

BUSI 6240. Applied Multivariate Statistics. 3 hours.

Applications of multivariate statistical procedures involving data reduction techniques and analyzing multidimensional relationships in business research. Topics include multivariate analysis of variance, discriminant analysis, logistic regression, exploratory factor analysis, cluster analysis, multidimensional scaling and conjoint analysis. Prerequisite(s): BUSI 6220.

BUSI 6280. Applications in Causal and Covariance Structure Modeling. 3 hours.

Application of CSM techniques to the analysis of behavioral data in business research. "Hands-on" practice using LISREL to examine measurement and structural models containing directly observed and latent variables. Provides a solid working knowledge of how to conceptualize measurement and structural models, the standard LISREL and SIMPLIS syntax for estimating these models, and proper interpretation of LISREL output. LISREL assumptions, limitations, tricks and traps are explored. Specific topics include reviews of causality and path analysis, covariance algebra, creating path diagrams and structural equations, LISREL notation and syntax, considerations in model identification, estimation, evaluation and interpretation. Specific application areas include confirmatory factor analysis and its extensions, causal models with directly observed and latent variables. Course also takes a critical look at the analysis of experimental data, modeling quadratic and interaction terms, analysis of ordinal and other non-normal variables. Prerequisite(s): BUSI 6220, BUSI 6240 (may be taken concurrently), and BUSI 6450. Students must have a thorough knowledge of multiple regression, factor analysis, ANOVA and ANCOVA. Students are also expected to have a solid grasp of the fundamentals of research design, including how to assess the internal and external validity of research designs, as well as how to assess the validity and reliability of multi-item behavioral measures. Exposure to matrix algebra is encouraged.

BUSI 6450. Business Research Methods. 3 hours.

Designed to introduce doctoral students to the methods and measurements of business research, including scientific method, research design and measurement. Focus on topics that provide doctoral students with a better understanding of theoretical frameworks used in research. Form and structure of explanations, laws and theories used in research are examined and discussed. Prerequisite(s): DSCI 5180 or equivalent.

BUSI 6480. Advanced Issues in Research Design. 3 hours.

Experimental and quasi-experimental approaches to solving problems using the scientific method. Observation, generalization, explanation and prediction using experimentation and statistical inference. Statistical principles in experimental design including ANOVA and MANOVA techniques. After completing the course, students are prepared for conducting experiments. Prerequisite(s): BUSI 6450 or equivalent.

BUSI 6900. Special Problems. 1–3 hours. Open to graduate students who are capable of developing a problem independently. Problem chosen by the student and developed through conferences and activities under the direction of the instructor. Prerequisite(s): approved applications for special problems/independent research/dissertation credit must be submitted to the CoB Graduate Programs Office prior to registration.

Business Computer Information Systems

see Information Technology and Decision Sciences

Business Law

see Finance, Insurance, Real Estate and Law

Chamber Music

see Music

Chemistry

Chemistry, CHEM

CHEM 5010. Introduction to Graduate Teaching and Research. 2 hours. Topics include university policies, safety in the laboratory, first aid techniques, teaching techniques, audio-visual facilities and operation, use of the university libraries, university/departmental computational facilities, PC facilities and use, and maintaining a research journal. Required for all full-time first-year graduate students. Prerequisite(s): graduate standing in the chemistry department.

CHEM 5200. Physical Chemistry. 3 hours. A survey of selected topics in physical chemistry, including thermodynamics, mechanics, statistical mechanics, heterogeneous and homogeneous equilibria, and chemical kinetics. Prerequisite(s): CHEM 3520 or consent of department.

CHEM 5210. Advanced Physical Chemistry. 3 hours. The basic concepts of quantum mechanics are emphasized utilizing several models to aid in the description, such as the square well model, the rigid rotator, the hydrogen atom and the hydrogen molecule ion. The applications of quantum mechanics to chemical systems are considered in terms of resonance, wave mechanics, perturbation and variation methods. Prerequisite(s): pass exemption examination in physical chemistry, or CHEM 5200.

CHEM 5380. Organic Chemistry. 3 hours. A survey of organic chemistry involving a systematic study of classes of reactions with an integration of fact and theory. Prerequisite(s): CHEM 2380 or consent of department.

CHEM 5390. Selected Topics in Analytical Chemistry. 3 hours. Topics of current interest, which vary from year to year. Prerequisite(s): consent of department. May be repeated for credit as topics vary.

CHEM 5450. Advanced Techniques in Analytical Chemistry. 1–3 hours. Methods and instrumentation currently used in the analysis of materials. Presented in modular units of approximately three to four weeks duration. Typical subjects include fundamentals of liquid and gas-liquid chromatography, atomic absorption spectroscopy, polarography and related electroanalytical methods and X-ray fluorescence spectroscopy. Credit: 1 semester hour per module. May be repeated for credit as topics vary. Laboratory fee when laboratory involved.

CHEM 5460. Surveys of Modern Analytical Chemistry. 3 hours. A survey of modern analytical methods with emphasis on instrumental techniques and data handling, including separation methods, electrochemical methods and spectroscopy. Prerequisite(s): consent of department.

