areas for students enrolled in EPSY 506 from 2008 to 2011.

The 2012 Program Changes Review Committee Report challenged SIUC to identify and eliminate course and program redundancies and other ways to improve efficient use of faculty resources. One of the areas suggested for close scrutiny was statistics e.g. "It is likely the math department alone, *or in combination with one or two other departments*, could deliver these courses in a more efficient manner." (p. 8).

Our review of the 2012-2013 Graduate Catalog found that several departments offer required research methods and statistics courses that seem redundant with current course offerings by the EMS program (see Appendix C). For example, within the COEHS, 6 departments (i.e., CI 500, EAHE 500, HED 526, REHB 504, SOC 511, WED 561) offer a Research Methods course similar to EPSY 505 (a new course offering as of fall 2010). Course listings of other colleges indicates that 11 departments offer similar Research Methods courses (e.g., CCJ 510A, GEOG 501, HIST 494, POLS 503B, PSYC 523, SOC 512, ABE 500A, ANS 500, PA 547, MFGS 505, MCMA 532). Other examples include: (a) Multivariate Statistics – 4 departments across SIUC offer a similar course (i.e., EPSY 580C, GEOG 510, PSYC 524, BA 575); and (b) Qualitative Research Methods – 5 departments across SIUC offer a similar course (i.e., EAHE 587, CCJ 518, POLS, 501, SOC 514, MCMA 534). There are numerous other examples of course redundancies.

In view of the above, we propose the creation of a Center for Quantitative and Qualitative Research Methods (CQQRM). It is our belief that the CQQRM would lead to (a) a reduction in course redundancy, (b) cooperative use of faculty expertise, (c) research collaboration, and (d) the potential for growth, development, and revenue generation. We subsequently describe the CQQRM in more detail.

II. The Center for Quantitative and Qualitative Research Methods (CQQRM)

The proposed CQQRM would be located within the COEHS as a separate degree granting unit, which would include the existing EMS Ph.D. program and the creation of Master's and Graduate Certificate programs. The CQQRM would serve as a center for SIUC, with both core and affiliated faculty, in terms of (a) delivering quantitative and qualitative courses, (b) consulting with an expanded laboratory facility (currently located in Wham 229), (c) facilitating research collaboration, and (d) providing state-of-the-art workshops for revenue generation.

Specifically, the revenue enhancing workshops would consist of 2–4 day specialized seminars on such topics as Structural Equation Modeling (SEM), Hierarchical Linear Modeling (HLM), Longitudinal Data Analysis, Statistical Computing, Growth Curve Modeling, etc. For example, Dr. Yanyan Sheng was involved in a two-day workshop on Item Response Theory (IRT) at the University of North Texas in 2008, and has provided training sessions on Bayesian Item Response models at national conferences in 2010 and 2011.

The CQQRM would require a minimum of 8 core faculty (6 quantitative and 2 qualitative) positions and approximately 10–12 affiliated (or courtesy/cross-listed) faculty from other departments from within and outside the COHES. This proposal is an analog to what is done at many other universities (e.g. the Departments of Statistics at Penn State, Illinois Urbana-Champaign, Stanford, and UCLA). It is our belief that the proposed CQQRM would deliver the quantitative and qualitative courses in a manner that would be consistent with the 2012 Program Changes Review committee report on the elimination of course redundancies. That is, the CQQRM in conjunction with the math department "could deliver these courses in a more efficient manner." (p. 8)

APPENDIX A
External Grant Activity

Organization: National Science Foundation (NSF-BCS 1009925)
Amount: $1,430,000
Title: Climate Change, Hydrology, and Landscapes of America's Heartland: A Multi-scale Natural-Human System
Principal Investigator: Christopher L. Lant, Department of Geography & Environmental Resources, College of Liberal Arts
Co-Principal Investigators: Nicklow, J.W., Schoof, J.T., & Secchi, S.
Evaluator: **Kowalchuk, R.K.**
Date: 08/01/2010 to 07/31/2014

