Neuroscience

Faculty:

Professors Lauren Howard and Karen Hinkle; Associate Professors Megan Doczi (Neuroscience Program Coordinator), Scott Page (Chair); Assistant Professors Allison Neal and Simon Pearish; Lecturers Kylie Blodgett, David Ebenstein, Mary Beth Klinger-Lawrence and Virginia Kunkel.

The Neuroscience major exposes students to a rapidly growing field at the intersection of biology and psychology. Educating students about the human nervous system in health and disease prepares them for managing the public health challenges of our global population, while exposing them to interdisciplinary learning at the earliest stages of their undergraduate careers. Neuroscience graduates draw knowledge from a variety of specialties, effectively mastering the human nervous system from cellular, molecular, biochemical, cognitive, and behavioral perspectives.

Through the inherently diverse nature of the Neuroscience field, students engage in a broad-based curriculum spanning multiple disciplines. During the first year of study, the Neuroscience curriculum introduces students to fundamental concepts in biology, psychology, chemistry, and mathematics, while developing communication skills through concurrent introductory English courses. Successful students will progress to intermediate level courses designed to provide a thorough background in the anatomy and physiology of the human nervous system, with an emphasis on cellular and molecular biology, and carbon compounds. The third year of the Neuroscience major builds upon the knowledge gained in previous years by engaging students in applied research methods courses, coupled with an analytical reasoning of the natural properties of the physical world. The third and fourth year curricula seek to refine the students' understanding through specialized courses detailing the human nervous system through health and disease. With five free electives, the third and fourth years of study also offer the flexibility for students to pursue a minor in a discipline of their choice.

Mission:

The mission of the Neuroscience curriculum is to provide undergraduate students with a working knowledge of the human brain and nervous system, while emphasizing a strong foundation in the natural sciences.

Goals:

- To educate students about the human nervous system in health and disease
- To prepare students to manage the public health challenges of our global population

Outcomes:

- Acquire a basic proficiency for information literacy and exercise effective written and oral communication skills.
- Conduct hands-on, experiential laboratory research, effectively exposing students to common experimental methodology, approach, and design within the Neuroscience discipline.
- Demonstrate a fundamental competency in Neuroscience via an array of disciplines including biology, psychology, chemistry, physics, and mathematics.

Careers for this Major:

- Healthcare
- Education
- Biotechnology
- Research and Development
- Pharmaceutical Industry
- Neuroimaging
- Neuropsychology
- Science Writing
- Medical Liaison

B.S. in Neuroscience - Curriculum Map 2017-2018 Catalog

Print PDF Curriculum Map (http://catalog.norwich.edu/residentialprogramscatalog/collegeofscienceandmathematics/neuro/neuro_1499805985797.pdf)

Freshman			
Fall	**Cr.**	**Spring**	**Cr.**
EN 101 Composition and Literature I	3	EN 102 Composition and Literature II	3
BI 101 Principles of Biology I (General Education Lab Science)	4	PY 211 Introduction to Psychology (General Education Social Science)	3
CH 103 General Chemistry I (General Education Lab Science)	4	CH 104 General Chemistry II	4
MA 107 Precalculus Mathematics	4	MA 108 Applied Calculus (General Education Math)	4
Semester Total Credits	15	Semester Total Credits	14
Sophomore			
Fall	**Cr.**	**Spring**	**Cr.**
BI 215 Human Anatomy & Physiology I	4	BI 226 Cell Biology	4
BI 303 Genetics	4	MA 232 Elementary Statistics (General Education Math)	3
CH 225 Organic Chemistry I	4	PY 263 Perception	3
PY 230 Biopsychology	3	General Education Literature (http://catalog.norwich.edu/archives/2017-18/residentialprogramscatalog/generaleducationgoals)	3
		Free Elective	3
Semester Total Credits	15	Semester Total Credits	16
Junior			
Fall	**Cr.**	**Spring**	**Cr.**
BI 370 Introduction to Neuroscience	4	PY 344 Cognition	4
PS 201 General Physics I	4	PS 202 General Physics II	4

