The following are the course changes for the 2009-2010 School Year.

**BIOCHEMISTRY**

**CHM 320:** Intermediate Organic Chemistry is now included in the list of electives for the biochemistry major.

**MAJOR REQUIREMENTS:** A total of 16 courses, including MTH 151, PHY 101 or 107, and 102 or 108; BIO 101, 102, 212, and 311; CHM 160, 170, 260, and 270; BCH 320 (or CHM 360), 333, and 401. In addition, elect any 2.5 courses from BIO 201, 202, 235, 314, CHM 320, 350, 380, 420, 480, and BCH 500 or 501. BCH 401 serves as the capstone for the biochemistry major.

**BIOLOGICAL PHYSICS**

**PHY 101/102** (algebra-based introductory physics) can now substitute for **PHY 107/108** (calculus-based introductory physics) in the major requirements.

**MAJOR REQUIREMENTS:** A total of 16 courses. Required courses are MTH 151 and 152, BIO 101 and 102, CHM 160 and 170, BCH 333, and PHY 107 (or 101), 108 (or 102), 209, 234, 327, 390 (1/2 course), 441 (1/4 course), and 442 (1/4 course). Students completing the biological physics major must also elect one of PHY 317 or CHM 360; one of PHY 313, 322, 331, or 381; one of BIO 212, 311, 314, 201, NSC 300, or any biology course at the 200 level or above approved by the Biological Physics Major Advisory Committee.

**BIOLOGY**

**BIO 288** is added to Group 2 in the General Biology major requirements.

**General Biology:** BIO 200; at least one course from Group 1-BIO 201, 212, or 215; at least two courses from Group 2-BIO 202, 204, 205, 206, 209, 235, 245, or 288; and at least two courses from Group 3-NSC 300, BIO 311, 314, 319, 320, 245, 412, 416, 435, or BCH 333 or BIO 500/501. There must be a total of seven courses beyond BIO 101 and 102.

**BIO 101** is now a prerequisite for **BIO 102**.

**BIO 102 General Biology**

This course will build upon the concepts introduced in BIO 101. Based on the theme of organic evolution, this is an introductory course of integrated lectures and laboratory experiences in animal biology covering anatomy, physiology, behavior, evolution, and ecology. Animal diversity is surveyed from sponges through the culminations of the protostome and deuterostome lines. Laboratories incorporate the scientific method of gathering and evaluating data, as well as field experience. Offered: Spring term

Three hours lecture-recitation, three hours lab

*Prerequisite: BIO 101*

Additions to the catalog:

**BIO 288: Introduction to Conservation Biology**

This course will be an introduction to Conservation Biology and will examine 1) the evolution of this scientific discipline, 2) the basic theory and methodologies used by Conservation Biologists to assess biodiversity loss over multiple spatial and temporal scales, and 3) the current social attitudes and governmental policies concerning the loss of biodiversity in the US and abroad. The laboratory portion of the course will incorporate case studies, current methodologies used in the field and laboratory (including GIS and GPS), and individual student research projects.
**ECONOMICS**

Additions to the catalog:

**ECN 341: Financial Economics**
This course is designed to introduce basic models and general principles of financial economics, an important subfield of economics, showing students how economics principles are applied in financial markets, asset pricing, and decision making under uncertainty. Students will have some hands-on experiences through tracking real-time financial markets.

**EDUCATION**

**MAJOR REQUIREMENTS:** All students must successfully complete a minimum of 13 courses in psychology and education plus a capstone experience.
Psychology: PSY 101, 102, 225, 265, 275
Education: EDU 201, 207, 301, 302, 303, 304, 350, and 403.

**CAPSTONE EXPERIENCE:** EDU 406 and 407 (certification) or 408 and 409 (non-certification).

**SECONDARY EDUCATION (CERTIFICATION 7-12):** Students seeking certification in secondary education (7-12) must complete an academic major in the area they plan to teach with a minor in education. Secondary education is offered in the following areas: biology, chemistry, English, mathematics, physics, and social studies (major in history). See the appropriate departmental section of the catalog for major department requirements for certification. In addition to the requirements of the major department, students seeking secondary or specialty area certification must complete EDU 201, 207, 301, 350, 403, 406, and 407 (credited as three courses). Completion of these education courses constitutes an education minor.

