

6460. Cellular Neuroscience. 3 hours. Detailed examination of the nervous system, specifically neuroanatomy, neurophysiology, neurochemistry and sensory transduction. Prerequisite(s): consent of department.

6480. Systems Neuroscience. 3 hours. A detailed examination of the major brain functions, including sensation, perception, movement, emotions, language, thought and memory. Prerequisite(s): BIOL 6460 or equivalent, or consent of department.

6500. Brain Development and Plasticity. 3 hours. Development of the nervous system from early embryo through adulthood; neurogenesis, cell migration, differentiation, synaptogenesis; similarities among mechanisms of ontogeny, learning and regeneration; emphasis on experimental approaches. Prerequisite(s): BIOL 4750 or 6480 or equivalent is recommended.

6540. Neurochemistry. 3 hours. Chemistry of the nervous system and behavior; pharmacology, anatomy and physiology of neurotransmitter systems; current techniques in neurochemistry and neuropharmacology. Prerequisite(s): BIOL 4750 or 6460 or equivalent, and one term/semester of undergraduate biochemistry are recommended.

6600. Advanced Molecular Biology. 3 hours. Genetic structure and regulation of gene expression in prokaryotic and eukaryotic organisms; mechanisms of gene action, gene/enzyme relationships and metabolic control; biochemical manipulation and characterization of genetic macromolecules. Prerequisite(s): BIOL 4570 or 5340 or equivalent. (Same as BIOC 6600.)

6620. Advanced Cell Biology. 3 hours. Structure and function of animal and plant cells with emphasis on cell membranes, cytoplasmic organelles and the nucleus; readings in current literature. Prerequisite(s): biochemistry, BIOL 3510/3520 or equivalent, or consent of department. (Same as BIOC 6620.)

6900-6910. Special Problems. 1–3 hours each. Independent study or laboratory research for doctoral students. Problem must be approved by major professor. No more than 6 hours may be counted toward a degree.

6940. Individual Research. 1–12 hours. Doctoral research of independent nature. Number of hours counted toward the PhD determined by major professor and graduate advisory committee. Pass/no pass only.

6950. Doctoral Dissertation. 3, 6 or 9 hours. To be scheduled only with consent of department. 12 hours of 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. Prerequisite(s): approved dissertation research proposal must be filed with department graduate office prior to registration.

Molecular Biology

Related Courses Offered at Texas Woman's University

Students who wish to enroll in the following TWU courses may do so through a cross-registration mechanism administered by the Toulouse School of Graduate Studies at UNT.

BACT 6534. Plasmids as Vectors for Recombinant DNA. 4 hours. Molecular structure and replication of plasmids. Utilization of plasmids for isolation, characterization, and expression of prokaryotic and eukaryotic genes. One lecture, 6 laboratory hours a week.

BACT 6544. Viruses as Vectors for Recombinant DNA. 4 hours. Replicative cycle of viruses utilized in recombinant DNA technology. Viruses used to isolate genetic material from other sources and characterization of the recombinant DNA by size, restriction endonuclease mapping and nucleic acid sequencing. One lecture, 6 laboratory hours a week.

BIOL 5123. Biostatistics. 3 hours. Advanced studies in biometric systems, experimental design and data analysis. 3 lecture hours a week. Prerequisite(s): 12 hours of biology and permission of instructor.

BIOL 5653. Human Development. 3 hours. Fundamentals of human embryology, the anatomy of human development and pathology of development. Emphasis on normal and pathological aspects of human gestation. Lectures, films, student reports and tests. 3 lecture hours a week.

BIOL 5703. Radiation, Protection and Dosimetry. 3 hours. Interactions of ionizing radiations and matter, radiation instrumentation, determination of radiation, case and principles of radiation protection. 3 lecture hours a week. Prerequisite(s): one year of physics and permission of instructor.

BIOL 6334. Advanced Cell Biology. 4 hours. Survey of current understanding of biogenesis, architecture and function of cellular organelles. The cell cycle and regulation of cell growth. 4 lecture hours. Prerequisite(s): permission of instructor.