BI 300-400 Elective OR	4-3	BI 300-400 Elective OR	3-4
PY 313 Experimental Psychology I		PY 314 Experimental Psychology II	
Free Elective	3	General Education History (http://catalog.norwich.edu/archives/2017-18/residentialprogramscatalog/generaleducationgoals)	3
		Free Elective	3
Semester Total Credits	15-14	Semester Total Credits	17-18
Senior			
Fall	**Cr.**	**Spring**	**Cr.**
BI 415 Neuroanatomy (or in Junior year)	4	BI 420 Diseases of the Nervous System (or in Junior year)	4
BI 401 Senior Seminar (OR)	3	BI Elective	4
PY 401 Senior Seminar (General Education Capstone)		General Education Arts & Humanities (http://catalog.norwich.edu/archives/2017-18/residentialprogramscatalog/generaleducationgoals)	3
PH 303 Survey of Ethics (OR)	3	Free Elective	3
PH 350 Medical Ethics (General Education Ethics)			
PY Elective	3		
Free Elective	3		
Semester Total Credits	16	Semester Total Credits	14
Total Credits For This Major: 122			

Neuroscience Minor Curriculum Map 2017-2018 Catalog

The Neuroscience option is a Concentration for Psychology and Biology majors, a minor for all other students.

All courses must be passed with a C or higher.

BI 215	Human Anatomy & Physiology I	4
BI 370	Introduction to Neuroscience	4
PY 230	Biopsychology	3
PY 344	Cognition	4
Choose one Biology course from below: [1]		
BI 302	Embryology	4
BI 304	Physiology	4
BI 415	Neuroanatomy	4
BI 420	Diseases of the Nervous System	4
Choose one Psychology course from below: [1]		
PY 212	Abnormal Psychology	3
PY 220	Developmental Psychology	3
PY 263	Perception	3
PY 352	Learning and Memory	4
Total Cr.		22-23

[1] Students may also choose the following two chemistry courses: CH 324, CH 325, in lieu of the additional biology/psychology courses. However, this option requires additional prerequisites: CH 103, CH 104 and either CH 205, CH 226 or concurrent enrollment in CH 226.

Biology Courses

BI 101 Principles of Biology I 4 Cr.
This course is the prerequisite for all biology courses and satisfies general education laboratory science requirements for both majors and non-majors. This course gives an introduction to biochemistry, cell structure, metabolism, and protein synthesis, as well as human anatomy and physiology. Dissection of living and preserved animals is required. Classroom 3 hours, laboratory 2 hours. Offered fall and spring semesters.

BI 102 Principles of Biology II 4 Cr.
This course is a prerequisite for most biology courses and satisfies general education laboratory science requirements for both majors and non-majors. This course explores genetics, evolutionary theory, diversity of life on earth, history of life on earth, and ecology. Dissection of preserved animals is required. Classroom 3 hours, laboratory 2 hours. Prerequisite: BI 101 or permission of the instructor. Offered spring semesters.

BI 122 Concepts in Biology 4 Cr.
A lab science course designed exclusively for non-science majors that aims to give students an appreciation of the major concepts and current topics in biology. Concepts may include cell structures, photosynthesis, cellular respiration, genetics and ecology as well as human anatomy and physiology. Current topics may include stem cell research, nutrition, diseases, steroid abuse, traumatic brain injury, global climate change, and other pertinent issues. The course meets the general education requirement for laboratory science, but cannot be counted towards a biology major or minor. Credit may not be earned for both BI 101 and BI 122. Classroom 3 hours, laboratory 2 hours. Offered spring semesters.

BI 1XL Biology Lab Transfer Elective 4 Cr.

BI 1XX Biology Transfer Elective 3 Cr.

BI 201 Comparative Vertebrate Anatomy 4 Cr.
A study of the origins, structure and functions of the organ systems of representative vertebrates. An attempt is made to correlate form and function in the evolution of the vertebrates. Classroom 3 hours, laboratory 3 hours. Prerequisites: BI 101, BI 102. Offered fall semesters of odd numbered years.

BI 203 Introduction to Scientific Method & Bioscientific Terminology 1 Cr.
An introduction to the philosophy of science, the scientific method and bioscientific terminology. Analysis of data and interpretation of scientific and science-related popular press articles is stressed. Includes exposure to various forms of scientific communication and data collection and analysis. Prepares the student for the rigors of majoring in the biological sciences. Classroom 1 hour. Prerequisites: Sophomore standing, major in Biology.