**SPECIALTY AREA (CERTIFICATION K-12):** Students seeking certification in a K-12 specialty content area: art education, environmental education, or modern languages (French, German, or Spanish) must major in that academic area and minor in education. See the appropriate departmental section of the catalog for the major department requirements for certification.

In addition to the requirements of the major department, students seeking secondary or specialty area certification must complete EDU 201, 207, 301, 350, 403, 406, and 407 (credited as three courses). Completion of these education courses constitutes an education minor.

Elementary Education (Certification K-6) program is replaced with the Early Childhood (CERTIFICATION PK-4) program beginning fall 2009 pending approval by the Pennsylvania Department of Education (PDE).

**Early Childhood (CERTIFICATION PK-4):** Students seeking certification in early childhood education must major in child development and education. The following education courses are required to complete the education portion of the child development and education major: EDU 201, 207, 301, 302, 303, 304, 350, 406, and 407. Students must also take the following psychology courses to complete the psychology requirements of this interdisciplinary major: PSY 101, 102, 225, 265, 275, and either PSY 330 assessment (non-certification track) or EDU 403 (certification track) for differentiated assessment. Additionally, students seeking certification PK-4 are mandated by the PDE to successfully complete a set of eight courses designed to provide the breadth of knowledge required by the elementary school curriculum: two English courses (one literature and one composition), two college math courses (MTH 123 and 124), one U.S. history course in colonial history, two science courses (one course must have a lab from an approved list available in the education department), and one geography course (EDU 205).

**ENVIRONMENTAL STUDIES**

**MAJOR REQUIREMENTS:** A total of 10 courses, including the following five core courses that must be successfully completed:

EVS 101 Introduction to Environmental Studies or EVS 100 Topics in Environmental Studies
EVS 201 Environmental Issues in the Developed/Developing World

PHL 231 Environmental Ethics, or HIS 274 World Environmental History, or POL 313 Environmental Policy

BIO 320 Ecology or BIO 288 Conservation Biology

EVS 430 Capstone Experience in Environmental Studies

Deleted from the catalog:
EVS/BIO 270: Ecology of the Chaparral Wildlife Management Area

**FIRST YEAR SEMINAR**

**FYS 199: First Year Seminar**

All new full-time, first-year students must complete a First Year Seminar as an introduction to the liberal arts, the College, and college-level expectations. The First Year Seminar is a graded course which gives students the opportunity to study a well-defined subject in a small group. Seminars aim to develop a range of learning skills, such as reading, writing, speaking and quantitative analysis, depending on the content of the individual seminar. Special emphasis will be placed on critical analysis of the subject in question, both in writing and class discussion. Seminars also provide opportunities to participate in a range of cultural and intellectual events. First Year Seminar instructors serve as academic advisors to students in the Freshman class.

*Offered: Fall term only*

**FRENCH**

Removed to the catalog:

FRN 371, 372

Added to the catalog:

**FRN 371: Business Communication and Culture**

An intensive, advanced level French course designed to develop the linguistic skills and cultural competency necessary for working in a business environment in the French-speaking world. This course provides an overview of the socio-historical contexts and contemporary business practices in metropolitan France. In addition, the course will prepare students for more in-depth study abroad.

This course counts only towards the International Business major.

*Prerequisite: FRN 310 or permission of the instructor*  

**GERMAN**

Removed to the catalog:

GER 371, 372

Added to the catalog:

**GER 371: Business Communication and Culture**

An intensive, advanced level German course designed to develop the linguistic skills and cultural competency necessary for working in a business environment in the German-speaking world. This course provides an overview of the socio-historical contexts and contemporary business practices in a variety of German-speaking regions. In addition, the course will prepare students for more in-depth study abroad.

