Biology Degrees: Bachelor of Science (B.S.)
Specializations: General Biology, Pre-Professional
Minor: Biology
Certificates: Evolutionary Biology, Fisheries and Aquacultures, Molecular Science, Physiology, Plant Science
Department: Building 58, Room 79
College: Arts and Sciences
Semester Hours Required for Degree: 120
Faculty: http://uwf.edu/biology/facstaff/

The B.S. in Biology gives students access to technological breakthroughs in areas, such as biochemistry, botany, ecology, genetics, microbiology, molecular biology, and physiology, which are being used to solve problems in agriculture, environmental toxicology, forestry, medicine, public health, and pharmaceutical industry. The Department of Biology focuses on areas of modern biology and biotechnology, offering the degree in two specializations: General Biology and Pre-Professional. The specializations include a series of five core courses fundamental to all areas of biology.

Elective courses emphasize theoretical and practical aspects within the chosen specialization. After completing the B.S. in Biology, graduates will be prepared to gain employment in industry, government, health professions, and research laboratories or to pursue advanced degrees in the biological sciences, professional schools (medicine, dentistry, optometry, pharmacy, veterinary), and public health. Prospective students need to be aware that some biology lab courses involve use of live animals. Students may wish to seek details from course instructors before enrolling.

Contact the department for additional information on certificates.

PROGRAM REQUIREMENTS
In addition to the university’s general requirements, students seeking the B.S. in Biology must meet the requirements listed below.

A grade of “C” or better is required in each of the five biology core courses. Consult with your academic advisor for courses that may satisfy both the General Studies requirements and common prerequisites.

General Studies (36 sh)
Biology majors should satisfy the mathematics (6 sh) and science (7 sh) components of General Studies with course work taken from the common prerequisites shown below.

For additional information see the General Studies section of this catalog.

Common Prerequisites (31-32 sh)
State mandated common prerequisites must be completed prior to graduation, but are not required for admission to the program. Graduation requirements for the B.S. degree in Biology include the successful completion of the common prerequisites. Because it will be difficult to incorporate all prerequisites into the 60 sh Lower Division Curriculum, students are advised to complete the following common prerequisites. Courses in brackets indicate substitutes from Florida public colleges and universities.

Choose one:
+CHM 2045/L General Chemistry I/Lab .......................... 4
[CHM X045/CHM X045/L, or CHM X045C]
+CHM 2046/L General Chemistry II/Lab .......................... 4
[CHM X046/CHM X046/L, or CHM X046C]
+MAC 2311 Analytic Geometry and Calculus I ................. 4
[MAC X311, X233, X253, X281]
+PCB 2131/L Cell Biology/Lab ...................................... 4
[PCB X010/L, X011/L, X021/L, X131/L, BSC X010/BSC X010/L, BSC X040/L, X012/L, X010C]
+STA 2023 Elements of Statistics .................................. 3-4
[MAC X312, X234, X254, X252, STA X122, X014, X023, X024, X321]

Choose one option:
Option 1
CHM 2210/L Organic Chemistry I/Lab ........................... 4
[CHM X021/X210/L, or CHM X210C]
CHM 2211/L Organic Chemistry II/Lab ........................... 4
[CHM X211/X211/L, or CHM X211C]

Option 2 (Preferred Option)
+PHY 2053/L General Physics I/Lab .............................. 4
[PHY X048/L, PHY X053/L]
+PHY 2054/L General Physics II/Lab .............................. 4
[PHY X049/L, PHY X054/L]

+ Indicates common prerequisites which can be used to satisfy General Studies requirements.

Lower Division Electives (0-6 sh)
Students must complete sufficient 1000/2000 level electives to satisfy at least 60 sh in the lower division. Current UWF students may use elective courses at any level (1000-4000) to meet this elective requirement.

GENERAL BIOLOGY SPECIALIZATION

Biology Core (20 sh)
BCH 3033/L Biochemistry I/Lab ................................. 4
BCH 3034/L General Biochemistry: Metabolism/Lab ....... 4
MCB 3020/L Microbiology/Lab .................................... 4
PCB 3063/L Genetics/Lab .......................................... 4
PCB 4043/L Ecology/Lab ........................................... 4

General Biology Specialization (12 sh)
Choose one:
BOT 4503/L Plant Physiology/Lab ............................... 4
PCB 4723/L Comparative Animal Physiology I/Lab ........... 4
Choose one:
BOT 4374/L Plant Developmental Biology/Lab......................... 4
PCB 3253/Ls Developmental Biology/Lab............................. 4

General Biology Sub-core (14 sh)
3000/4000 level Biology electives..................................... 14
Up to 2 sh of directed study credit may be applied to electives. Students must confer with advisor when selecting electives.

The sub-core may include any upper division course in biology, except ZOO 3733. At least two upper division botany courses must be included in the program.

