International Exchange

Large Animal Science students may participate in a one-semester exchange program at Hartpury College, Gloucestershire, Great Britain during their Junior Spring semester. Contact the Department for application procedures.

BIOLOGY (BY)

Faculty:
Ronald E. Johnson, Chairperson
Richard N. Bortnick
Bryna Donnelly
Janice L. Haws
Cynthia Keler
Camille McQuillan
John M. Mishler
Kathryn S. Ponnock
Christopher Tipping

There are three reasons why Delaware Valley College Biology graduates do well: our faculty, our curriculum, and our facilities. The faculty are specialists in their respective areas. They are interested in the educational welfare of each student and generate a thirst for learning.

The Biology Department offers a curriculum that provides the student with a broad core of background information in biology and related disciplines. This prepares the student for many careers in biology, or for advanced study in the health professions or graduate school. In addition to gaining acceptance to professional and graduate schools, recent Biology graduates from Delaware Valley College have found positions as: Biologists, Inorganic Analytical Chemists, Quality Assurance Technicians, Bio Technicians, Environmental Laboratory Technicians, and Teratologists. A series of biology and free elective courses options offer the student the opportunity to major in an area of his or her own choosing.

The Biology Department is housed in a modern building, and is well furnished with laboratory instruments and equipment with which the student is encouraged to develop proficiency. In addition, there are a variety of natural study areas available on or near campus. Members of the department are also involved in staff-guided student research projects, as well as projects of faculty interest, which offer the opportunity to engage in research.

Five major areas, pre-professional (which includes pre-med and pre-vet), microbiology and biotechnology, botany, zoology, and environmental biology allow students, with departmental counseling, to focus their program to better fit their career goals. Incoming freshmen must declare a major area after successfully completing 30 credits. Transfer students bringing in 30 or more credits, must declare a major area as part of the transfer process. The freshman year program is the same for all entering Biology majors.

The College is a partner in the Pennsylvania Biotechnology Center of Bucks County. This unique relationship exposes interested students to the latest developments in this exciting field. It also provides a limited number of student employment opportunities.

All Biology majors have available 15 credits for free electives. The free elective credits may be used for courses which directly relate to the student's major area, they may be devoted to a minor of choice in any other department, or they may be applied to meet any other needs of the student. Academic advising is provided to help with course selection in these areas.

Teacher Certification in Biology and in General Science at the secondary level (grades 7 through 12) may be obtained by completing a prescribed set of courses. For further information, please see the section on Education or contact the Program Director of Teacher Education.

The total number of credits required for graduation with a degree in Biology is 123 plus 4 credits earned for successful completion of the Employment Program.

Students seeking admission to professional schools in the human medical professions or veterinary medicine should complete the Pre-Professional Major. Occasionally truly exceptional pre-professional students are able to obtain admission to a professional school program at the end of their junior year. This is called the 3 + 1 Program and students must register for it before the start of their sophomore year. Such students will be eligible to earn their Bachelor of Science in Biology degree from the College upon the successful completion of their first full-time year of study in the professional school program provided they have completed all of the required courses in the Biology major (except BY 4110 Biology Seminar), the required Pre-Professional Major courses, the College Core courses, and the Employment Program requirement.

FRESHMAN YEAR

First Semester

Course No.	Course Title	Credits
BY 1113	Biology I	4
EN 1101	English I	3
MP 1102	College Algebra or	
MP 1203	Elementary Functions or	
*MP 1204	Calculus I	3-4

CH 1103	General Chemistry I	3
CH 1103L	General Chemistry I Lab	1
PE 1109	Physical Education I	1
LA 1020	Skills for College Success	1
Total		**16-17**

Second Semester

BY 1214	Biology II	4
CH 1203	General Chemistry II	3
CH 1203L	General Chemistry II Lab	1
EN 1201	English II	3
IT 1011	Information Technology Concepts	1.5
IT 1012	Computer Applications	1.5
MP 1203	Elementary Functions or	
*MP 1204	Calculus I or Elective	3-4
PE 1209	Physical Education II	1
Total		**18-19**

Employment Program

BY 2370	Employment Program	1-2

SOPHOMORE YEAR
First Semester

Course No.	Course Title	Credits
BY 2001	Botany	4
CH 2120	Organic Chemistry I	3
CH 2120L	Organic Chemistry I Lab	1
LA 2005	Speech	3
*MP 1204	Calculus I or	
	Elective or Major Course	4
	Humanities Area	3
Total		**18**

** Calculus I is the minimum mathematics requirement for the Biology major. Non-required mathematics courses are counted as elective credits.*

Second Semester

BY 2003	Genetics	3
BY 2223	Comparative Anatomy	4
CH 2203	Biochemistry	3
CH 2203L	Biochemistry Lab	1
CH 2220	Organic Chemistry II	3
CH 2220L	Organic Chemistry II Lab	1
EN 2028	Introduction to Literature	3
Total		**18**