This course counts only towards the International Business major.

*Prerequisite: GER 310 or permission of the instructor*
**INFORMATION TECHNOLOGY LEADERSHIP**

**MAJOR REQUIREMENTS:** A minimum of 10 courses, including ITL 100, 102, 112, 301, and 400 (the capstone experience), and at least three courses in one area of emphasis: computer science, data discovery, or new media technologies. These three emphasis courses must include a required 200-level course (221, 241 or 271) and two 300-level courses in the same emphasis. At least one of the remaining two elective courses also must be at the 300 level or above. Majors are strongly encouraged to pursue at least one professional internship during their course of study.

**MINOR REQUIREMENTS:** A minimum of six courses, including ITL 100; either 102 or 221; one of 211, 241, or 271; and three others, at least two of which must be at the 300 level or above.

The *Information Systems emphasis* has been eliminated and a new emphasis in *Computer Science* has been approved.

**Computer Science**

Students in the computer science emphasis focus on how we represent and work with diverse information in the presence of information technology. They will learn about the connections between how we choose to organize our data and how we choose to compute using our data, including considerations of space efficiency and time efficiency. Students apply these concepts in a range of domains within computing and develop skills in selecting the appropriate techniques for the given context. They will also learn to balance ideal visions for large scale systems with real-world considerations such as development time, resource limitations, security, reliability, and maintainability. In conjunction with the core courses in the ITL major, this emphasis will prepare students to pursue a career or graduate education in areas such as software engineering, information systems management, information security, computer science and other computational fields.

Removed from the catalog:

ITL 211, ITL 202, ITL 204, ITL 331

Added to the catalog:

**ITL 207: Networking Foundations**

In this project-based course on networked computing environments students develop the foundational knowledge and skills required to design, administer, secure and maintain a large local area network. Students will employ network modeling software to design and analyze networking systems and develop procedures for troubleshooting and optimizing them.

**ITL 221: Data Structures**

A second-level course in programming that focuses on classic data structures and their associated algorithms. Students will learn how the organization of data within a program affects the efficiency of the program, and how algorithms and data structures can work together to support the most efficient code for the particular problem being solved. Students will put these tools to practice in order to create robust, interesting software applications.

*Computer science emphasis*

*Prerequisite: ITL 102*

**ITL 310: Systems Analysis**

An overview of the concepts, procedures and tools necessary for identifying, analyzing, modeling, pricing and presenting computer-based information systems, the primary objective of this course is to develop skills necessary to conduct the analysis side of the systems development cycle. Students will learn about various methodologies for pursuing systems development. They will gain hands-on experience with techniques for determining user and organizational needs and carry out the steps of a detailed systems analysis based on an interpretation of these needs. Students will also practice their written and oral communication skills in the creation and presentation of a formal systems proposal.

*Computer science emphasis*

*Prerequisite: ITL 102*
ITL 330: Artificial Intelligence
An introduction to artificial intelligence, this course examines the ways in which we can use computation to mimic human intelligence. The problems of knowledge representation and search will be covered, as well as topics in game playing, learning, and natural language processing. Students will implement selected artificial intelligence algorithms to gain hands-on experience with the special problems involved in AI software, particularly issues of training and testing in a statistical setting. Students will also study the philosophical discussion surrounding the pursuit of computation-based intelligent systems.

*Computer science emphasis*

*Prerequisite: ITL 102*

ITL 335: Information Security
This course is an in-depth examination of best practices for securing and protecting modern information systems. Students will learn about the vulnerabilities of networked computers and study the tools and techniques used to secure them, from the basics of encryption up to firewalls and hardening tools. Students will also study the principles of information security policy development and the legal, social and privacy issues related to information management.

*Computer science emphasis*

*Prerequisite: ITL 102*

**INTERDISCIPLINARY COURSES**

SCI 150: Topics in Science
The topics for this course will vary for each offering. Courses that fit this designation will have either a general science focus that does not fit into a particular discipline or will have an interdisciplinary focus that crosses disciplinary boundaries.