Major-Related (14 sh)

Choose one:
STA 4173 Biostatistics................................................... 3
BSC 4434 Introduction to Bioinformatics......................... 3
CGS 3464 Programming Using Visual Basic for Non-Majors........ 3

Students must take 8 sh of the following that were not completed as part of the Common Prerequisites in the lower division:

Choose one:
BOT 2010/L General Botany/Lab....................................... 4
CHM 2210/L Organic Chemistry I/Lab................................. 4
PHY 2053/L General Physics I/Lab..................................... 4
ZOO 1010/L General Zoology/Lab..................................... 4

Upper Division Electives (0 sh)

Pre-professional Biology Specialization (12 sh)

Choose one:
PCB 3253/L Developmental Biology/Lab............................... 4
PCB 4723/L Comparative Animal Physiology I/Lab................ 4

Choose one:
BOT 4734/L Plant Biotechnology/Lab................................. 4
PCB 4524/L Molecular Biology/Lab................................... 4

Pre-professional Biology Sub-core (14 sh)

Electives chosen with advisor........................................... 10

Recommended:
HSC 3555 Pathophysiology............................................. 3
MCB 4276 Epidemiology of Infectious Disease.................... 3
MLS 4305/L Hematology I/Lab......................................... 4
MLS 4462/L Medical Microbiology/Lab.............................. 4
MLS 4625/L Clinical Chemistry I/Lab................................. 4
MLS 4630/L Clinical Chemistry II/Lab............................... 4
PCB 3663 Human Genetics................................................. 3
PCB 4233/L Immunology/Lab.......................................... 4
PCB 4521/L Molecular Genetics/Lab.................................. 4
PCB 4522 Genetic Engineering.......................................... 3
ZOO 3233/L Parasitology/Lab........................................... 4

Biology Core (20 sh)

BCH 3033/L Biochemistry I/Lab........................................ 4
BCH 3034/L General Biochemistry: Metabolism/Lab.............. 4
MCB 3020/L Microbiology/Lab.......................................... 4
PCB 3063/L Genetics/Lab.................................................. 4
PCB 4043/L General Biology I/Lab.................................... 4

Pre-professional Biology Specialization (12 sh)

Choose one:
PCB 3253/L Developmental Biology/Lab............................... 4
PCB 4723/L Comparative Animal Physiology I/Lab................ 4

Choose one:
BOT 4734/L Plant Biotechnology/Lab................................. 4
PCB 4524/L Molecular Biology/Lab................................... 4

Pre-professional Biology Sub-core (14 sh)

Electives chosen with advisor........................................... 10

Recommended:
HSC 3555 Pathophysiology............................................. 3
MCB 4276 Epidemiology of Infectious Disease.................... 3
MLS 4305/L Hematology I/Lab......................................... 4
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MLS 4630/L Clinical Chemistry II/Lab............................... 4
PCB 3663 Human Genetics................................................. 3
PCB 4233/L Immunology/Lab.......................................... 4
PCB 4521/L Molecular Genetics/Lab.................................. 4
PCB 4522 Genetic Engineering.......................................... 3
ZOO 3233/L Parasitology/Lab........................................... 4

ZOO 4753/L Histology/Lab................................................ 4
Directed Study (2 hours maximum allowable).......................... 2

Students must take the course below that was not completed as part of the Common Prerequisites or Major-Related.

PHY 2054/L General Physics II/Lab.................................... 4
CHM 2211/L Organic Chemistry II/Lab............................... 4

(Required for Pre-Vet students; may be required for some Pre-Med students - See Advisor)

Major-Related (14 sh)

Choose one:
BSC 4434 Introduction to Bioinformatics......................... 3
CGS 3464 Programming Using Visual Basic for Non-Majors........ 3

Students must take 8 sh of the following that were not completed as part of the Common Prerequisites in the lower division:

Choose one:
BOT 2010/L General Botany/Lab....................................... 4
CHM 2210/L Organic Chemistry I/Lab................................. 4
PHY 2053/L General Physics I/Lab.................................... 4
ZOO 1010/L General Zoology/Lab..................................... 4

Upper Division Electives (0 sh)

The Minor in Biology may be earned with the completion of 20 sh and is available for students in a wide variety of majors. It provides the opportunity to add value to the major degree and to expand students’ opportunities for employment. It is especially appropriate for students who plan to work in administrative or other nonresearch-related areas of the biomedical, environmental, pharmaceutical, and other biological science-related industries.

A minimum of 14 sh must be taken at UWF, including at least 9 sh of 3000/4000 course work taken in residence at UWF. A minimum grade of "C" is required in all courses used to satisfy the minor. Neither directed study nor credit by exam (AP, CLEP, etc.) may be applied toward the minor. Contact the Academic Advisor for the Department of Biology for assistance in choosing courses to meet specific needs. Biology, Marine Biology, Medical Technology, and Zoo Science majors may not earn this minor. Students should assess the prerequisites for upper division courses they wish to take to complete the minor.