Organization: National Science Foundation (NSF-DUE 0966274)
Amount: $597,591
Title: Leadership Development Program in Engineering and Technology
Principal Investigator: Bruce DeRuntz, College of Engineering
Co-Principal Investigators: Nicklow, J.W. & **Kowalchuk, R.K.**
Date: 07/07/2010 to 06/30/2014

Organization: National Science Foundation (NSF-DGE 0903510)
Amount: $3,198,836 ($599,999 in planning year)
Title: IGERT: Multidisciplinary, Team-Based Training in Watershed Science and Policy
Principal Investigator: Nicholas Pinter, Department of Geology, College of Science
Co-Principal Investigators: Lant, C., Chevalier, L., Whiles, M., & Baer, S.
Evaluator: **Kowalchuk, R.K.**
Date: 9/01/2009 to 08/31/2014

Organization: National Science Foundation (NSF-DUE 0622483)
Amount: $1,173,676 ($311,416 in year 5 contingent on availability of funds)
Title: Engineering and Technology Talent Expansion Program at SIUC
Principal Investigator: John W. Nicklow, College of Engineering
Co-Principal Investigators: Gupta, L., Mathias, J., Pericak-Spector, K., & Tezcan, J.
Evaluators: **Kowalchuk, R.K.**, & Lewis, E. (after implementation of the project in summer 2007, the evaluation was conducted by Dr. Kowalchuk)
Date: 9/15/2006 to 8/31/2011

APPENDIX B

Majors of Students Enrolled in EPSY 506, Inferential Statistics, for Calendar Years 2008-2011

Graduate Majors Outside the College of Education and Human Services	
PSYC	Psychology
FOR	Forestry
ZOOL	Zoology
MCSP	Molecular, Cellular & Systemic
FN	Food and Nutrition
ABE	Agribusiness Economics
BME	Biomedical Engineering
BA	Business Administration
PSAS	Plant, Soil, and Agric Systems
ANS	Animal Science
ECON	Economics
ECE	Electrical & Computer Engineer
MFGS	Manufacturing Systems
ME	Mechanical Engineering
CHE	Community Health Education
MATH	Mathematics
GENV	Geography & Environ. Resources
ALNG	Applied Linguistics
MTR	Media Theory & Research
GEOL	Geology
PLSS	Plant and Soil Science
MCMA	Mass Communication & Media Art
BA	Business Administration
AGSC	Agricultural Sciences
ANTH	Anthropology
ZOOL	Zoology
ECON	Economics
ECE	Electrical & Computer Engineer
ERP	Environmental Resources & Pol.
MCSP	Molecular, Cellular & Systemic

APPENDIX B Continued

Graduate Majors Within the College of Education and Human Services	
EPSY	Educational Psychology and Special Education
SPED	Special Education
CI	Curriculum & Instruction
REHAB	Rehabilitation
KIN	Kinesiology
BEHV	Behavior Analysis and Therapy
CDS	Communication Disorders & Sci.
REC	Recreation
WED	Workforce Educ & Development
MSED	Mathematics & Science Educ
EH-PHD	Education & Human Services, Concentration unknown
EDCI	Education (Curriculum & Instr)
EDEP	Education (Educational Psych.)
EDEA	Education (Educational Admin.)
EDHE	Education (Health Education)
EDWE	Education (Workforce Educ.)
REHAB	Rehabilitation

APPENDIX C

Selected Courses from Graduate Catalog 2012-2013

College of Education and Human Services

Educational Psychology (EPSY)