Employment Program

BY 2370	Employment Program	1-2

JUNIOR YEAR
First Semester

Course No.	Course Title	Credits
LA 1060	Introduction to Fine Arts	3
LA 4037	Non-Western Societies	3
MP 2119	Physics I	4
	Major Courses or Electives	6-8
Total		**16-18**

Second Semester

*BY 2004	Genetics Laboratory	1
MP 2219	Physics II	4
	Major Courses or Electives	12-14
Total		**17-19**

** Genetics Laboratory may be taken any semester.*

SENIOR YEAR
First Semester

Course No.	Course Title	Credits
BA 2008	Macroeconomics	3
BY 4110	Seminar	1
	Major Courses or Electives	9-14
Total		**13-18**

Second Semester

	Humanities Area	3
	Social Science Area	3
	Major Courses or Electives	6-12
Total		**12-18**

Social Sciences Area: select one of the following:

LA 2012	Introduction to Sociology	3
LA 2036	Introduction to Psychology	3
LA 4203	Social Psychology and Human Interaction	3

Humanities Area: select two courses from the following:

LA 2040	Modern History of Western Societies	3
LA 2042	Introduction to Philosophy	3
LA 2138	History of Western Civilization I	3
LA 3032	American History and Government since 1877	3
LA 4127	United States Foreign Policy	3

Major Areas of Study

19 total credits required in each major area.

Pre-Professional

Courses required for this Specialization		Credits
BY 3002	General Microbiology	4
BY 4132	Human Physiology	4

and 2 of the following 4 courses

BY 3208	Vertebrate Embryology	4
BY 3229	Immunology	4
BY 4218	Histology	4
BY 4250	Virology	3
	Specialized Pre-Professional Electives	3-4
Total		**19**

Pre-Medical Students (3-4 credits required)

Recommended Courses		Credits
BY 3208	Vertebrate Embryology or	
BY 3229	Immunology or	
BY 4218	Histology	4
AS 4106	Principles of Animal Nutrition	3
AS 4129	Clinical Pathology	3
BY 4206	Determinative Microbiology	4
BY 4155	Molecular Biology	4
BY 4250	Virology	3
CH 3001	Intro to Biomedical Instrumentation	4
CH 3130	Analytical Chemistry	4
FS 3120	Introduction to Nutrition	3

Pre-Veterinary Students (3-4 credits required)

Recommended Courses		Credits
BY 3208	Vertebrate Embryology or	
BY 3229	Immunology or	
BY 4218	Histology	4
AS 4106	Principles of Animal Nutrition	3
AS 4129	Clinical Pathology	3
BY 4155	Molecular Biology	4
BY 4206	Determinative Microbiology	4
BY 4250	Virology	3
CH 3001	Intro to Biomedical Instrumentation	3
CH 3130	Analytical Chemistry	4
SA 4124	Pathology and Diseases of Small Animals	3
SA 4225	Small Animal Research Techniques	3

Pre-Graduate School (3-4 credits required)

Recommended Courses		Credits
AS 4106	Principles of Animal Nutrition or	
FS 3120	Introduction to Nutrition	3
AS 4129	Clinical Pathology	3
BY 3208	Vertebrate Embryology or	
BY 4218	Histology	4
CH 3130	Analytical Chemistry	4
BY 4155	Molecular Biology	4
BY 4206	Determinative Microbiology	4
MP 3231	Statistics for Science	3
SA 4124	Pathology and Diseases of Small Animals	3
SA 4225	Small Animal Research Techniques	3

Zoology

Courses required for this specialization		Credits
BY 2108	Ecology	4
BY 3123	Invertebrate Zoology	4
BY 4257	Comparative Physiology	4
	Specialized Zoology Electives	7
Total		**19**

Take 7 credits from the following courses to fulfill the Zoology requirements:

		Credits
AS 3123	Animal Husbandry Techniques	3
AS 4106	Principles of Animal Nutrition	3
AS 4214	Animal Diseases	3
BY 2240	Ornithology	3
BY 3002	General Microbiology	4
BY 3007	Entomology	3
BY 3126	Limnology	4
BY 3208	Vertebrate Embryology	4
BY 3221	Apiculture	3
BY 3250	Tropical Ecology	4
BY 4155	Molecular Biology	4
BY 4250	Virology	3
DS 2230	Physiology of Lactation	3
DS 4134	Physiology of Reproduction	3
SA 3032	Herpetology	3
SA 3034	Mammalogy	3
SA 3112	Wildlife Management	3
SA 3124	Animal Behavior	3
SA 4124	Pathology and Diseases of Small Animals	3
SA 4129	Clinical Pathology	3
SA 4222	Reproduction and Nutrition of Small Animals	3
SA 4225	Small Animal Research Techniques	3