Choose one:
PCB 2131/L Cell Biology/Lab........................................... 4

Choose one:
BOT 2010/L General Botany/Lab....................................... 4
ZOO 1010/L General Zoology/Lab..................................... 4

3000/4000 level Biology (BCH, BOT, BSC, MCB, MLS, OCE, PCB, and ZOO) courses which includes at least one 4 sh lab courses.
PRE-PROFESSIONAL PROGRAM, MEDICAL SCIENCES

Department: Biology
Building 58, Room 064
(850) 474-2748
http://uwf.edu/biology/
pre-professional@uwf.edu

College: Arts and Sciences

Program Contact: http://uwf.edu/biology/facstaff/

The number of students applying for professional training in fields such as medicine, osteopathic medicine, dentistry, veterinary medicine, optometry, podiatry, pharmacy, and physical therapy always exceeds the number of positions available. Therefore, competition for these positions is very intensive. Students from Florida primarily apply to in-state professional schools. They must have outstanding credentials to receive serious consideration at public institutions out-of-state. Private out-of-state institutions are somewhat more receptive. Foreign professional schools should be considered with extreme caution.

Health Advisory Program
Professional schools are interested in a student’s academic training and accomplishments as measured by the student’s transcripts. The most successful applicants are full-time students (minimum of 12 sh per semester) with a minimum cumulative GPA above 3.5 during the three or four semesters immediately preceding application. It makes little difference as to the student’s major, although most pre-professional students at UWF select a specialization in biology or chemistry. Criteria to be considered in selecting a major are as follows: first, a field within which the student can meet the prerequisites for admission to professional school and for graduation from UWF at a very high performance level; second, a major that provides viable career alternatives; and third, a major which is enjoyable to the student. Professional schools require at the minimum: biology w/laboratory (1 year); mathematics (calculus required or recommended); physics w/laboratory (1 year); and chemistry w/laboratory through organic (physical therapy requires only one year of chemistry). Most schools have additional requirements. Courses in anatomy, analytical chemistry, biochemistry, cell biology, computer techniques, developmental biology, genetics, microbiology, physical chemistry, physiology, psychology, and statistics are also useful and often required. However, a student could major in history, for example, and use electives as a means to complete the entrance requirements. The exact program for each student will depend upon background and interests.

A speech course and two courses in animal science are required for admission to veterinary medicine. UWF students generally meet these requirements by registering at the University of Florida as transient students during a summer semester.

Pharmacy and physical therapy schools require at least two years of college which include the above required courses. The other professional schools prefer a bachelor’s degree.

Admission Requirements to the Upper-Division Pre-professional Program for Transfer Students
Professional training is essentially advanced training in biology. The emphasis on mathematics, physics, and chemistry, as much as biology, facilitates understanding of advanced work. Transfer students should have backgrounds in these four science areas. They also should have 12 sh in the humanities, including English composition, and 12 sh in social sciences, such as psychology and history. College algebra with trigonometry, general chemistry, elementary biology, and zoology or botany are prerequisites for the upper-division science courses.

Application to Professional Schools
The formal process of applying for admission to professional schools generally begins in the spring of the calendar year prior to the anticipated enrollment. As appropriate, a student takes the Medical College Admission Test (MCAT); the Dental Aptitude Test (DAT); the Optometry Aptitude Test (OAT); the Graduate Record Examination (GRE); or other preprofessional examination. It is necessary to have completed almost all prerequisites by that time. The examinations may be taken at other times, but the decision should be discussed with an advisor.

Applications are completed and submitted to the schools or to application services such as the American Medical College Application Service (AMCAS) or the Association of American Dental Schools Application Service (AADSAS) during the summer and early fall. Evaluations are submitted by the faculty at that time and students seek interviews from the professional schools which require them. Decisions generally are announced during the January-to-March period.

Health Advisory Committee
Students enrolled at UWF who intend to apply for admission to professional schools such as medical, dental, optometry, pediatric medicine or schools of veterinary medicine generally utilize the services of the Health Advisory Committee.

The Health Advisory Committee provides on-going advice (regardless of the student’s major), direct contact with the professional schools, brochures, applications, and other materials of interest to such students. The committee arranges visits of admissions officers from various schools and provides a means of introducing students to local practitioners.

During the application process, candidates for admission to professional schools usually are asked to provide a letter of recommendation from a faculty committee. The Health Advisory Committee serves this function. On request, the Committee will schedule an interview with the candidate. This interview serves three purposes: 1) information is gathered for the preparation of the letter of recommendation, 2) the student’s performance at the interview is critiqued, and 3) the candidate is given some pointers on presentation.
The Biology, UWF Honors/USF Medical Education Cooperative Program was removed from catalog for 2010. Program will be available Fall 2011.

The B.S.M.S. in Biology, Fast Track Bachelors/Master's was removed from catalog. Program availability TBD.