BI 205 Ecology 4 Cr.
The interrelationships between living organisms and their total enviornment are studied through a combination of lecture, laboratory and field studies. Major concepts include evolution, ecosystem structure and function, community development, species diversity, succession, interspecific and intraspecific relationships, competition, predation, behavior, population growth and regulation. Collection and preservation of plants and animals may be required. Classroom 3 hours. Lab/ fieldwork 3 hours. Prerequisites BI 102. Offered fall semesters.

BI 215 Human Anatomy & Physiology I 4 Cr.
This is the first half of a two semester course exploring human anatomy and physiology. It covers cellular metabolism, tissues, and the following body systems: skeletal, muscle, integumentary, and nervous. Dissection of preserved animals is required. This course does not fulfill the General Edcuation Science requirement. Classroom 3 hours, laboratory 2 hours. Offered fall semesters.

BI 216 Human Anatomy & Physiology II 4 Cr.
This is the second half of a two semester course exploring human anatomy and physiology. It investigates the following body systems: endocrine, digestive, respiratory, circulatory, lymphatic (including the immune response), urinary, and reproductive. Dissection of preserved animals is required. Classroom 3 hours, laboratory 2 hours. Prerequisite: BI 215 or permission of the instructor. Offered spring semesters.

BI 220 Introductory Microbiology 4 Cr.
A survey of the field of microbiology with emphasis on those microorganisms of medical significance. Fundamentals of microbial structure, physiology and control are considered along with the role of pathogenic organisms in the infectious and disease processes. Laboratory exercises are designed to provide facility in visualizing, staining, culturing, enumerating, isolating, maintaining, and identifying micro organisms. This course does not fulfill the General Edcuation Science requirement. Classroom 3 hours, laboratory 2 hours. Offered spring semesters.

BI 226 Cell Biology 4 Cr.
A molecular level examination of the ultrastructure and function of the cytoplasm, intracellular components, cell membrane, extracellular structures and formation, and excretion of extracellular products. Recent developments in molecular biology will be stressed, including the implications for the biotechnology industry. The laboratory component will include state-of-the-art procedures and will emphasize hands-on experimental techniques. May require dissection of living animals. Classroom 3 hours, laboratory 3 hours. Prerequisites: BI 102 and one year of college chemistry. Offered even-numbered fall semesters.

BI 240 Environmental and Food Microbiology 4 Cr.
A course designed to develop an awareness of the essential role of microbes in maintaining the biosphere and the quality of life of its human inhabitants. The role of microorganisms as degraders, bioremediators and recyclers of essential elements will be presented and reinforced through laboratory exercises. The dependence of humans on microorganisms for health, food transformation, pharmaceutical production and genetic engineering will be explored in lecture and lab. Controversies surrounding the use of biotechnology to produce genetically engineered foods and animals as well as agents for bioterrorism, will be discussed. Classroom 3 hours, laboratory 2 hours. Prerequisites: BI 101, BI 102 or permission of the instructor. Offered even-numbered fall semesters.

BI 253 Foods and Nutrition 4 Cr.
A course designed to provide the student with a background in organizational structure and activities that emphasize the physiological basis of nutrition with an analysis of nutritional needs at various age levels. Consideration given to the relationship of nutrition to health and fitness, principles of food selection, metabolism of nutrients, vitamins and minerals, energy balance and obesity, food safety and technology. Classroom 3 hours, Field Experience/Laboratory 2 hours. Prerequisite: BI 101. Offered spring semesters.

BI 260 Ornithology 4 Cr.
A survey of avian biology and ecology to include evolution, the anatomical and physiological adaptations for flight, migration, behavior, reproduction and identification of birds and their songs. Integrated classroom, laboratory, and field studies will emphasize Vermont birds. Dissection of the pigeon during the spring semester is an integral part of the spring course's laboratory component. The summer course features a nesting study in lieu of dissection. Classroom 3 hours, laroratory 2 hours. Offered spring semesters.

BI 275 Environmental Biology 4 Cr.
An introduction to the interaction of man and the environment with emphasis on contemporary problems and their possible solutions. Local and global forms of pollution, detrimental environmental practices, and other relationships will be explored in the classroom and the laboratory. Classroom 3 hours, laboratory 2 hours. Prerequisities: BI 101, BI 102 or permission of the instructor. Offered even-numbered spring semesters.