Microbiology & Biotechnology

Courses required for this Specialization		Credits
BY 3002	General Microbiology	4
BY 4132	Human Physiology	4
BY 4155	Molecular Biology	4
MP 3231	Statistics for Science	3
	Specialized Microbiology and Biotechnology Electives	4
Total		**19**

Take 4 credits from the following courses to fulfill the Microbiology & Biotechnology requirements:

		Credits
BT 3000	Introduction to Biotechnology	3
BT 3001	Introduction to Biotechnology Lab	1
BY 4206	Determinative Microbiology	4
BY 4250	Virology	3
CH 3001	Introduction to Biomedical Instrumental Methods	3
CH 3130	Analytical Chemistry	4
FS 3218	Food Microbiology	4
HT 3025	Plant Cell and Tissue Culture	2
HT 4005	Plant Pathology	3
SA 4124	Pathology and Diseases of Small Animals	3
SA 4129	Clinical Pathology	3
SA 4222	Reproduction of Small Animals	3
SA 4225	Small Animal Research Techniques	3

Botany

Courses required for this Specialization		Credits
BY 2235	Plant Communities	3
BY 2108	Ecology	4
HT 2005	Plant Physiology	3
	Specialized Botany Electives	9
Total		**19**

Take 9 credits from the following courses to fulfill the Botany requirements:		Credits
AE 2004	Soils	3
AE 2209	Soil Fertility and Fertilizers	3
AE 3104	Field Soil Morphology	3
AE 3202	Plant Breeding	3
AE 4116	Weed Science	3
BY 3002	General Microbiology	4
BY 3007	Entomology	3
BY 3105	Introduction to the Biology and Ecology of Algae	3
BY 3106	Introduction to the Biology and Ecology of Fungi	3
BY 3126	Limnology	4
BY 3203	Taxonomy of Vascular Plants	3
BY 4250	Virology	3
HT 3025	Plant Cell and Tissue Culture	2
HT 3132	Dendrology	3
HT 3205	Subtropical Horticulture	3
HT 4005	Plant Pathology	3
HT 4225	Plant Disease Diagnosis	3
OH 3005	Plant Propagation	3
OH 4125	Ecological Landscape Management and Restoration	3

Ecology/Environmental Science

Courses required for this Specialization		Credits
AE 2004	Soils	3
BY 2108	Ecology	4
BY 3126	Limnology	4
	Specialized Environmental Science Electives	8
Total		**19**

Take 8 credits from the following courses to fulfill the Environmental Science requirements		Credits
AE 2209	Soil Fertility and Fertilizers	3
AE 3105	Soil Conservation	3
AE 3107	Environmental Geology	3
AE 3140	Environmental Impacts	3
AE 3145	Land Planning and the Law	3
AE 3216	Soil Classification	3
AE 4010	Soil and Environmental Planning	3
AE 4015	Regional Land Use Planning	3
AE 4016	Hydrogeology	3
AE 4025	Climatology	3
AE 4043	Applied Toxicology and Risk Assessment	3
BY 2235	Plant Communities	3
BY 2240	Ornithology	3
BY 3002	General Microbiology	4
BY 3007	Entomology	3
BY 3008	Intro. to Earth & Space Science	3
BY 3203	Taxonomy of Vascular Plants	3
BY 3250	Tropical Ecology	3
BY 4257	Comparative Physiology	4
CH 3130	Analytical Chemistry	4
HT 4204	Plant Pest Management	3
OH 4125	Ecological Landscape Restoration	3
SA 3032	Herpetology	3
SA 3112	Wildlife Management	3
SA 3124	Animal Behavior	3

Biology Minor

A student majoring in another department's program may earn a minor in Biology by successfully completing 15 credits in non-required Biology courses. Minor programs must be approved by the Biology Department.

BUSINESS ADMINISTRATION (BA)

Faculty:
Garry Flower, Chairperson
David S. Beck
Elizabeth Kolar
Anthony Rohach
Christine Seel
Lawrence B. Stelmach
George F. West

Business Administration is a broad, comprehensive career program that deals with the science and art of managing the human, physical and economic resources of a business enterprise. As a science and art, it deals with principles, concepts, and practices that influence the activities of finance, production, personnel, distribution and marketing. Emphasis is placed on management's ability to analyze, plan, motivate, coordinate and control the varied activities necessary for effective and successful operation of a business organization.

In addition to going on for a Master's in Business Administration, Delaware Valley College business graduates have found positions as: Commercial Loan Analyst, Owner/Operator of a Business, Accountant, Compliance Specialist, Credit Associate, Supervisor,