402-3 Basic Statistics. A master's level terminal statistics course. Emphasis on descriptive statistics and graphical representation of data. Includes a brief introduction to hypothesis testing procedure.	**505-3 Intro to Quantitative Research Methods**. This course is required of all students enrolled in the doctoral program of the College of Education and Human Services. It offers an introduction to the reading of quantitative research literature and the development of quantitative research methods that can be used to address areas of scholarly inquiry within the academic concentrations found in the College.
506-4 Inferential Statistics. Covers basic descriptive techniques such as central tendency, measures of variability and graphical presentation of data. In addition, hypothesis testing, analysis of variance, nonparametrics and simple linear prediction will be covered.	**507-4 Multiple Regression**. The general linear model is presented which allows for hypothesis testing including correlational analysis, analysis of variance and analysis of covariance. Non-linear relationships are presented. Emphasis is placed on testing the stated research hypotheses. Prerequisite: 506.
508-4 Experimental Design in Educational Research. Strategies of designing research studies and the analysis of data from studies using linear models are examined. Emphasis will be placed on internal and external validity and factors that affect power in variance designs including completely randomized designs, Latin square, repeated measures and analysis of covariance with each of the above designs. Prerequisite: 506 or equivalent.	**531-3 Principles of Measurement**. Intended to provide theoretical principles of measurement which are applicable to both teaching and research. Part of the course will be devoted to current issues in measurement and to practical applications to these theoretical principles. Prerequisite: 506.
533-3 Survey Research Methods. Overview of survey methods covering topics such as the purpose of survey research methods, the process of survey research, ethical considerations in survey research, questionnaire design and administration, sampling designs, data processing, and reporting of survey research. Students are expected to be familiar with basic descriptive statistics, inferential statistical procedures and principles of instrument construction/development. Prerequisite: EPSY 506 & EPSY 531 or equivalent.	**580-2 to 29 (3,3,3,3,2,3,3,3,2 to 6) Doctoral Seminar in Educational Measurement and Statistics**. A series of advanced seminars on statistics and measurement. Sections a through h may be taken only once each. Section i may be repeated as topics vary. (a) Advanced regression analysis. (b) Factor analysis. (c) Multivariate methods. (d) Nonparametric methods. (e) Evaluation methods. (f) Experimental design. (g) Advanced measurement theory. (h) Computer applications. (i) Selected topics.

Note: EPSY 580 courses taught in past 6 years include: Advanced Measurement Theory, Categorical Data Analysis, Multivariate Methods, Survey Methods, Advanced Experimental Design, Program Evaluation Methods, Factor Analysis, Monte Carlo Methods, Computational Statistics, Advanced Statistics.

Curriculum and Instruction (CI)

500-3 Introduction to Research Methods in Education. An introduction to research methodology as it is applied in carrying out educational studies. Basic skills of planning, executing and reporting educational research will be studied and applied, with the construction of a research proposal as a term project.	**582-3 Advanced Research Methods in Education.** The study and application of advanced skills used in planning, executing, reporting and utilizing educational research. Prerequisite: CI 500 or evidence of equivalent research competencies.

Educational Administration (EAHE)

500-3 Educational Research Methods. Introduction to educational research and the variant methodologies used in conducting studies within institutional settings. Both quantitative and qualitative approaches will be examined.	**587-3 Introduction to Qualitative Research**. This course introduces students to qualitative research in education. The course examines the foundations, design, methods and analysis of qualitative research. Course readings include both philosophical texts about the foundations and purposes of qualitative inquiry, and methodological readings about the hands-on application of research techniques.
594-3 Advanced Qualitative Research. This course is a doctoral-level seminar in qualitative research. The course builds on EAHE 587, "Introduction to Qualitative Research," by focusing on the design and implementation of an independent qualitative research project. As such, this course emphasizes research design, conceptualization and analysis. Course readings review some of the foundations of qualitative inquiry, and include texts that focus on research design and modes of qualitative analysis. Prerequisite: EAHE 587.	

Health Education (HED)

526-3 Research and Evaluative Approaches to Health Education. Introduction to research and evaluation. Includes survey and analyses of health testing and research/ evaluation procedures, uses and limitations of knowledge and attitude tests, behavioral inventories, checklists, questionnaires, interviews, and other techniques.	**533B-4 Foundations of Health Education II.** This course will provide a broad overview of quantitative research in health education, including research designs, research questions, assumptions, limitations, data collection methods, sampling, instrument development, and data analysis and interpretation. Discussion of health-related theories/ models and ethical considerations will be integrated throughout the course. Prerequisite: HED 533A or consent of instructor.