BI 2XL Biology Lab Elective 4 Cr.

BI 2XX Biology Elective 3 Cr.

BI 302 Embryology 4 Cr.
A study of the fundamental principles of development through the establishment of the major organs and systems, exemplified in the laboratory by study of representative embryonic forms. May require dissection of living and preserved animals. Classroom 3 hours, laboratory 2 hours. Prerequisite: BI 101, BI 102 or permission of instructor. Offered even-numbered spring semesters.

BI 303 Genetics 4 Cr.
The pshysical and chemical basis of inhertiance, expression, and interaction of the hereditary units, linkage, and variation. The application of Mendelian princliples to plants and animals. Consideration is also given to microbial and viral genetics, genetic engineering, and related topics. Clarrom 3 hours, laboratory 2 hours. Prerequisites: BI 102. Offered Fall semester.

BI 304 Physiology 4 Cr.
A study of the comparative physiology of animals. Physical and chemical principles, cell physiology, with emphasis on homeostatic mechanisms and the study of functions of organ systems. May require dissection of living animals. Classroom 3 hours, laboratory 3 hours. Prerequisites: BI 101, BI 102, and 1 year of college chemistry. Offered even-numbered spring semesters.

BI 305 Biomedical Techniques 4 Cr.
Students are familiarized with the theories and applications of the new technologies that pervade the fields of biotechnology and molecular biology. Laboratory exercises illustrate key concepts and provide hands-on experience in the use of instrumentation essential to molecular biologists. Classroom 2 hours, laboratory 4 hours. Prerequisites: BI 101, BI 102 or BI 215, BI 216, and CH 103, CH 104. Offered odd numbered fall semesters.

BI 316 Plant Taxonomy 4 Cr.
A general survey of the taxonomy and evolution of vascular plants, emphasizing herbaceous plants. Recognition of plant families, identification of species, and principles of collecting and preserving are stressed. Classroom 3 hours, laboratory 3 hours. Prerequisite: BI 102 or permission of instructor. Offered even-numbered fall semesters.

BI 325 Invertebrate Zoology 4 Cr.
A fundamental course designed to give the student a general knowledge of the structure, physiology, life histories, and ecology of the invertebrate animals. Requires dissection of living and preserved animals. Classroom 3 hours, laboratory 2 hours. Prerequisites: BI 101, BI 102. Offered even-numbered fall semesters.

BI 326 Natural History of the Vertebrates 4 Cr.
A study of the classification, identification, and ecology of the vertebrates with special emphasis on the local fauna. Collection and preservation of organisms is an integral part of the course. Classroom 3 hours, laboratory 3 hours. Prerequisites: BI 101, BI 102. Offered odd-numbered fall semesters.

BI 330 Immunology 4 Cr.
A course presenting the basic principles of immunology, including antigen-antibody characteristics, the role of the immune system in defense and disease, and the application of fundamental concepts in the development of new technologies and immunodiagnosis. Classroom 3 hours, laboratory 3 hours. Prerequisites: BI 101, BI 102 or BI 215, BI 216, and 1 year of college chemistry. Offered odd-numbered spring semesters.

BI 341 Plant Anatomy 4 Cr.
The anatomy of vascular plants analyzed from an evolutionary viewpoint. Cell structure, tissues, their distribution in roots, stems, leaves and reproductive organs, and plant development are stressed. Classroom 3 hours, laboratory 3 hours. Prerequisite: BI 102 or permission of instructor. Offered odd-numbered spring semesters.

BI 351 Dendrology and Silvics 4 Cr.
An introduction to major woody plant species in the Northeast, including taxonomic characteristics, life histories, habitat requirements, and economic importance. Classroom 3 hours, laboratory and/or field work 3 hours. Prerequisite: BI 102 or permission of instructor. Offered odd-numbered fall semesters.

