

**The Department of Natural and Behavioral Sciences/Mathematics** houses the following academic departments:

Biology  
Chemistry  
Mathematics and Computer Science  
Psychology

***Majors offered by the Division of Natural and Behavioral Sciences/Mathematics***

Biology—Teaching and Non-teaching Tracks  
Chemistry  
Computer Science  
Mathematics—Teaching and Non-Teaching  
Psychology

***Minors offered by the Division of Natural and Behavioral Sciences/Mathematics***

Biology  
Chemistry  
Mathematics  
Computer Science  
Psychology

**Course Descriptions**

**Biology Program**

BI 100. Biological Science (3); F, S

An introductory study (for non-majors) of cell structure and function, reproduction, development, genetics, metabolism, evolution and ecology of living things. Prerequisites: Math, English, Reading 099.

BI 101. Principles of Biology (4); F, S

Principles of the molecular and cellular basis of life, cellular reproduction, morphology, physiology, development, patterns of inheritance, evolution, behavior, and ecological principles. Prerequisites: Math, English, and Reading 099.

BI 125. General Zoology (4); S

A survey of the animal kingdom with emphasis on the evolution, taxonomy, anatomy, and natural history of selected vertebrates and invertebrates. Prerequisite: BI 101.

BI 127. General Botany (4); F

A survey of the plant kingdom with emphasis on the structure, classification, phylogeny, physiology, reproduction, economic importance, and identification of plants. Prerequisite: BI 101.

BI 185. Human Biology (3); S

Human Biology introduces to the students the anatomy and physiology of the human body. All systems of the body will be discussed with regard to normal and abnormal functioning. The course will include a detailed examination of such issues as tobacco and drug use, genetics, aging, cancer, sexually transmitted diseases, etc. Students will gain an understanding of the role that humans play in the biosphere including how human activities threaten ecosystems, and ways to lessen our impact. Prerequisites: Bi 100 or BI 101

BI 203. Human Physiology (4); S

A study of functions of vertebrate organ systems with emphasis on homeostatic mechanisms. Special emphasis is placed on the circulatory, respiratory, digestive, excretory, reproductive, nervous, endocrine, and muscular systems. Prerequisites: BI 101, 125, and 127.

BI 204. Human Anatomy (4); F

A study of the structure and function of organs and organ systems of the human body with emphasis on skeletal, muscular, nervous, endocrine, circulatory, respiratory, digestive, reproductive, and excretory systems. Prerequisites: BI 101, 125, and 127.

BI 205. Histology & Biological Microtechniques (4); F

A study of the microscopic anatomy of mammalian cells, tissues, and organs, with emphasis on structure and functional relationships. Laboratory work includes microscopic study of various types of tissues and histological techniques useful in biological research. Prerequisites: BI 101, 125, and 127.

BI 316. Evolutionary Biology (3); F

A study of the history of evolutionary biology, the history of living organisms, and mechanisms of evolutionary change (including variation, mutation, natural selections and adaptation, and molecular genetics), and human evolution. Prerequisites: BI 101, 125, and 127, MA 110 and 130.

BI 322. Comparative Anatomy of Vertebrates (4); S A study of major organ systems of the vertebrate body with emphasis on phylogenetic relationships and evolutionary changes. Laboratory work includes study of dog-fish shark, mud puppy, and cat. Prerequisites: BI 101, 125, and 127.

BI 321. Developmental Biology (3); S

This course is a study of the fundamental principles of developmental biology in animals and plants. These principles are illustrated through an overview of the early and late embryonic development of selected animals and plants. This course also includes a consideration of the influence of the environment on development and the role of development in evolution. The medical implications of developmental biology will be discussed and related to developmental disorders.

BI 326. Ecology (4); S

A study of the structure and function of ecosystems with reference to energy flow, nutrient cycling, population growth, and regulation. Prerequisites: BI 101, 125, and 127.

BI 328. Cell Biology (4); F

A study of the molecular basis of cell structure and function with emphasis on subcellular components, the organization of macromolecules into cellular organelles, membrane function, enzyme function, energetics, cellular metabolism, protein synthesis, cell division, cell motility, and regulatory mechanisms. The laboratory will include exercises on cell culture, cell fractionation, the use of spectrophotometry in the identification and characterization of cellular macromolecules, enzymes and enzyme kinetics, and western blotting to identify proteins. Prerequisites: BI 101, 125, 127 and CH 101-102. Recommended: CH 221.

BI 354. Plant Physiology (4); S

A course studying all aspects of plant functions with emphasis on growth, metabolism, and reproduction. Students will study current knowledge from refereed journals and will participate in laboratories designed to illustrate concepts discussed in class. Prerequisites: BI 101, 125, 127, 328.