Rehabilitation (REHB)

504-3 Foundations of Rehabilitation Research. This course includes: the logic of scientific inquiry; the concepts of research questions and hypotheses; the notion of variables; the relationship among theoretical constructs, operationalism, and measurement instrument reliability and validity; the concepts of control, internal validity and casual inference; sampling methods and external validity; and experimental and descriptive research. Restricted to enrollment in Ph.D. degree program or consent.	**509-6 (3,3) Behavior Analysis Research Designs.** Focuses on behavior analysis research design and methodology. Three semester hours will be granted for each unit. (a) Single subject experimental designs; (b) Group experimental designs. Special approval needed from the instructor.
535-3 Behavioral Observation Methods. Behavioral targeting, observational recording techniques, and issues of validity and reliability of measurement relevant to rehabilitation will be examined. Prerequisite: previous or concurrent enrollment in either REHB 452, or REHB 503 or consent of instructor.	**578-3 Program Evaluation in Rehabilitation.** An analysis of the development and utilization of a program evaluation system in rehabilitation settings with focus given to system design, monitoring techniques and service program development. Students will be trained in the advanced practice of program evaluation techniques and their application to rehabilitation settings. Special approval needed from the instructor.

Social Work (SOCW)

532-3 Evaluation Research. This course focuses on the application of research methods especially in evaluating programs or program components in the area of concentration and to the practicum experience. Includes content on self-evaluation in practice. Prerequisite: SOCW 542 and an introduction to statistics course. Restricted to Master of Social Work students or consent of the School.	**511-3 Social Work Research.** This course emphasizes the importance of scientific inquiry within social work practice and covers the application of basic concepts of research methodology to social work including problem formulation, research design, sampling, measurement, and data analysis. Includes single-system methodology as it applies to social work practice in rural areas. Prepares students to conduct an individualized single-system project based on practice intervention with clients or systems in their practicum setting in the final semester of their studies. Prerequisite: an introduction to statistics course. Restricted to admission to the program

Workforce Education and Development (WED)

561-3 Research Methods. Basic research methods and techniques in the design, investigation and reporting of research studies relating to education for work. Prerequisite: WED 560. Restricted to Workforce Education and Development majors or consent of department.	**563-3 Training Measurement and Evaluation**. Evaluation systems and activities for evaluating training programs. Application of research methods and data analysis in the human resource development process, with concentration on assessing trainee reaction and planned action, learning, skill, business impact and return on training investment. Prerequisite: WED 463. Restricted to WED majors or consent of Department.
564-3 Program Evaluation for Work Education. Evaluation systems and activities for evaluating national, state, and local work education programs. Systems include programmatic accreditation and state agency evaluations. Activities include personnel, facilities, access and equity, community resources and community needs evaluations. Restricted to WED majors to consent of Department.	

College of Liberal Arts

Anthropology (ANTH)

455D-3 Quantitative Methods. Classic inferential statistics as well as resampling approaches and pattern recognition philosophy: chi square, t test, ANOVA, correlation and regression, nonparametric versus parametric methods, multiple regression, all involving diverse anthropological data examples. This course in combination with Ed. Psych 506 or other approved substitute satisfies a doctoral tool requirement. Does not count as a bioanthropology elective toward the M.A. degree.	