BI 364 Pathophysiology in Sports Medicine 4 Cr.
The study of human pathology with primary emphasis on the pathogenesis of those pathological states most commonly encountered in sports medicine, their disruption of normal physiology and the body's mechanism for restoring the steady state (homeostasis). The biology of the disease process is examined at the molecular, cellular, tissue, organ and organ system level. Classroom 3 hours, laboratory 2 hours. Prerequisites: BI 215 & BI 216 with "C" or higher, or permission of instructor. Offered even-numbered spring semesters.

BI 370 Introduction to Neuroscience 4 Cr.
An interdisciplinary course designed to introduce the structure and function of the mammalian nervous system. Topics include, but are not limited to, neuronal development, sensory and motor systems, chemical control of the brain and behavior, and the underlying mechanisms of neurodegenerative disease. May require dissection of living animals. Classroom 3 hours, laboratory 2 hours. Prerequisites: BI 101 and either BI 215 or PY 230. Offered fall semesters.

BI 395 Evolution 4 Cr.
This course is designed to introduce the student to Darwinian and Non-Darwinian mechanisms of evolutionary change, a history of life in the context of contemporary biology, and scientific and cultural controversies surrounding this topic. Classroom: 4 hours. Prerequesits- BI 102 and BI 303.

BI 399 Topics in Biology 4 Cr.

BI 3XL Biology Lab Transfer Elective 4 Cr.

BI 3XX Biology Transfer Elective 3 Cr.

BI 401 Senior Seminar 3 Cr.
This is the capstone course that integrates reading, writing, speaking and critical thinking skills. It includes instruction in scientific writing, use of contemporary scientific biological literature, library research techniques, and requires a major paper considering ethics in science and research. Students will prepare research papers on current topics using primary sources and give oral presentations on their topics to the department faculty. Classroom 3 hours. Prerequisites: senior class standing or permission of the instructor. Offered fall semesters.

BI 415 Neuroanatomy 4 Cr.
The anatomy of the brain and nervous system, with an emphasis on human neuroanatomy. Gross and microscopic anatomy is covered, with in depth treatments of physical and functional organization, and major neural pathways. Classroom 3 hours, laboratory 2 hours. Prerequisites: BI 370.

BI 418 Medical Microbiology 4 Cr.
A study of pathogenic microorganisms including their general characteristics, physiology, pathogenesis, pathology, diagnosis, treatment, immunity, prevention, and control. Laboratory exercises are designed to familiarize students with diagnostic procedures used in the clinical microbiology laboratory. Classroom 2 hours, laboratory 4 hours. Prerequisite: BI 220 or BI 240. Offered even-numbered spring semesters.

BI 420 Diseases of the Nervous System 4 Cr.
An in-depth study of the biological basis of neurological and psychiatric disorders. Topics include, but are not limited to, developmental disorders, impairments of higher function, and the underlying mechanisms of neurodegenerative disease. Drug development and other therapeutic treatment strategies will be discussed using current scientific literature. Classroom 4 hours. Prerequisite: BI 370. Offered spring semesters.

BI 424 Woodland Ecology and Management 4 Cr.
A review of biotic and abiotic factors controlling the forest environment, methods for determining vegetation structure and succession, introduction to major forest associations in the Northeast, and consequences of various harvesting and management techniques. Classroom 3 hours, field studies 3 hours. Prerequisites: BI 351 or BI 316, or permission of instructor. Offered even-numbered spring semesters.

BI 440 Reading and Research 3,4 Cr.
Independent study under the supervision of a department faculty member. Open to junior and senior majors with permission of instructor. BI 440 may be taken no more than twice, for a maximum of 7 credits. Students requesting this course must have a 3.0 GPA in biology courses or departmental approval. An approved topic, a brief outline of the research to be conducted, and a signature from a biology mentor must be submitted to the department chair before the end of the drop-add period of the enrolled semester.

BI 450 Internship in Biology 3,4 Cr.
Internship in Biology.

BI 4XX Evolution 4 Cr.

Psychology Courses

PY 210 Psychology of Leadership 3 Cr.
This course is designed to introduce students to the theoretical aspects of leadership, and to help them understand how theory applies to real situations. Topics include leadership models, leader behavior, leadership skills, followership, teams and motivation. Students will be expected to analyze cases, current situations and their own leader style.

PY 211 Introduction to Psychology 3 Cr.
An introduction to psychology as the science of behavior. Topics to be discussed will include learning, motivation, emotions, perception, personality, tests and measurements, and additional selected topics.