CHEM 5500. Physical Organic Chemistry. 3 hours. The mechanisms of organic reactions and the effect of reactant structures on reactivity. Prerequisite(s): pass exemption examination in organic chemistry, or CHEM 5380.

CHEM 5530. Materials Chemistry. 3 hours. Application of quantum chemical principles to understanding the general behavior of materials. Course will include semiconductors, metals, catalysts and "nano-designed" materials (e.g., quantum wells). Prerequisite(s): CHEM 3520 or equivalent, or consent of department.

CHEM 5560. Inorganic Chemistry. 3 hours. A survey of inorganic chemistry involving a systematic study of atomic structure, structure and bonding in inorganic and organometallic compounds, and representative inorganic reactions. Prerequisite(s): consent of department.

CHEM 5570. Advanced Analytical Chemistry. 3 hours. This course covers an advanced treatment of analytical chemistry, including the following topics: advanced separation methods, analytical applications of electrochemistry and spectroscopy, experimental design, sampling and data analysis. Prerequisite(s): pass exemption examination in analytical chemistry, or CHEM 5460.

CHEM 5610. Selected Topics in Physical Chemistry. 3 hours. Topics of current interest, which vary from year to year. Prerequisite(s): consent of department. May be repeated for credit as topics vary.

CHEM 5620. Selected Topics in Inorganic Chemistry. 3 hours. Topics of current interest, which vary from year to year. Topics include ligand field theory, physical methods in inorganic chemistry, group theory and molecular symmetry, and recent advances in transition and non-transition metal chemistry. Prerequisite(s): consent of department. May be repeated for credit as topics vary.

CHEM 5640. Selected Topics in Organic Chemistry. 3 hours. Topics of current interest, which vary from year to year. Prerequisite(s): consent of department. May be repeated for credit as topics vary.

CHEM 5650. Kinetics of Chemical Reaction. 3 hours. Reactions and reaction rates; determination of rate laws for simple and complex reactions; deduction of reaction mechanisms; reaction energetics; chain reactions; theories of elementary reaction rates; reactions at extreme rates; extra-kinetic probes of mechanism. Prerequisite(s): consent of department.

CHEM 5660. Computational Chemistry and Biochemistry. 3 hours. (2;3) Introductory course covering the latest techniques for the study of reactions of interest to chemists and biologists via the use of molecular modeling and quantum mechanical simulations. Prerequisite(s): consent of department.

CHEM 5700. Thermodynamics. 3 hours. Reversible and irreversible thermodynamics of gases, liquids, solids and solutions; free energy relationships of ideal and non-ideal solutions; introduction to statistical calculation of thermodynamic properties. Prerequisite(s): consent of department.

CHEM 5710. Advanced Inorganic Chemistry. 3 hours. An advanced study of the interrelation of structure, bonding and reactivity of inorganic and organometallic compounds; basic applications of molecular symmetry and group theory to chemical problems. Prerequisite(s): pass exemption examination in inorganic chemistry, or CHEM 5560.

CHEM 5800. Procedures and Materials for Science Instruction. 3 hours. (2;4) Problems, techniques and procedures for classroom and laboratory experiences based on current science education research. Recommended for students who desire secondary teacher certification in a science field. Field experience in the public schools is a required component. Prerequisite(s): completion of undergraduate science courses required for certification and consent of department.

CHEM 5810. Selected Topics in Chemistry Education. 3 hours. Topics of current interest that vary from year to year. Prerequisite(s): consent of department. May be repeated for credit as topics vary.

CHEM 5820. Studies in Chemistry Education: Pedagogical Materials and Curriculum Development. 3 hours. (2;1) Examines national trends in science education curriculum, explores issues associated with materials development and testing as it applies to chemistry curriculum, and engages students in implementing the protocols used within the discipline focusing on chemical demonstration activities.

CHEM 5840. Chemistry Behind the Elements. 3 hours. The fundamentals of the universe are based on principles of periodicity as revealed in the descriptive chemistry of the elements. Among the areas covered are the characteristics of the families of elements, when and where each element was discovered and by whom the discoveries were made. Also includes the impact these discoveries have had on society and technological advances. Pertinent industrial applications of the elements and materials derived from them are presented.

CHEM 5880. Learning Theories in Chemistry Education. 3 hours. Survey of chemistry education and preparation for teaching and learning as they have developed, along with pertinent research findings and design from the current literature.

CHEM 5900-CHEM 5910. Special Problems. 1–3 hours each. For students capable of developing a problem independently through conferences and activities directed by the instructor. Problem chosen by the student with the consent of the instructor.

CHEM 5920-CHEM 5930. Research Problems in Lieu of Thesis. 3 hours each. An introduction to research; may consist of an experimental, theoretical or review topic. A paper conforming to recommendations outlined in the "Handbook for Authors of Papers in the Journals of the American Chemical Society" must be submitted for credit in each course.

CHEM 5940. Seminar in Current Chemistry. 1 hour. Colloquia covering current topics in chemistry. Required of all full-time graduate students in each term/semester of graduate residence. Prerequisite(s): senior standing. May be repeated for credit. Pass/no pass only.