Criminology and Criminal Justice (CCJ)

510A, B(4,4) Research in Criminology and Criminal Justice. A two course sequence integrating research methods and data analysis in criminal justice and criminology. **(a)** Methods and Concepts. Principles and methods of scientific inquiry are examined. Special emphasis is applied to research design and data collection issues. **(b)** Data Analysis and Interpretation. Data management, univariate, bivariate and multivariate analyses, and specialized concerns with criminal justice data are emphasized. In this sequence, lab exercises including hands-on experience in the conduct of criminal justice research are featured. Pre- requisite: 510a is a prerequisite for CCJ 510b.	**517-3 to 6 Advanced Topics in Quantitative Research.** This course provides detailed coverage of quantitative analytic procedures used in criminology and criminal justice. Specific topics covered will vary (students should consult instructor). Sample topics: advanced ordinary least squares, time series analysis, structural equation modeling, and analysis of limited dependent variables. Prior knowledge of correlation and regression is essential. Pre- requisite: CCJ 510A and B.
518-3 Qualitative Research Methods. This course introduces students to the various types of qualitative research methods (interviewing, ethnography, in situ observation, case studies). It provides students with an epistemological foundation for understanding the nature and purpose of these approaches as well as opportunities for practicing these techniques. Prerequisite: CCJ 510a and b.	

English (ENGL)

501-3 Research in Composition. Seminar in qualitative and quantitative research methods in composition and its teaching. Prerequisite: enrollment in English graduate degree program or consent of department.	

Geography and Environmental Resources (GEOG)

501-2 Seminar in Geographic Research. Seminar approach to problems of completing background research design of project statements, identification of research methodology and completion of thesis/dissertation project statements. Prerequisite: graduate standing.	**510-4 Multivariate Techniques in Geography.** Introduction to matrices, vectors and linear equations; multiple regression and correlation, canonical correlation, multivariate analysis of variance and covariance, analysis of variance in two- and three-way designs, multiple discriminant analysis, classification procedures, introduction to elementary factors analysis. Examples and demonstrations of each method; basic introduction to computer applications of multivariate analyses. Prerequisite: graduate standing.

History (HIST)

494-3 Quantitative Research in History. An introduction to the application of quantitative data and social science methods to historical research.	

Linguistics (LING)

549-3 Research Methods in Linguistics and TESOL. This course examines basic concepts and principles of quantitative and qualitative methods in Linguistics and TESOL. It prepares students to critically read and understand related research as well as design and carry out their own research projects. It includes analyses of research articles, writing literature reviews, making informed decisions about	

appropriate methodology and data analyses procedures. Prerequisite: LING 505 or consent of department.	

Political Science (POLS)

500-9 (3,3,3) Political Methodology. Seminars in empirical research methods (a) Research design. Course covers quantitative and qualitative empirical studies of politics. (b) Introduction to Statistical Analysis. Topic include measurement, probability theory, statistical inference, and estimation for political science research (c) Advanced Statistical Analysis. This course covers regression and other statistical modeling in political science.	**501-3 Qualitative Methods.** Seminar in qualitative methodology and methods in political science.
503B-3Research Methods for Public Administrators. The course aims to familiarize students with analytical techniques and research methods used currently by public administrators. Provides an introduction to applied statistics and data analysis for problems of interest to public administrators. Restricted to enrollment in MPA graduate program or consent of the department.	**544-6 A, B (3,3) Program Analysis and Evaluation.** An examination of approaches and problems (a) the development and analysis of public policy alternatives and how they are used in governmental decision making; (b) the analysis and evaluation of governmental programs. Emphasis is placed upon use of analytical techniques to determine program impact and the use of evaluation in governmental decision making. Prerequisite: POLS 503B. Restricted to enrollment in MPA graduate program or consent of department.

Psychology (PSYC)