PY 212 Abnormal Psychology 3 Cr.
A course on the origin and development of psychopathology with emphasis on the biological, social, and psychological determinants. Prerequisite: PY 211 or permission of the instructor.

PY 220 Developmental Psychology 3 Cr.
A lifespan study of normal development with emphasis on physical, intellectual, social, and emotional growth. Prerequisite: PY 211 or permission of the instructor.

PY 230 Biopsychology 3 Cr.
This course is a survey of the neurophysiological bases of human behavior. Topics include basic brain anatomy and physiology, neurotransmitters and drugs, sensation and perception, learning and memory, sleep, and neurological disorders.

PY 232 Engineering Psychology 3 Cr.
The objective of this course is to expose students to the theoretical foundations of research in human factors. Students will be introduced to basic concepts in psychology such as perception, attention, decision making, and motor control. Knowledge of these concepts is critical for the intelligent design of human-technological systems.

PY 234 Forensic Psychology 3 Cr.
A survey of psychological research and theory dealing with criminal behavior and the legal system. Topics include prediction of violent behavior, sexual assault, victimization, juvenile delinquency, scientific jury selection, criminal investigation and profiling, eyewitness testimony, assessment of mental competency, lie detection, DNA testing, and forensic science.

PY 236 Cross-Cultural Psychology 3 Cr.
This course will expose students to the influence of culture on human behavior, and will illustrate differences and commonalities in behavior (verbal and non-verbal), attitudes, and values across a range of cultures around the world. Issues concerning cultural contact and inter-cultural relations will be considered to enhance a student's ability to deal with and understand variations in human behavior across cultures and ethnic groups. Methodological issues of particular importance to cross-cultural research will be discussed.

PY 238 Political Psychology 3 Cr.
This course will examine key research in political psychology which includes the interactions of political and psychological processes and their impact on behavior in personal, local and global communities.

PY 240 Introduction to Social Psychology 3 Cr.
A general survey of theories, methods and research on individual behavior in a social context. Among topics to be considered are: aggression, interpersonal attraction, affiliation, person perception, attitudes, group processes, and social influence. Prerequisite: PY 211.

PY 241 Introduction to Personality Theory 3 Cr.
An overview of selected influential statements regarding the structure, dynamics, and development of the human personality. Included are the theories of the Freudians (Freud, Jung, Adler), the Environmentalists (Dollard and Miller, Skinner), and the Existentialists and Humanists (Rogers, Maslow, Frankl). Comparisons among theorists are organized around philosophical and historical themes. Prerequisite: PY 211.

PY 263 Perception 3 Cr.
Coverage of the major themes and research in perception. Topics include perception of color, form, motion, depth, illusions, perceptual learning, development, and the physiology of perception. Prerequisite: PY 211 or permission of the instructor.

PY 299 Psychological Testing 3 Cr.

PY 2XX Psychology Transfer Elective 3 Cr.

PY 313 Experimental Psychology I 3 Cr.
A course on the principles and skills required to plan, execute, and interpret psychological research. Topics include the nature of science, the value of empirical evidence, psychology viewed as a science, the logic of experiments, and the ethics of using human subjects. Students are taught to develop a testable idea, to write and read research reports, and to design, conduct, and analyze univariate and correlational studies. Prerequisite: PY 211 or permission of the instructor.

PY 314 Experimental Psychology II 3 Cr.
This course will teach students how to design, conduct, and report psychological experiments. The purpose of the course is to link the academic subject matter of psychology to the conduct of research in the laboratory and the field. Topics include the nature of science, formulation of hypotheses, measurement and reliability, researchmethods (including experimental, correlational, and observational techniques), research design, and ethics of using human subjects. Issues of experimental control, its relation to confounding and research design, and internal and external validity will be included. The course will also focus on the teaching of library research and scientific writing skills. Students will design, implement, analyze, and report results of several research projects. Prerequisite: PY 313, or MA 232, or permission of instructor.

PY 321 Organizational Psychology 3 Cr.
An analysis of organizational behavior including motivation, climate, leadership, and the use of such techniques as behavior modification in changing human behavior. Theoretical consideration will be followed by application experiences through role playing and case analysis. Prerequisite: PY 211 or permission of the instructor.