BI 365. Methods and Materials in Teaching Secondary School Biology (3); F

A thorough study of the materials and methodology of teaching secondary school biology. Attention to recent developments in the use of multimedia, instructional techniques, and materials for instruction given. Required: 30 hour Professional Practicum Experience. Prerequisite: Admission to the Teacher Education Program.

BI 405. Bioethics Colloquium (1); F, S

The Bioethics Colloquium focuses on ethical concerns in research, medicine, and the environment. The course may include discussion of abortion, euthanasia, use of animals in research, informed consent, confidentiality, bioengineering, stem cell research, pesticide use, disposal of nuclear or hazardous wastes, and many more timely topics. Prerequisites: BI 101, 125, and 127.

BI 423. Genetics (4); S

The chemical nature of genetic material, its transmission, mode of expression, and mechanism of gene action. Emphasis is placed on Mendelian inheritance, linkage, multiple alleles, molecular genetics, control of gene expression, gene mutation, population genetics, and genetic diseases. Prerequisites: BI 101, 125, and 127. Recommended: BI 328.

BI 424. Microbiology (4); S

A study of microorganisms with emphasis on classification, morphology, physiology, biochemical activity, microbial diseases, and immunity. Special emphasis is placed on microbial genetics, host defense mechanisms, the

immune response, the microbiology of food and water, and microbial ecology. Prerequisites: BI 101, 125, 127 and CH 221.

BI 426. Immunology (3); F

A study of the immune system and of molecular, cellular, and genetic bases of immunity to infectious agents. Emphasis is placed on the immune response, humoral and cellular immunity, hypersensitivity, tumor immunology, transplantation, and immunodeficiencies. Prerequisites: BI 101, 125, and 127, 328, and CH 221.

BI 427H. Biotechnology (4); S

A laboratory-oriented course designed to integrate the principles and techniques of biotechnology. Topics covered include cell and tissue culture, isolation and purification of proteins, plasmid isolation, DNA restriction enzyme analysis, genetic engineering of microorganisms, monoclonal antibody technology, enzyme-linked immunoassay, gel electrophoresis, and blotting techniques. Prerequisites: BI 101, 125, 127 and CH 101-102.

BI 428. Molecular Biology (3); F or S

A study of molecular processes and genetic regulation in both prokaryotic and eukaryotic cells. Emphasis is placed on structure and function of proteins and nucleic acids, replication, transcription and translation of genetic material, regulatory mechanisms, gene expression, and genetic engineering. Prerequisites: BI 101, 125, 127, 328, and CH 221.

BI 431. Special Problems in Biology Research (1-3); F/S Laboratory investigation of special research problems in biology. Prerequisites: BI 101, 125, 127, MA 130, CH102 and junior or senior standing.

BI 432. Medical Terminology (3); S

A study of biomedical terms that describe the human body, its functions, its normal state, and its abnormal state. Emphasis is on improving communication skills of students majoring in the health sciences. Prerequisites: BI 100 or BI 101

BI 442. Senior Seminar (1); F/ S

A course consisting of an extensive literature search followed by a written report and formal oral presentations of current information on biological topics of interest. Students will gain experience in evaluating scientific literature and presenting scientific papers. Prerequisite: Senior Standing.

BI 459. Independent Study (3); F or S

Independent reading and research. Prerequisite: junior or senior standing.

## **Department Of Chemistry**

### **Course Descriptions for the Department of Chemistry**

SC 103. Physical Science (3); F, S

A semester course for non-science majors. The course deals with those concepts of physics, chemistry, astronomy, geology, and meteorology necessary to the basic understanding of today's world. Two hours of lecture and two hours of laboratory each week. Co-requisite: Math 99.

CH 100. Introduction to Chemistry (3); F, S

This course presents elementary principles of chemistry such as chemical quantities, matter and energy, measurements and calculations, and chemical reactions. The overall objective of the course is to prepare students who have not had any chemistry at the high school level for CH 101-102 College Chemistry and Qualitative Analysis. Three hours of lecture per week with no laboratory component. Some class lectures will have demonstrations in which Laboratory Experiments are used to illustrate principles of chemistry. Prerequisites: None.

CH 101-102. College Chemistry and Qualitative Analysis (8); Both, F,S

This course deals with the basic concepts of chemistry including atomic theory, properties of elements and molecules, solution equilibria, acid-base chemistry, thermodynamics, kinetics, and separation principles of analytical chemistry. Three hours of lecture and three hours of laboratory per week. Prerequisites: CH101, MA110 and one year of high school chemistry or the passing of a diagnostic examination in chemistry; CH102, CH101 and MA110.