CHEM 5950. Master's Thesis. 3 or 6 hours. May be repeated for credit. To be scheduled only with consent of department. 6 hours credit required. No credit assigned until thesis has been completed and filed with the graduate dean. Continuous enrollment required once work on thesis has begun.

CHEM 5960. Science Institute. 1–6 hours. Courses for students accepted by the university for enrollment in special institute courses. May be repeated for credit, not to exceed a total of 6 hours in each course.

CHEM 6010. Seminar for Doctoral Candidates. 3 hours. Demonstration of competence in a specific area of chemistry (analytical, organic, physical, inorganic) as evidenced by criteria established by the faculty of each discipline. May be repeated for credit. Six credit hours required.

CHEM 6900-CHEM 6910. Special Problems. 1–3 hours each. For doctoral students capable of developing a problem independently through conferences and activities directed by the instructor. Problem selected by the student with the consent of the major professor.

CHEM 6940. Individual Research. 1–12 hours. Doctoral research of independent nature. May be repeated for credit. Pass/no pass only.

CHEM 6950. Doctoral Dissertation. 3, 6 or 9 hours. To be scheduled only with consent of department. 12 hours credit required. No credit assigned until dissertation has been completed and filed with the graduate dean. Doctoral students must maintain continuous enrollment in this course subsequent to passing qualifying examination for admission to candidacy. May be repeated for credit.

CHEM 6990-6991. Individual Research. 1–3 hours each. For postdoctoral fellows to further training and research experience in developing and solving research problems independently. Prerequisite(s): consent of department. May be repeated for credit. Pass/no pass only.

Chinese

see *Undergraduate Catalog*

Communication Studies

Communication Studies, COMM

COMM 5080. Introduction to Graduate Study and Research in Communication Studies. 3 hours. Broad perspective on communication studies content areas.

COMM 5085. Pedagogy and Communication. 3 hours. Study of pedagogy and communication. Examines philosophical, theoretical and practical issues faced by university instructors.

COMM 5180. Qualitative Research Methods in Communication. 3 hours. Qualitative research methodologies for communication studies research.

COMM 5185. Quantitative Research Methods in Communication. 3 hours. Experimental and quantitative techniques usable in research in communication.

COMM 5220. Organizational Communication. 3 hours. Study of the transmission of information and ideas within an organization with emphasis on the problems encountered in the business world.

COMM 5221. Crisis and Disaster Communication. 3 hours. Theoretical and practical examination of communication during crises and/or disasters. The role of communication in crisis/disaster planning, real-time crisis response, and post-crisis recovery and sensemaking.

COMM 5223. Communication and Aging. 3 hours. Examination of the role of communication in the aging process. Theories related to communication and aging are explored in a variety of contexts including intergenerational interactions, interpersonal relationships, family relationships, health care interactions, the workplace, mass media, political communication and cultural contexts.

COMM 5225. Interpersonal Communication. 3 hours. Contemporary research and theory in the study of communication patterns found at various stages of normal interpersonal interactions.

COMM 5226. Seminar in Health Communication. 3 hours. Introduction of communication theories and approaches related to health care in interpersonal, organizational and mass communication settings.

COMM 5227. Seminar in Intercultural Communication. 3 hours. Provides an opportunity to explore existing and emerging issues, theories and practices in intercultural communication.

COMM 5240. Rhetoric and Mediated Culture. 3 hours. Rhetorical consequences of mediated discourse on American culture. May include critical and cultural approaches for theorizing the rhetorical creation and maintenance of political identity, social movements, campaign or war rhetoric, theories of mediated persuasion and political influence, ideological and feminist criticism of media, the rhetorical aspects of popular culture, and theories of aesthetic rhetorics.

COMM 5260. Group Performance. 3 hours. Historical and contemporary theoretical approaches to group performance in performance studies and related disciplines; practical experience in scripting and directing group performance.

COMM 5265. Performance Methods. 3 hours. Survey of 20th- and 21st-century performance methods. Examination of performance methods as critical discourses and how they impact teaching, performance and the means of writing about performance.

COMM 5325. Communication Theory. 3 hours. A survey of scientific and humanistic perspectives on the communication process and social contexts in which it occurs.

COMM 5340. Rhetorical Methods. 3 hours. The use of critical and rhetorical theories in the investigation and evaluation of rhetorical acts and artifacts.

COMM 5345. Rhetorical Theory. 3 hours. An examination of significant rhetorical theories and theorists.

COMM 5360. Performance Criticism. 3 hours. Theories of value and evaluation in performance studies and their influence on the practice of criticism, in general, and performance criticism, in particular. Contexts range from everyday acts of evaluation to formal, public instances of criticism.

COMM 5365. Performance Theory. 3 hours. Historical and contemporary theoretical approaches to performance studies, including theories from related disciplines and their impact on theory and practice in performance studies.

COMM 5420. Seminar in Computer-Mediated Communication. 3 hours. Examination of communication in technologically mediated environments through principles derived from cognitive and social psychology. Emphasis on theory and research in computer-mediated communication with special emphasis on CMC as an area leading to original research.