522-4 Experimental Design and Analysis. In-depth coverage of the rationale underlying the design and analysis of complex experimental designs used in psychological re-search. Restricted to Psychology graduate students.	**523-3 Research Methods in Applied & Professional Psychology.** Discussion of problems in experimental and quasi-experimental design, control and analysis that are encountered by researchers in applied and professional psychology. The course covers critical evaluation of internal, construct, and external validity and the application of randomized and non-randomized designs for causal inference. Passive-observational and qualitative designs are covered at the instructor's discretion. Examples of current research practice from applied, counseling and clinical psychology are reviewed. Restricted to graduate status in psychology or consent of instructor.
524-3 Multivariate Methods of Psychology. Detailed treatment of multiple-factor analysis and multiple regression analysis. Also includes introduction to other multivariate methods such as discriminant analysis and cluster analysis. Prerequisite: PSYC 522. Restricted to Psychology graduate student.	**525-3 Psychological Measurement.** Intensive coverage of such topics in test theory as item analysis, reliability, validity, problems of weighting in differential prediction, and problems in selection and classification. Prerequisite: PSYC 421 or consent of instructor.
529-3 Advanced Applied Multivariate Statistics. This course will introduce multivariate analyses such as structural equation modeling, hierarchical linear modeling and latent curve analysis, with additional topics addressed de- pendent upon student interest (e.g., missing data, categorical and/or dyadic data analysis). After presenting conceptual information on latent variable analysis, the course will focus on the application of advanced analytic techniques. Understanding of correlation and regression is essential for this course. Prerequisite: graduate level multivariate statistics course.	

Sociology (SOC)

512-4 Sociological Research and Design. Sociological research methods and design. Focus on research process: identification of the role of theory, formulation of research questions, research design and quantitative, qualitative, and mixed method data collection techniques. Connections between theory, research design and measurement decisions, and interpretation (answering research questions) are emphasized throughout. Includes practical and ethical issues, e.g. informed consent.	**526a-4 Statistical Data**. Provides a foundation in univariate and bivariate descriptive statistics, inferential statistics including hypothesis testing about population parameters and bivariate and multivariate relationships and measures of association for nominal, ordinal and interval-ratio variables, and an introduction to bivariate and multivariate correlation and linear regression (including concepts of causal modeling and control variables). Restricted to graduate standing
514-4 Qualitative Methodology. Focus on research strategies involving the systematic exploration, documentation and analytic description of social settings, interactions, meanings, lifeworlds and texts. Includes discussion of field observation, depth interviewing, oral histories/narratives, case studies, biographies and life histories, focus group interviewing, content analysis of written and visual data, historical/archival investigations, among other approaches.	**526b-4 Statistical Data analysis in Sociology II**. Provides in-depth instruction in multiple regression including assumptions of linear model, diagnostics and corrections for violation, exploratory factor analysis, using categorical dependent variables (logistic and multi-nominal regression), nonlinear relationships, interactions, and extensions to advanced techniques as time allows. Prerequisite: SOC 526a (or successful pass of proficiency test).

College of Agricultural Sciences

Agribusiness Economics (ABE)

500-6 (3,3) Agribusiness Economics Research Methodology. (a) Social science research methodology in agriculture, including defining research problems, hypothesis formation, specification of research design, survey methodology, source of data and development of research proposals. **(b)** A survey of applied techniques and procedures for developing and evaluating agricultural economic research models with an emphasis on multiple regression and time-series models. Prerequisite: Educational Psychology 506 or equivalent.	

Animal Science (ANS)

500-3 Research Methods in Agricultural Science. Experimental design and biometry as applied to biological and allied fields. Restricted to graduate students.	

College of Applied Sciences and Arts

Physician Assistant Studies (PA)

547-1-4 Research Methods and Evidence Based Medicine (EBM). This course focuses on scientific inquiry within the Physician Assistant practice, covering the application of basic research methodology including problem formation, research designs, sampling, measurement, data analysis technical writing and dissemination of research	

results, and research ethics. Students will also focus on developing evidence-based medicine (EBM) skills. Restricted to Physician Assistant majors.	

College of Business

Business Administration (BA)

574B-3 Advanced Research Methods II. This course is a practicum in advanced research methods. It will focus on analysis of data, interpretation of results and synthesis of conclusions based on a clear understanding of the objectives of research, the characteristics of data and techniques for manipulating data. Restricted to enrollment in College of Business and Administration graduate program or consent of department.	**575-3 Seminar in Multivariate Statistics.** This seminar in multivariate statistics will give doctoral students in Business Administration a theoretical and practical knowledge of multivariate methods such as cluster analysis, multiple regression, discriminant analysis, canonical analysis, etc., for the purpose of equipping them for dissertation work, and subsequent research for publication in the top academic business journals. Restricted to enrollment in College of Business and Administration graduate program or consent of department.