CH 221-222. Organic Chemistry (8); CH221, F; CH222, S

A study of the properties, preparation, reactions and characterization of carbon compounds. Three hours of lecture and four hours of laboratory each week. Prerequisites: CH101-102 for CH221 and CH221 for CH222.

CH 223. Quantitative Analysis (4); F, S

A course in which the principles of chemical equilibrium are applied to the quantitative determination of the components of mixtures. Laboratory work includes volumetric analysis, gravimetric analysis, and an introduction to electrochemical methods. Samples analyzed may include environmental pollutants and food additives. Two hours of lecture-discussion and four hours of laboratory per week. Prerequisite: CH101-102.

CH 224. Chemical Instrumentation (4); F,S

A study of the application of modern electronic and optical instruments to qualitative and quantitative analysis. Emphasis is placed on chromatography, spectrophotometry, and electrochemistry. Two hours of lecture and four hours of laboratory per week. Prerequisites: CH222 and CH223, and PY222.

CH 326. Biochemistry (4); S

A study of the chemistry of carbohydrates, amino acids, proteins, enzymes, lipids, and nucleic acids, metabolic pathways generating and storing energy, and gene expression. Discussions of important areas of current biochemical research are incorporated into the course. Three hours of lecture and three hours of laboratory each week. Prerequisite: CH222.

CH 427. Chemistry Research (1-3); F,S

A research project that includes a search of the literature pertaining to a research problem and laboratory research. A major report about the research project is required which may include a poster and an oral presentation and a major written laboratory report that describes the work done by the student. The student arranges a research project with one of the faculty members of the Department of Chemistry. A total of 4 credit hours are required for chemistry majors. Prerequisite: Completion of the sophomore year of study.

CH 427H. Frontiers in Research in Biochemistry (3); F

This course presents topics concerning some of the latest achievements in important areas of biochemical research which have led to breakthroughs in the understanding of basic biochemical processes. Three hours of lecture per week. Prerequisites: CH 222.

CH 428H. Biochemical Research Techniques (3); F, S

This course provides training in the use of experimental techniques used in biochemical research, including protein and DNA electrophoresis and spectrophotometric enzyme assays. Two hours of lecture and four hours of laboratory each week. Prerequisites: CH221-222.

CH 433. Special Topics (3); F, S

A discussion course pertaining to current topics in chemistry. Topics may include the role of pesticides as environmental estrogens and the role of CFC's in the depletion of stratospheric ozone. Prerequisite: Consent of Instructor.

CH 442. Senior Seminar (1); S

Seniors majoring in chemistry will conduct a literature search on a current research topic in chemistry and present a seminar on it. Prerequisite: Senior Chemistry majors only.

CH 443-444. Physical Chemistry (8); CH443, F; CH444, S

The subjects covered in these courses are the fundamental laws governing matter in the gaseous, liquid, and solid state, the laws of thermodynamics and their applications to chemistry, an introduction to statistical thermodynamics, properties of solutions, phase equilibria, chemical kinetics, and an introduction to quantum mechanical principles. Three hours of lecture and four hours of laboratory each week. Prerequisites: CH223,

CH224, MA221, MA 222, MA223 and PY221-222.

CH 445. Inorganic Chemistry (4); S

This course deals with the study of metals; their behaviors and roles in the biological system, acid-base chemistry, chemical bonding, atomic and molecular theory, and an introduction to group theory. There are three hours of lecture and three hours of laboratory each week. Prerequisites: Chemistry 101, 102, 443, 444, Mathematics 222, 223, and Physics 221-222.

#### CH 446. Food Chemistry (4); S

This course applies modern objective instrumental tests and subjective taste testing evaluation to analyze chemical components of food involved in processes such as nutrient composition during ripening of fruits and vegetables, and texture degradation, post harvest losses of vitamins, minerals, pigments, and flavor compounds during food processing and storage. Consideration is given to functional properties and biochemical mechanisms of nutrients. Two hours of lecture and four hours of laboratory each week. Prerequisite: Chemistry 222 or consent of the instructor.

#### CH 460. Independent Study (3); F, S

The course provides an opportunity for students to perform an independent study project in chemistry following guidelines provided by Bennett College. Open to junior and senior students. Prerequisite: Consent of the Department of Chemistry.