BIOL 6513. Molecular Biology. 3 hours. Survey of current understanding of DNA structure, organization, chromosome replication, gene transcription, ribosome assembly and translation. Emphasis is on molecular processes and their regulation in both prokaryotes and eukaryotes. 3 lecture hours a week. Prerequisite(s): CHEM 5613 and CHEM 5623 or permission of instructor.

ZOOL 5423. Endocrinology. 3 hours. Advanced studies of biology and biochemistry of the glands of internal secretion. 3 lecture hours a week. Prerequisite(s): ZOOL 4243.

Business Administration, College of

Business Administration, Interdepartmental, BUSI

5190. Administrative Strategy. 3 hours. Capstone course providing the integration of functional areas of business administration. Requires students to determine policy at the general- or top-management level. Students address strategic organizational problems and the optimization of the total enterprise. Course includes the use of lectures, case analysis and special topics. This course must be taken in the student's last term/semester of course work.

5200. Professional Ethics and Corporate Governance.

3 hours. Examination of professional ethics from both a philosophical and business perspective. Ethical reasoning, moral character and moral decision making provide a framework for examining the importance of ethics in an individual's personal life and professional career. Exploration of the concept of corporate governance and the direction business entities are taking in establishing a sound governance framework. Designed to meet the ethics requirement of the Texas State Board of Public Accountancy, as well as the ethics educational needs of the larger business community. Prerequisite(s): ACCT 5130 or consent of instructor.

5410. Creative Thinking and the Business Idea.

3 hours. Introduces the professional MBA to students with the major themes developed for the program. The course discusses the essential of entrepreneurship, risk taking and market opportunity. Students are expected to develop a major discussing the market opportunities for a business product or service. Corequisite(s): FINA 5170.

5420. Assessing the Business Opportunity.

3 hours. Investigates what a business professional needs to conduct a thorough industry, market and competitor analysis and to determine the degree of match between the opportunity and the firm. Topics developed are mission and vision, understanding corporate strategy and structure, market segments and demand factors, etc. Corequisite(s): must take ACCT 5130 in the same term/semester. Prerequisite(s): BUSI 5410.

5430. Designing, Creating and Managing the Delivery Systems.

3 hours. Focuses on the essentials of designing, creating and managing the business firm's delivery system. Topics include designing value into products and services, creating and managing distribution channels, quality management ideas, process planning and facility layout. Corequisite(s): BCIS 5120. Prerequisite(s): BUSI 5420.

5440. Growing Business in Changing Environments.

3 hours. Studies the essentials of managing the business firm within evolving environments. Concepts required for monitoring and control, along with tools for decision making. Sets the foundation for other topics such as organizational structures, redesign, threats and opportunities, and adjusting delivery and communications systems to dynamic environments. Corequisite(s): DSCI 5180. Prerequisite(s): BUSI 5430.

5900. 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 COBA Graduate Programs Office prior to registration.

5920-5930. Problems in Lieu of Thesis.

3 hours each.

6100. Seminar in University Teaching for Business Administration.

3 hours. Topics in teaching methodologies. Focus on those topics that provide doctoral students with practical teaching tips to help them become more effective teachers. Different learning styles are addressed and frameworks, theories and teaching models are presented that help doctoral students continually improve their teaching throughout their career.

6220. Applied Regression Analysis. 3 hours. Applications of multivariate regression analysis, canonical correlation analysis and nonparametric statistical procedures to issues in business

research involving multivariate data. Topics include building, evaluating and validating a regression model; analyzing models using hierarchical regression, contrast coding, partial correlations and path analysis; and comparing parametric and corresponding nonparametric tests. Prerequisite(s): DSCI 5180 or equivalent and BUSI 6450 (may be taken concurrently).

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.

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, 6240 (may be taken concurrently), and 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.

6450. Business Research Methods.

3 hours. Designed to introduce PhD students to the methods and measurements of business research, including scientific method, research design and measurement. Prerequisite(s): DSCI 5180 or equivalent.

6460. Foundations of Scientific Inquiry.

3 hours. Seminar in scientific inquiry for doctoral students in business administration. Focus on topics that provide doctoral students with a better understanding of theoretical frameworks used in business research. Form and structure of explanations, laws and theories used in business research are examined and discussed. The seminar is intended to be a rigorous course that exposes doctoral students to an array of topics for understanding basic business research.

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.

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 COBA 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

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.