College of Engineering

Manufacturing Systems (MFGS)

505-3 Research Methods. The objective of this course is to familiarize the students with the methods needed in research. Emphasis is placed on how these methods can be applied in the manufacturing systems area. Topics include development of research proposals, use of statistics in the analysis and communication of the results. Restricted to enrollment in manufacturing systems program or consent of instructor.	

College of Mass Communication and Media Arts

Mass Communication and Media Arts (MCMA)

532-3 Quantitative Research Methods in Mass Communication. Identification of relevant research topics, critical evaluation of existing research literature, and development of a detailed research proposal. Emphasis on quantitative methods such as sampling, surveys, research de- sign, experiments, content analysis, and introductory statistics. Restricted to CMCMA major or consent of instructor or associate dean of graduate studies in Mass Communication and Media Arts.	**534-3 Qualitative Research Methods**. An introduction to the intellectual underpinnings, epistemology, and methodologies of qualitative research. The course focuses on critical and interpretive approaches to researching media industry structures, artifacts, audiences, and producers. Restricted to CMCMA major or consent of instructor or associate dean of graduate studies in Mass Communication and Media Arts.
537-3 Introduction to Communication Research. Reviews the basic knowledge of research and prepares students to understand, apply and interpret information, re- search and other published work. Covers elements of re- search, scales of measurement, sampling procedures, re- search process, qualitative and quantitative methods and writing research reports. Qualitative methods include case studies, focus groups and intensive interviews. Quantitative methods include surveys, experiments and content analysis. Introduction to use of elementary statistics and data analysis will give students a better understanding of empirical research. Objective is to prepare	

students for writing term papers, professional careers and the final critical inquiry research project. Restricted to MCMA major or con- sent of instructor or associate dean of Graduate Studies in Mass Communication and Media Arts.	

PROTOCOL FORM
Institute for Statistics and Methodologies

Charge:
To provide a vehicle, at the course level but possibly also at the program level, to address statistical and methodological issues relative to conducting research and educating students. Developing this Institute is consistent with our institution's mission to improve the quality of education and research and to streamline costs. The development of the Institute will be conducted under the auspices of COEHS.

Task Force (Development and Planning):
The Institute seeks to bring together researchers, educators and students from different disciplines/departments/programs to address the common issues of statistical education, training and application to a range of stakeholders. A key component of developing the Institute is to identify and possibly reduce redundant Statistics courses across the institution.

Redundant courses are similar courses that are offered by several departments or programs across our institution. They are similar because they cover the same material. Offering several versions of the same course is a waste of resources. Thus, eliminating redundant courses improves efficiency and reduces cost. Furthermore, eliminating identical courses reduces the confusion students might have relative the course offerings of our institution.

A task force of appropriate representatives should be selected to develop, organize, direct and implement a plan to achieve the desired outcomes of the creation of the Institute. The task force members assigned to formulate the Institute are as follows:

Keith Wilson	(College of Education and Human Resources) Chair
Todd Headrick	(College of Education and Human Resources)
Rhonda K. Kowalchuk	(College of Education and Human Resources)
Yanyan Sheng	(College of Education and Human Resources)
Jeff Beaulieu	(College of Agricultural Sciences)
Wanki Moon	(College of Agricultural Sciences)
Ed Workman	(College of Applied Sciences and Arts)
Suzanne Altobello	(College of Business)
Cheryl Burke-Jarvis	(College of Business)
Royce Burnett	(College of Business)
Pete Mykytyn	(College of Business)
Marcus Odom	(College of Business)
Mark Peterson	(College of Business)
Bhaskar Bhattacharya	(College of Science)
Greg Budzban	(College of Science)
Kathy Pericak-Spector	(College of Science)
John Reeve	(College of Science)
George Burruss	(College of Liberal Arts)
Paul Etcheverry	(College of Liberal Arts)
Tobin Grant	(College of Liberal Arts)
Subhash Sharma	(College of Liberal Arts)
Paul Welch	(College of Liberal Arts)
Rachel Whaley	(College of Liberal Arts)

When *developing* the plan, the task force should be guided by issues that affect students, faculty and infrastructure.