#### . Courses Descriptions for Computer Science

#### CS 100. Computer Applications (3); F, S

This course is designed to provide a comprehensive knowledge of computer operating systems and applications. Extensive hands-on activities are used to equip students with the skills required to enhance productivity in both academic and industrial sectors. Learning activities and projects are focused on word processing, spreadsheet, database, desktop publishing, presentation graphics, the Internet and Web page design. Prerequisites: None.

#### CS 101. Introduction to Computer Science (3); F, S

Offers a broad overview of computer science designed to provide students with an appreciation for and an understanding of the many different aspects of computer science. Topics include an introduction to programming languages, algorithmic problem solving, networks, graphics, and an overview of the social context of computing. No background in computer science is assumed or expected. The course is intended for both students who expect to major or minor in computer science as well as for those not planning on taking additional course work. Prerequisites: Mathematical preparation sufficient to take MA 110.

#### CS 102. Discrete Structures (3); S

Introduces the foundations of discrete mathematics as they apply to computer science, focusing on providing a solid theoretical foundation for further work. Topics include functions, relations, sets, simple proof techniques, Boolean algebra, propositional logic, digital logic, elementary number theory, and the fundamentals of counting. Prerequisite: Mathematical preparation sufficient to take MA 130.

#### CS 202. Database Management (3); S

Provides the student with an in-depth experience using spreadsheet and database system development software to manage data. Prerequisite: None.

CS 205. Computer Programming 1 (3): F, S

Introduces the fundamental techniques of programming as a foundation for more advanced study of computer science. Considerable attention is devoted to developing effective software engineering practice, emphasizing such principles as design, decomposition, encapsulation, procedural abstraction, testing, and software reuse. Topics include standard programming constructs, problem-solving strategies, the concept of an algorithm, and fundamental data types. Prerequisites: CS101 and MA110 or consent of instructor.

CS 206. Computer Programming II (3); F, S

Builds on the foundation provided by CS205 to provide students with algorithm development and programming experience using more advanced features such as structured data types, pointers, abstract data type, and recursion. The course also emphasizes effective software engineering practices, including incremental development and systematic testing. Prerequisite: CS205

CS 301. Computer Organizations (3); F

Bridges the gap between computer programming and computer science. The course covers the organization of computer at assembly level. The course also introduces fundamentals of assembly language programming. Prerequisite: CS206.

CS 302. Computer Architecture (3); S

Introduces the concept of computers and information systems by presenting the process of computation as a hierarchy of virtual machines, beginning with the hardware and moving upward through various levels of increasingly sophisticated software. This course outlines the facilities provided by each virtual machine, along with the mechanisms and software tools that lead to the realization of the hierarchy. Prerequisite: CS301.

CS 303. Data Structures (3); F

A study of data structures and algorithm analysis. Topics include implementation of abstract data type such as lists, stacks, and queues and trees; storage management, and searching and sorting techniques, and measuring complexities of programs in terms of time and space. Prerequisites: CS 206, MA201.

CS 304. Org. of Programming Languages (3); S

An introduction to the structure of programming languages. Formal specification of syntax and semantics; structure of algorithms, list processing, string manipulation, data description, and simulation languages; basic data types, and program structure. Prerequisites: CS 301. Co-requisite: CS 302. Offered in alternate years.

CS 305. Computer Systems (3); S

A course to extend the understanding of the internal behavior of computers. It includes an overview of computer operating systems, structures, machine

language, preservation of data, symbolic coding and assembly language, systems, and utility programming. Prerequisite: CS 301, Co-requisite: CS 302.

CS 324. Research Techniques with Computers (3); S

A presentation of the concepts of descriptive and inferential statistics with utilization of the computer in the analysis of data. Prerequisite: MA 222 and a programming language. Offered in alternate years.

CS 405. Theory of Computability (3); S

A course covering mathematical definitions of programming systems, Turing machines, Markov algorithms, theorems on equivalence of programming systems, unsolvability results, Godel's incompleteness theorem, and the size and complexity measures in programming systems. Prerequisite: CS 303. Offered in alternate years.

CS 430. Special Topics in Computer Science (1-3); F, S

An investigation of special topics in computer science. Prerequisite: consent of instructor.

CS 440. Numerical Computer Methods (3); S

An introduction to numerical methods including these topics: floating point computation, systems of linear equations, approximation of functions and integral, the single nonlinear equation, and the numerical solution of ordinary differential equations. Prerequisite: MA 222 and CS 205. Offered in alternate years.

CS 442. Computer Science Seminar (3); S

A capstone course integrating the knowledge and abilities gained through the other computer related and general education courses in the curriculum within a comprehensive system development project, a case study, and/or other research projects. The student must be a senior majoring in computer science.