**MODERN LANGUAGES**

**Study Abroad**
All modern language majors (currently French, German, and Spanish) must spend a minimum of one semester, or the academic equivalent, on a study abroad program, course of study, or internship approved by the language program director. The approved program must follow general College study-abroad guidelines.

The following language is removed from the French major and minor requirements: "Course requirements for the major and minor beyond 208 must be taken at W&J, with the exception of pre-approved study abroad programs."

Added to the catalog:

**ARA 208: Intermediate Arabic II**
This is a course with intensive review, oral expression, listening comprehension and special emphasis on written Arabic forms. Daily activities will include authentic texts and videos and contemporary web sites from various parts of the Arabic-speaking world. Special emphasis will be placed on the multiple facets of contemporary Arabic culture. Course taught largely in Arabic.

**CHN 310: Advanced Chinese II**
This course focuses on the development and application of advanced Chinese language skills, with emphases on reading, speaking and writing. A variety of texts, web sites and selected videos serve as departure points for daily discussions, assignments and presentations. Included in the course are reviews of grammar topics. CHN 310 is offered traditionally in the spring term. This course is taught largely in Chinese.

**PHYSICS**

**PHY 234: Mathematical Methods in Physics**
Mathematical techniques that stress physical relevance and application are studied. Coordinate systems, vector functions, power series, ordinary and partial differential equations, numerical integration and differentiation, complex numbers and functions, real and complex matrices, probability, nonlinear equations, and dynamics.

*3 ⅓ hour lecture, 3 hours lab*
Prerequisites: MTH 152 and either PHY 101 and 102 or PHY 107 and 108 concurrent

PSYCHOLOGY
Psychology Majors Planning to Study Abroad:
Please note that, in order to complete the psychology major, you must successfully complete PSY 215, Experimental Psychology, by the second semester junior year if you plan to study abroad during the fall semester of your senior year.

Added to the catalog:

PSY 382: Psychology of Sex & Gender
This course is designed to allow students the opportunity to review and contemplate current research and scholarship dealing with the categories of male and female. The material is divided into two broad categories: theories that attempt to explain why there are similarities and differences between males and females, and the accumulated research that attempts to identify those similarities and differences. Theories covered in the course include biological, evolutionary, psychoanalytical, social learning, and cognitive development. Areas of difference studied include physical, emotional, health, cognitive and social. This topic provides an excellent means to evaluate many issues from a critical perspective. Students can see how observable phenomena can be interpreted differently by using varied theoretical frameworks. The topic also lends itself well to looking at issues about the ethics and politics of science.

SOCIOLOGY
MAJOR REQUIREMENTS: Majors are required to complete successfully 10 sociology courses including SOC 201, 301, 412, 495 (capstone experience), and three other courses numbered 300 or above. Courses previously listed as SOC/ANT will count as electives toward the sociology major. Math 225 counts as an elective in the sociology major.

SPANISH
Removed from the catalog:

SPN 371, 372

Added to the catalog:

SPN 371: Business Communication and Culture
An intensive, advanced level Spanish course designed to develop the linguistic skills and cultural competency necessary for working in a business environment in the Spanish-speaking world. This course provides an overview of the socio-historical contexts and contemporary business practices in a variety of Spanish speaking regions (Spain, Mexico, the Spanish-speaking Caribbean, and Central and South America). In addition, the course will assist students in the selection of a region of specialty and will prepare them for more in-depth study abroad in their region of choice. This course counts only towards the International Business major.
Prerequisite: SPN 310 or permission of the instructor

THEATER
THR 281: Playwriting is re-numbered as THR 181: Playwriting

Added to the catalog:

THR 399: Performance Studio
A studio experience for advanced theatre students. The class functions as a student theatre ensemble with the goal of
producing one or more works of theatre over the course of the semester. Students have the opportunity to participate in the process on every level—as writers, dramaturgs, directors, actors, designers, and stage technicians.

*Prerequisites: Two THR courses or permission of the instructor*