When *organizing and directing* the plan, the task force should recognize that the creation of the Institute should not deemphasize or discourage existing or future collaborations with or between other disciplines.

When *implementing* the plan, the task force should be prepared to evaluate the extent the proposed change will affect administrative, operational and academic activities. It should also look at the issues associated with creating the Institute. Collectively, these steps will ensure the task force remains focused on improving the quality of education and research while simultaneously reducing costs. Some suggested items of inquiry that can provide a focus on the change and its resulting consequences include the following which have been broken down relative to Institution Creation, Academic and Administrative/Operation viewpoints:

Creation

- Will the Institute be degree granting
- Will the Institute have a director
- How will faculty participate in the Institute
- How much time do faculty commit to the Institute
- How are departments compensated for faculty time lost to the Institute
- What portion of the faculty members salaries are subsidized by the Institute
- Do faculty receive credit for work done in the Institute during the tenure/promotion process
- Can the Institute hire non-tenure track faculty
- Will the Institute have its own space
- Can graduate students be affiliated with the Institute

Academic

- How will the creation of the Institute affect undergraduate and graduate academic programming and curriculum
- How will the creation of the Institute affect student related activities such as College and University selection, retention, attrition, graduation and post graduate educational options
- How will the creation of the Institute address issues surrounding the declining enrollment levels of its participate departments
- How will the creation of the Institute affect the extent students will chose Statistics as a minor
- How will the creation of the Institute affect the extent students will chose the participant departments as a minor
- How will the creation of the Institute affect faculty affairs issues such as promotion and tenure and teaching loads
- How will the creation of the Institute affect current and future accreditations
- How will the creation of the Institute affect donors
- How will the creation of the Institute affect alumni

Administrative/Operation

- How will the creation of the Institute affect inventory and facility allocations
- How will the creation of the Institute affect perceived funding opportunities
- How will the creation of the Institute affect the use of and/or need for technology

- What particular areas of Statistics and Methodology appear to be up and coming and might merit investment
- What particular areas of Statistic and Methodology appear to be outdated and might warrant divestment
- Will the Institute be viewed as a cross-disciplinary unit
- To what extent are decisions about future investments in the Institute driven by new funding opportunities
- To what extent could the decision to invest in new research ideas be tied to attracting new student interest in the Institute

Task Force (Evaluation)

The task force should also create a framework to assess the extent the development of the Institute produces the desired outcomes of innovation and collaboration, efficiency, cost savings and improvements in student performance. Accordingly, it should identify metrics to assess performance in the short (0 – 1 year), medium (2 – 4 years) and long term (> 4 years). Some suggested metrics, by category, are as follows:

Innovation and Collaboration:
Amount of Grant Funding (size and number of grants)
Amount of Co-authored Articles
Amount of Patents
Amount of Consulting Agreements
Amount of Juried and Refereed Articles
Amount of Books
Amount of Citations
Faculty Service – National Offices Held
Faculty Service – Journal Editorship

Cost Savings/Revenue Enhancements:
Reduced Administrative Costs
Sharing of Resources (Economies of Scale)
Access to Equipment
Shared Overhead Cost Recovery
Improved Reallocation of Overhead

Efficiency:
Student Teacher Ratio
Increase in Class Offerings
Increased Credit Hours

Student Outcomes:
Increased Enrollment
Enhanced Marketability of Student
Amount of Undergraduate Degrees
Amount of Graduate Degrees
Amount of Majors and Minors
Amount of Course Offerings
Amount of Student Awards
Amount of Student Honors
Retention Rates
Graduation Rates
Employment Placements Rates
Future Education Placements and Rates
Amount of Student Internships

Institute for Statistics and Methodologies

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