CS 460. Independent Study in Computer Science (3); F, S

This course involves studying advanced computer science topics under the guidance of a faculty member and writing a paper. It is open to students who have demonstrated a high-degree of academic ability and self-motivation for independent reading and research. Prerequisites: Consent of the instructor.

### ***Course Descriptions for Mathematics***

MA 99. Basic Mathematics (3); F, S

A course designed to raise the level of competency and performance in mathematics necessary for success in the regular freshman mathematics program. Topics covered are basic mathematical operations, elementary algebra, elementary analytic geometry, and measurement. This course provides instruction and practice in basic mathematics in preparation for Mathematics 110. Admission to the course is made on the basis of placement score, SAT or ACT

scores, and high school background. Mathematics 99 does not fulfill the college mathematics requirement.

MA 110. College Algebra (3); F, S

A course covering real numbers; inequalities; absolute value; functional notation; linear functions; quadratic functions; polynomial functions; rational functions; and radical functions. Pre-requisites: A satisfactory score on placement examination and SAT or ACT score, or satisfactory completion of MA 99.

MA 120. Finite Mathematics (3); F, S

A course covering linear equations, matrices, linear programming, sets, probability, and statistics. Prerequisites: Completion of MA 110 or satisfactory score on placement examination and SAT or ACT.

MA 130. Pre-calculus (3); F, S

Exponential and logarithmic functions, composition of functions, and inverse functions, trigonometric functions, trigonometric identities, the trigonometric form of complex numbers, DeMoivre's theorem, and polar coordinates are covered. Pre-requisites: Completion of MA 110 or satisfactory score on the placement examination and SAT or ACT.

MA 201. Discrete Structures (3); S

A course designed primarily for computer science students. Topics include production to matrix theory, combinatorics, probability, game theory, Boolean Algebra, and graph theory/networks. (Same as Computer Science 102) Prerequisite: consent of the instructor.

MA 221. Calculus I (4); F, S

A presentation of the concepts and applications of analytical geometry and differential and integral calculus, including polynomials and trigonometric functions, limits, derivatives, and an introduction to the definite integral. Pre-requisites: MA 130 or the consent of the instructor, based on high-school background and satisfactory performance on the SAT, ACT, or placement examinations.

MA 222. Calculus II (4); F, S

A presentation of the concepts and applications of differential and integral calculus, including applications of integration, differentiation and integration of the transcendental functions, integration techniques, indeterminate forms, and plane curves. Prerequisite: MA 221.

MA 223. Calculus III (4); F

A presentation of the concepts and applications of infinite series and multivariate calculus, including vectors, functions of several variables, partial derivatives, multiple integral, and vector calculus. Prerequisite: MA 222.

MA 300. Problem-solving (1); F, S

A course designed to help students with problem-solving in mathematics courses and other analytical courses and to provide preparation to take the Mathematics Competency test, and a variety of standardized tests involving quantitative thinking.

MA 307. Mathematics for Elementary Teachers (2); F

A course providing analysis of elementary mathematics from both the physical and theoretical viewpoints, with emphasis given to the relationship of mathematical concepts to learning, including concrete models, experimentation, and exploration. Prerequisite: MA 120 or 130.

MA 324. Probability and Statistics (3); F, S

A presentation of the mathematical theory of probability and the concepts and methods of descriptive and inferential statistics, with the utilization of the computer in the analysis of data. Prerequisite: MA 222. Offered alternate years.

MA 330. Linear Algebra (3); F

A study of systems of linear equations, vector spaces, linear transformations and their representation by matrices and the algebra of polynomials over a field. Prerequisite: MA 221 or consent of instructor.

MA 331. Modern Geometry (3); F

A study of Euclidean and non-Euclidean geometries Prerequisite: Mathematics 221 or consent of instructor. Offered in alternate years.

MA 332. Differential Equations (3); S

A study of methods of solution and application of ordinary differential equations. Prerequisite: MA 222. Offered in alternate years.

MA 333. Abstract Algebra (3); S

A study of the basic concepts of abstract algebra, including set theory, groups, rings, integral domains, and fields. Prerequisite: MA 221 or consent of instructor. Offered in alternate years.

MA 335. Real Analysis (3); F

A course covering the calculus of functions of a single real variable, with a unified treatment of the theory of convergence as applied to sequences, functions, infinite series, and integrals. Prerequisite: MA 223.

MA 363. Materials and Methods in Teaching Middle Grades Mathematics (3); F, S

A thorough study of the materials and methodology of middle grades mathematics, including presentation of special materials for exceptional learners. Prerequisites: Admission to Teacher Education Program. Practicum required: 30 hours.

