

4855. Visual Art Studies: Secondary Art Curriculum and Assessment. 3 hours. Preadolescent and adolescent creative development and theory applied to curriculum and assessment. Prerequisite(s): ART 3850, 3855; concurrent enrollment in ART 4850 required; concurrent or previous enrollment in ART 4830 and ART 4845 required.

4880. Interior Design: Space Planning V. 3 hours. (2;4) Application of comprehensive problem-solving techniques, including research, programming, concept development, space planning, code review, design, detailing and systems integration for a large commercial space. Prerequisite(s): ART 4842.

4900-4910. Special Problems. 1-3 hours each. Prerequisite(s): consent of instructor.

Astronomy

see Physics

Behavior Analysis

Behavior Analysis, BEHV

2110. Behavior Principles and Personal Relations. 3 hours. Describes behavior principles that underlie social interactions among individuals. Identifies behavior patterns conducive to satisfying and socially productive interactions and patterns likely to be destructive to others as well as to oneself. Makes use of behavior principles to understand how behavior patterns change in relation to the behavior of others in the social environment. Students use behavior principles to understand the role of their own behavior in productive and in destructive interactions. May not be substituted for any course required for major.

2300. Behavior Principles I. 3 hours. Introduction to applied behavior analysis. Behavior is examined as a part of the natural world, with primary focus on principles describing relations between operant behavior and its consequences. The principles of reinforcement, extinction, differential reinforcement and punishment are related to naturally occurring events and to experimental and intervention procedures. Basic measurement concepts introduced. *Satisfies the Social and Behavioral Sciences requirement of the University Core Curriculum.*

2700. Behavior Principles II. 3 hours. Behavioral principles describing relations between behavior and antecedents. Principles of operant stimulus control, discrimination and generalization, stimulus equivalence and establishing operations are related to laboratory procedures, to occurrence in everyday life and to intervention techniques. Principles of respondent (Pavlovian) conditioning related to laboratory procedures, everyday occurrence and their applications in behavioral interventions. Prerequisite(s): BEHV 2300 or 3150.

3000. Applied Behavior Analysis and Autism I: Basic Techniques. 4 hours. (3;1) Describes basic treatment techniques involved in behavioral treatment of children with autism. Students learn behavioral characteristics and etiology of autism and the history of applied behavior analysis in autism, and complete extensive supervised practical training. Prerequisite(s): BEHV 2300 or 3150.

3150. Basic Behavior Principles. 3 hours. Basic principles underlying behavior change in all fields; experimental underpinnings of science of behavior; focus on the relations among events that account for the acquisition and maintenance of individual behavior.

3200. Science and Human Behavior. 3 hours. Surveys field of behavior analysis. Examines human behavior as a natural phenomenon and examines human social institutions as the product of human behavior. Examines relations among reflexive and operant processes and provides examples of the analysis of complex cases.

3440. Data Collection and Analysis. 4 hours. (3;1) Methods of observing and measuring behavior and for analyzing behavioral data. Topics include dimensional properties of behavior, techniques of direct observation, methods of summarizing data, preparing graphs and analyzing graphed data. Introduces single-subject experimental designs including reversal, multiple baseline and multielement designs. Prerequisite(s): BEHV 2300 or 3150, and 2700.

3550. Behavior Change Techniques. 4 hours. (3;1) Designing and implementing behavior change techniques. Topics include shaping, discrimination training, instructional and imitation training, and differential reinforcement. Behavior change techniques will be applied in such settings as classrooms, institutions, workshops and group homes and their effectiveness evaluated. Prerequisite(s): BEHV 2700.

3660. Survey of Applied Behavior Analysis Literature. 3 hours. Comprehensive survey of recent literature in multiple areas of application. Topics include applications in classroom behavior, skill acquisition, developmental disabilities, rehabilitation, interpersonal behavior, autism, community behaviors, family interactions, organizational behavior management and others. Prerequisite(s): BEHV 2300 or 3150.

3770. Building Skills with Behavior Technology. 4 hours. (3;1) Acquisition of complex repertoires for persons with developmental disabilities. Topics include selection of target behaviors, planning intervention procedures, evaluating results and ensuring maintenance of skills. Ethical and aesthetic considerations. Prerequisite(s): BEHV 3440 or consent of instructor.

4000. Applied Behavior Analysis and Autism II: Program Development. 4 hours. (3;1) Describes curricular, research and development issues involved in the scientist-practitioner model of applied behavior analysis interventions for young children with autism. Students design data collection systems, identify variables affecting behavior, and evaluate program efficacy. Students conduct upper-level program design and implementation, and complete extensive practical training. Prerequisite(s): BEHV 3000.

4010. Functional Analysis and Problem Behavior. 4 hours. (3;1) Introduction to function-based treatment approaches for problem behavior. Topics include anecdotal assessment, descriptive assessment, experimental analysis and various courses of treatment derived from functional assessment, with emphasis on the importance of consistency between procedures and the functional properties of problem behavior. Prerequisite(s): BEHV 3440 or consent of instructor.

4310. Behavior Principles and Self-Management. 3 hours. Uses behavior principles to understand and deal with problems in self-management. Self-assessment of goals, options and necessary trade-offs is followed by a behavior analysis of the nature of the self-management problem. Each student applies behavioral principles to develop and implement an individual self-management plan to reach a particular short-term goal. Prerequisite(s): BEHV 2300 or 3150.