PY 324 Adolescent Psychology 3 Cr.
This course examines the physical, emotional, social, cognitive aspects of adolescence from a developmental perspective. Identity, autonomy, sexuality, achievement, and intimacy are examined within the context of the school, the peer group, and the family. Students will have the opportunity to work with adolescents in schools, recreational centers, counseling centers, or through youth service agencies. Required for secondary teacher licensure candidates. Prerequisite: PY 211.

PY 344 Cognition 4 Cr.
Overview of research and theory on human cognitive processes emphasizing the acquisition, storage, representation, retrieval and use of knowledge. Topics include memory, concept formation, language and thought, problem solving and creativity, and cognitive development. Laboratory will include hands-on experiments in cognitive research paradigms.

PY 350 Environmental Psychology 3 Cr.
A study of the relationship between people and the environment, the use of space as a means of regulating social interaction, and human responses to environmental stressors such as overcrowding, toxic agents, noise, air, and water pollution. Also a brief look at ecological psychology in which setting-specific rather than person-specific determinants of a person's reaction to the environment are analyzed. Prerequisites: PY 211.

PY 352 Learning and Memory 4 Cr.
This course provides an overview of historical and current research findings in the area of learning and memory. The subject will be approached from various theoretical approaches, including behaviorist, cognitive, and neurobiological paradigms. Laboratory will include hands-on experiments using research paradigms from the field of learning and memory.

PY 355 Psychology and the Law 3 Cr.
A course that examines the research of psychology as it relates to the judicial process; the nature, source, and development of antisocial behavior; and forensic psychology relative to the development of law and policy at the national and international levels. Prerequisites: PY 211.

PY 360 History and Systems of Psychology 3 Cr.
An overview of significant movements, theories and individuals in the development of contemporary psychology. The course is organized around significant themes and includes discussion of the philosophy of scientific growth, structuralism, functionalism, behaviorism, Gestalt psychology and psychoanalysis. Included will be examples, cases, and discussions of the APA ethics code that governs the performance of professionals in the field of psychology. This course satisfies the university’s General Education Ethics requirement. Prerequisite PY 211.

PY 398 Thesis Preparation 3 Cr.
The students will prepare a senior thesis prospectus in accordance with the ethical standards of the Human Subjects Committee. This course precedes PY 498. Prerequisites: PY 211, PY 313, PY 314.

PY 3XX Psychology Transfer Elective 3 Cr.

PY 401 Senior Seminar 3 Cr.
This course is the capstone experience marking the end of a student's undergraduate studies. Students both majoring and minoring in psychology will be provided the experience of synthesizing their learning across their courses in the context of a liberal arts education. Prerequisites: PY 211, PY 313, PY 314.

PY 402 Conference 0 Cr.
Each Psychology major, must during his/her tenure at Norwich attend at least one professional Psychology meeting.

PY 403 Presentation 0 Cr.
In order to complete the process of psychological inquiry and communication, each psychology major must present his/her senior research at an appropriate professional forum, spring semester, senior year.

PY 451 Thematic Seminar 3 Cr.
A seminar course which deals with particular theories or areas of psychology not elsewhere covered in depth or within present course offerings. Prerequisite: PY 211 and permission of the instructor.

PY 452 Thematic Seminar 3 Cr.
A seminar course which deals with particular theories or areas of psychology not elsewhere covered in depth or within present course offerings. Prerequisite: PY 211 and permission of the instructor.

PY 453 Internship 3-9 Cr.
Assignments will include work and observation in local, state, and federal institutions or agencies concerned with the education, health, or the protection of society. Written and oral reports. Prerequisites: PY 211 and permission of the instructor.

PY 471 Directed Readings 3 Cr.
A course in which there is an opportunity to select and read in a specific area of interest that is not available through regular course offerings. Prerequisites: three psychology courses and permission of the instructor.

PY 498 Senior Thesis 3 Cr.
A research course designed to enable a student to experience all phases of the experiment from literature research, experimental design, data collection and analysis, and written and oral reports. The student will learn all of the procedures, considerations, and standards necessary to ensure the ethical treatment of human participants. Prerequisites: PY 211, PY 313, PY 314, PY 398.

PY 4XX Psychology Elective 3 Cr.