MA 364. Materials and Methods in Teaching Sec. School Math (3); F

A thorough study of the materials and methodology of secondary mathematics, including presentation of special materials for the exceptional learner. Prerequisite: Prerequisites: Admission to Teacher Education Program. Practicum required: 30 hours.

MA 430. Special Topics in Mathematics (3); S.

A course covering advanced topics in mathematics, including applied mathematics, complex analysis or applied statistics. Prerequisites: MA 223 or consent of instructor.

MA 440. Numerical Analysis (3); S

A course involving numerical solutions of polynomials, approximations of functions, systems of linear equations, quadrature, and numerical solutions of ordinary differential equations, together with error analysis of computations of the computer. Prerequisite: CS 201 and MA 222 or equivalent.

MA 442. Senior Seminar (3); S

A seminar that provides enrichment in various mathematical areas and serves as an introduction to research. The student must be a senior, majoring in mathematics

MA 460. Independent Study in Mathematics (3); F,S

This course involves studying advanced mathematical topics under the guidance of a faculty member and writing a paper. It is open to students who have demonstrated a high-degree of academic ability and self-motivation for independent reading and research. Prerequisites: MA 333 and MA 335 or consent of the instructor.

Course Descriptions for Physics

PY 201 AND 202. Physics for the Biological Sciences (4); F, S

A two semester sequence for the biological sciences and any student wishing a general education in physics. The course includes a laboratory and covers mechanics, caloric and kinetic theory, electromagnetism, wave dynamics, and introductory nuclear physics. Prerequisites: MA 110 or an introductory college algebra course for PY 201 and MA 120 or MA 130 or an intermediate college algebra course for PY 202.

PY 221 AND 222. Calculus-based Physics (4); F, S

A two semester sequence for students in physics that utilizes calculus in the mathematical presentation. The first semester will present mechanics including fluids and heat, while the second semester will emphasize electro- magnetism including currents and light. A laboratory is included in each semester. Prerequisites: MA 221 for PY 221 and MA 222 for PY 222.

**Course Descriptions for Psychology**

PS 100. Psychological Science (3); F, S, as needed This course is designed for students not majoring or minoring in psychology. The course will provide an

overview of the core concepts in the discipline of psychology. Topics covered are the search for direction, improving academic performance, roots of happiness, the potential effects of stress, coping, self-regulation, self-presentation, friendship and love, marriage and intimate relationships, gender and behavior, careers and work, and development and expression of sexuality. Prerequisite(s): None.

PS 101. General Psychology: (3); F, S

A survey of the areas of study within psychology, with an emphasis on the scientific method, empirical studies and differing perspectives within the field. Among the topics covered are psychological pioneers, learning, memory, perception, consciousness, development, social psychology, abnormal behavior, and therapy. Prerequisite(s): none.

PS 254. Statistics for Psychology with Laboratory (3); F Introduction to basic statistical procedures and their application to psychology research questions. Specific topics include descriptive statistics, including frequency distributions, measures of central tendency and variability, and correlational measures. Additional topics include an introduction to probability theory and statistical inferences, including sampling theory and hypothesis testing. An additional emphasis is placed on nonparametric and parametric tests of statistical hypotheses and the use of computers in the analysis of data. Prerequisite(s): PS 101 and Math 120 or above.

PS 274. Research Methods with Laboratory (3); S

This course covers various techniques for applying the scientific method to behavioral research. Students will learn about observational, correlational, and experimental research designs, ethical issues in research, and the interpretation of psychological data. The function of these designs will be demonstrated in the laboratory while investigating relevant psychological phenomena. Appropriate statistical techniques will be used to analyze the data from these labs. Several research papers and a research proposal following the American Psychological Association model are required. Some data collection occurs outside of class and/or during a separate two-hour lab period each week. Prerequisite(s): PS 101 and PS 254.

PS 300. Orientation to Psychology (1); F,S

All psychology students are required to enroll in this initial course. The course will focus on career options for psychology majors and minors; finding information for topics that relate to psychology; communication skills for psychology; behavioral traits of successful students; and students will be mentored by upper-level students.

PS 301. Developmental Psychology I (Child Development) (3); F

An overview of the orderly changes in behavior that occur with the passage of time from conception until adolescence, with an emphasis on child development (ages 0-12) from the physical, cognitive, and psychosocial perspectives. Prenatal development and parenting issues are covered as part of this overview. Prerequisite(s): PS 101 or permission of the instructor.

PS 302. Developmental Psychology II (Adolescence and Aging) (3); S

An examination of the physical, psychological, cognitive, and socio-emotional development from adolescence through old age and issues of dying and bereavement. Topics addressed will include: puberty, identity development, body-image, career theories, personality development, etc. Prerequisite(s): PS 101 or permission of the instructor.