4400. Organizational Behavior Management. 3 hours. Describes theory and techniques of applying behavior analysis principles to solve performance problems and design more effective workplaces. Focuses on pinpointing critical work behaviors, measuring work performance, analyzing the contingencies responsible for the performance, implementing and evaluating intervention programs involving stimulus control, feedback and reinforcement systems to improve employee performance. Discusses organizational behavior management as a philosophy and as a tool for improving job performance in any organization.

4750. Capstone Course in Applied Behavior Analysis. 3 hours. Integrates and extends basic behavioral principles and behavior change procedures to address professional issues including behavioral assessment and goal development, selection of appropriate behavior change procedures, ethical and legal responsibilities, and technology transfer. Prepares students for professional certification in applied behavior analysis. Prerequisite(s): senior status and a minimum of 18 hours in behavior analysis.

4800. Topics in Behavioral Applications. 3 hours. Focus is on the complex relations between behavior and the environment in specific kinds of settings. Topics include applications in institutional settings and work environments in public and private sectors, business and industry. May be repeated for credit as topics vary. Prerequisite(s): BEHV 2300 or 3150.

4900. Special Problems. 1-3 hours. Prerequisite(s): consent of instructor.

Bilingual and English as a Second Language

see Teacher Education and Administration

Biochemistry

see Biological Sciences

Biological Sciences

Biochemistry, BIOC

2000. Vistas of Biochemistry. 1 hour. Current concepts and possible future trends in biochemistry. May be repeated a maximum of three times for credit.

2900-2910. Introduction to Biochemical Research. 1-3 hours each. Individualized laboratory instruction. Students may begin training on laboratory research techniques. Prerequisite(s): CHEM 1430 (may be taken concurrently) and consent of instructor. For elective credit only; may not be substituted for required chemistry courses.

3621. Elementary Biochemistry. 3 hours. Chemistry of biomolecules; amino acids, proteins, enzymes, carbohydrates, lipids, nucleotides, nucleic acids, vitamins and coenzymes; metabolism of biomolecules, generation and utilization of energy. Prerequisite(s): one term/semester of organic chemistry. Counts toward chemistry minor for biology majors when taken concurrently with BIOC 3622. For students needing one term/semester biochemistry course; admission to the biology/biochemistry major, or consent of department. May not be used in the degree if credit is earned in BIOC 4540 or 4550.

3622. Elementary Biochemistry Laboratory. 1 hour. (0;3) Laboratory techniques for BIOC 3621. Prerequisite(s): concurrent enrollment in BIOC 3621. May not be used in the degree if credit is earned in BIOC 4560.

4540. Biochemistry I. 3 hours. Chemistry and biochemistry of carbohydrates, lipids, amino acids and proteins, and nucleic acids; biochemical energetics, enzyme catalysis, vitamins and coenzymes, and their interrelationships in energy-producing cycles and pathways. Prerequisite(s): CHEM 2380 and admission to the biology/biochemistry major, or consent of department. May not be used in the degree if credit is earned for BIOC 3621. May not be repeated at the graduate level as BIOC 5540.

4550. Biochemistry II. 3 hours. Continuation of 4540. Metabolic pathways in biosynthesis and degradation of lipids, nucleic acids, proteins and carbohydrates; photosynthesis, nitrogen cycle, and metabolic regulation. Prerequisite(s): BIOC 4540 or consent of department. May not be repeated at the graduate level as BIOC 5550.

4560. Biochemistry Laboratory. 2 hours. (1;3) Analysis and characterization of amino acids, peptides, enzymes, lipids, nucleic acids, carbohydrates, and metabolic pathways and processes. Techniques include a variety of chromatographic methods, electrophoresis, UV-vis spectroscopy and radiochemistry. Prerequisite(s): BIOC 4540 (may be taken concurrently). May not be used in the degree if credit is earned for BIOC 3622. May not be repeated at the graduate level as BIOC 5560.

4570. Biochemistry and Molecular Biology of the Gene. 3 hours. Mechanisms and regulation of genetic expression, chromosome replication, mutagenesis and DNA repair, and gene cloning in prokaryotic and eukaryotic systems. May not be used to satisfy minor requirements in chemistry. Prerequisite(s): at least one of the following: BIOL 3510/3520, 3450 or BIOC 4540. (Same as BIOL 4570.)

4580. Molecular Biology and Biotechnology Laboratory. 2 hours. (0;5;0) Experiments in recombinant DNA techniques, gene regulation and other areas of molecular biology. May not be used to satisfy major or minor requirements in chemistry. Prerequisite(s): credit for or concurrent enrollment in either BIOC 4570 or BIOL 4770, or consent of department. (Same as BIOL 4580.) May not be repeated at the graduate level as BIOC or BIOL 5580.

4900-4910. Special Problems. 1-3 hours each. Prerequisite(s): CHEM 3220 or equivalent, and consent of directing professor.

4930. Special Problems. Individual study without laboratory. Prerequisite(s): junior or senior standing and approval of supervising faculty member and/or consent of department.

4940. Honors Research in Biochemistry. 3 hours. Advanced original independent research supervised by a faculty member in the biological sciences. For students interested in pursuing careers in research or medicine. Prerequisite(s): 3.25 GPA or better in the sciences, at least 12 hours of biology and 16 hours of biochemistry/chemistry, junior or senior standing and departmental approval.

4950. Honors Thesis in Biochemistry. 3 hours. A continuation of BIOC 4940 involving advanced original independent research culminating in a written report supervised by a faculty member in the biological sciences. The results are written in standard thesis format and presented orally. For students interested in pursuing careers in research or medicine. Prerequisite(s): BIOC 4940 and departmental approval.