PS 313. Physiological Psychology with Laboratory (4); F A study of the physiological systems, anatomical substrates, and biochemical processes that intervene between the arrival of information to sensory receptors and the subsequent elaboration of responses to them. Major areas covered include the structure and function of neurons and the nervous system, brain-behavior relationships, sensory processes, brain damage and recovery, and the biological bases for emotion, sexuality, learning and memory, and behavior disorders. The separate 2-hour lab component involves computerized and/or hands-on exercises that illustrate principles taught in the course. Prerequisite(s): PS 300, PS 101, PS 254, PS 274 or permission of the instructor.

PS 315. Fundamentals of Learning with Laboratory (4); F, AS NEEDED

A course dealing with the concepts involved in learning as derived from experimentation with both nonhuman and human subjects. Topics covered include habituation and sensitization, the laws of classical and operant conditioning and relevant phenomena, observational learning, learned helplessness, biological constraints on learning, and forgetting. The separate 2-hour laboratory component involves demonstration of basic principles and phenomena using experiments and computer simulations. Prerequisite(s): PS 101 and PS 274 or permission of the instructor.

PS 320. Memory & Cognition with Laboratory (3); S A lecture-laboratory course which provides a comprehensive study of human cognition. Besides an extensive coverage of memory, the course includes an analysis of major areas such as pattern perception, attention, concept formation, semantic organization, problem solving, expertise and creativity, and decision making. The major cognitive theories are discussed, and empirical studies are emphasized in each area. Major principles and phenomena are demonstrated in a separate, 2-hour laboratory component each week. Prerequisite(s): PS 101 and PS 274.

PS 323. Social Psychology (3); F

Study of how the thoughts, feelings, and behavior of individuals are influenced by the actual, imagined, or implied presence of others. Topics covered include gender, social aggression, prejudice, and discrimination, attitudes, persuasion, attraction, and group dynamics. Prerequisite(s): PS 101 or permission of the instructor.

PS 326. Abnormal Psychology (3); F

Historical review of the development of the diagnosis and treatment of mental disorders as well as an examination of the various theoretical perspectives, including psycho-dynamic, biological, behavioral, cognitive, and humanistic

approaches. Special emphasis is placed on the purported causes and patterns of maladaptive behaviors and current methods of assessment, treatment, and prevention. Prerequisite(s): PS 101.

PS 329. Theories of Personality (3); F

Study of the prominent theories of personality of our time used to explain human personality development and the biological and social factors upon which these theories are based. Relevant clinical and experimental data will be considered. Prerequisite(s): PS 101.

PS 330. Introduction to Guidance and Counseling (3); S An interactive experience that provides students with basic skills and an intellectual foundation to work in the discipline of counseling. Students are invited to examine and expand their current preparation for functioning as a counselor. Topics include: multi-cultural counseling, listening skills, nonverbal communication, mental states, clinical interview techniques, ethics and supportive interventions according to the various clinical perspectives (psychodynamic, humanistic, etc.). Prerequisite(s): PS 101.

PS 345. Psychology of Women (3); S

Analysis of the differences in personality qualities and skills between the sexes from a bio-cultural perspective. Emphasis is placed upon comparing/contrasting the traditional and feminist views of behavior and socio-cultural perspectives of women. Prerequisite(s): None.

PS 360. Special Topics in Psychology (3); F OR S, AS NEEDED

Covers topics that fall outside the scope of other psychology courses, but that are of timely interest to psychology students and faculty. Each semester the course will focus on a different topic. Topics covered include, but are not limited to: Black Psychology, and GRE preparation. This course does not meet specific requirements for the major or minor in psychology; however, it does count toward free elective requirements for graduation. Prerequisite(s): None.

PS 370. Special Topics in Clinical/Applied Psychology (3); F OR S, as needed

Covers topics that fall within the scope of the clinical/applied specialty area in psychology but to a greater degree than covered in the courses presently offered, and/or that are temporally relevant to psychology students and faculty. Each semester the course may focus on a different topic. Topics covered include, but are not limited to: the psychology of deviant behavior, forensic psychology, and industrial/organizational psychology. This course counts toward the psychology elective requirements for graduation. Prerequisite(s): permission of the instructor.

PS 380. Special Topics in Social/Developmental Psychology (3); F OR S, as needed

Covers topics that fall within the scope of the social/developmental specialty area in psychology but to a greater degree than covered in the courses presently offered, and/or that are temporally relevant to psychology students and faculty.

Each semester the course may focus on a different topic. Topics covered include, but are not limited to: the psychology of aging, and psychology of religion. This course counts toward the psychology elective requirements for graduation. Prerequisite(s): permission of the instructor.

PS 390. Special Topics in Physiological/Cognitive Psychology (3); F OR S, as needed

Covers topics that fall within the scope of the physiological/cognitive specialty area in psychology but to a greater degree than covered in the courses presently offered, and/or that are temporally relevant to psychology students and faculty. Each semester the course may focus on a different topic. Topics covered include, but are not limited to: drugs and behavior, cognitive neuroscience, neurobiology of learning/memory, plasticity of behavior, and technology and learning. This course counts toward the psychology elective requirements for graduation. Prerequisite(s): permission of the instructor.

PS 415. Health Psychology (3); F

This course presents the history and focus of health psychology and psychoneuroimmunology and describes the major concepts and research used. Major topics covered include stress, its relation to illness, and ways to cope with it; the relationship between lifestyles and health; substance abuse; nutrition; pain mechanisms and management; and terminal health problems. Prerequisite: PS 101.

PS 424. Sensory Processes with Laboratory (3); F, AS NEEDED

A lecture/laboratory course which examines basic mechanisms of sensation and the resultant perceptions associated with them, primarily from a biological/cognitive perspective. Emphasis is placed on visual, auditory, and somatosensory mechanisms, although some time is devoted to the chemical senses as well. This course has many "hands on" demonstrations and laboratory exercises to facilitate understanding of the concepts of this course. Prerequisite(s): PS 101, 274, and 313.

PS 430. Animal Behavior with Laboratory (3); S

A lecture and laboratory study of animal behavior from the perspectives of comparative psychology, ethology, sociobiology, evolutionary biology, and behavioral ecology. The course explores the ethics of animal research, and provides students with instruction on observational and experimental methodology for use with animals. Additional topics covered are the biological determinants of behavior; courtship, mating, reproduction, and parental behavior among animals; animal communication; aggression and appeasement displays; social organization in animal groups; and animal cognition. The lab component involves application of principles from the course in field and/or laboratory settings. Prerequisite(s): PS 101, PS 274, and PS 313 or permission of the instructor.

PS 436. Psychological Tests and Measurements (3); S, AS NEEDED

Study of the construction, administration, and interpretation of psychological tests in areas of achievement, personality, intelligence, attitudes, and psychological disorders. Projective techniques and other testing methods are covered. Prerequisite(s): PS 101 and PS 254 or permission of the instructor.

PS 438. Behavior Modification (3); S, AS NEEDED Detailed examination of behavioral modification techniques and behavioral principles and their application in educational and human service settings. Prerequisite(s): PS 101 and PS 274 or permission of the instructor.

PS 440. History & Systems of Psychology (3); F Discussion of the development of psychology as a formal discipline and the changes that have occurred since its founding. Topics include pre-scientific thinking about psychological issues; philosophies that influenced psychology; the origin of the early systems of psychology and their maturation and legacy; contemporary psychology; and the role of women and African-Americans in the history of psychology. Prerequisite(s): PS 101 and Senior status.

PS 445. Advanced Statistics (3); S, AS NEEDED

An advanced statistics course specifically focused on psychological research. The course will concentrate on concepts necessary for individuals pursuing graduate training in psychology or related disciplines. The students will learn about t-tests, analysis of variance models, analysis of covariance, correlation, multiple regression, factor analysis, and residual analysis, and non-parametric statistics. Prerequisites: PS 101, PS 254.

PS 449-450. Psychology Internship I and II (3 each); S, F Practical application of classroom education and skills in a related field placement or research laboratory. All students must attend a three-hour seminar each week and either complete an average of six hours of field work or research training per week or have completed an approved summer internship. Seminar topics include ethics, professional issues, preparation for the GRE, careers in psychology, presentation of research, and applying to graduate programs in psychology. Prerequisites: PS 101, PS 254, PS 274, and second semester Junior (PS 449) or first semester Senior (PS 450) status. Core course for all psychology majors. Required of all Senior Psychology majors. Spring and Fall. (3 per semester)

PS 459-460. Independent Study in Psychology (variable); F, S

Open to students who have demonstrated a high degree of academic ability and self-motivation for independent reading and scholarship. Usually involves conducting an independent research project under the guidance of a faculty member and writing the results of the experiment up in an APA-style research paper. Many students present their research at professional conferences. Prerequisite(s): Minimum GPA of 2.8 and successful completion of PS 101, PS 254, PS 274, permission of the instructor and approval by the Vice-President for Academic Affairs.

