BIOLOGY

Degrees: Master of Science,
Master of Science in Teaching
Department: Biology
Building 58, Room 79
(850) 474-2748
http://uwf.edu/biology/
biology@uwf.edu
College: Arts and Sciences

The Department of Biology offers the traditional M.S. degree program with three areas of specialization. The first is Biology which requires a research thesis, and includes two fast tracks, one in Biological Chemistry (additional information in the chemistry undergraduate section of the *Catalog*), and one for students who hold an Associate of Arts degree from a Florida public institution (additional information in the biology undergraduate section of the *Catalog*). The second is a non-thesis specialization in Coastal Zone Studies. The third is a non-thesis specialization in Environmental Biology. The department also offers a program leading to the M.S.T. Post Secondary degree.

ADMISSION REQUIREMENTS

In addition to the general University requirements, students seeking the M.S. Degree in Biology must meet the following departmental requirements:

A. Hold a Bachelor of Science (B.S.) Degree in Biology or a related field from an accredited college or university. Applicants applying with a Bachelor of Arts (B.A.) in Biology, or a B.S. degree in another area must have satisfactorily completed all upper and lower division core classes (or equivalents) required of UWF biology undergraduates. Applicants for the Environmental Biology (EVB) Specialization with a B.S. or B.A. in another discipline are required to complete General Zoology or General Botany, Cell Biology, Genetics, and an additional 8 semester hours of upper division biology-related courses.

B. Applicants must have a cumulative total undergraduate GPA of 3.0 and a combined quantitative and verbal score of 1000 on the General Graduate Record Examination (GRE). The subject test in an appropriate field is required.

C. Applicants must have a faculty member who has agreed to provide laboratory space and serve as the applicant's major advisor. Applicants are urged to speak with prospective faculty advisors prior to the application deadline date. Prior to registration students must consult with the faculty advisor assigned to oversee the program into which the student has been accepted. Applicants for the EVB Specialization must select a faculty advisor and two committee members. The advisor may be from either Biology or Environmental Studies, but both departments must be represented on the committee.

D. Individual faculty members may request exemptions from some of the requirements listed above for specific students.

E. Students desiring to transfer from a non-thesis to a thesis specialization must fulfill all requirements for admission to that specialization.

Prospective students must submit the following materials by the first Monday in March to be considered for admission in the fall semester or by the first Monday in September to be considered for spring admission. To be considered for financial aid within the Department, all prospective students for each academic year must also submit these materials by the first Monday in March. For example, students applying to the program Fall 2005, Spring 2006, or Summer 2006 must submit these materials by March 7, 2005 in order to be eligible for tuition waivers and/or scholarships within the Department.

A. Three letters of recommendation from individuals who can evaluate the student's academic ability.

B. Official GRE scores.

C. Official transcripts from all undergraduate institutions attended.

D. A letter describing the student's area of interest within biology, relevant past experience, future objectives, and the names of UWF faculty with whom they have spoken regarding the M.S. program.

E. UWF Graduate Admission Application.

The completed application will be reviewed by the faculty and by the graduate program committee. Conditional admission may require the student to complete the appropriate foundation courses with grades of "B" or better. Only complete applications will be reviewed. Students must also complete a departmental data sheet as part of the admission process. Students will be notified of the final decision on their admission to the program.

BIOLOGY, M.S.

BIOLOGY SPECIALIZATION (THESIS)

The thesis program is designed for students seeking advanced studies in areas of modern biology and biotechnology with training in the fields of aquaculture, biochemistry, ecology, environmental studies, fisheries biology, genetics, immunology, marine biology, microbiology, molecular biology, plant science, and physiology.

In addition to the general University academic requirements, students seeking the M.S. degree in biology must meet the following departmental requirements:

A. Select a thesis advisory committee composed of a chairperson and at least two additional faculty members.

B. Meet with the thesis advisory committee and complete a written plan of study that specifies courses and other work necessary for the program.

C. Submit a written research proposal acceptable to the thesis supervisory committee and demonstrate by oral examination that the proposed research is feasible.

D. Complete a minimum of 32 semester hours of credit approved by the thesis committee. Fifteen of these hours must be at the 6000 level and must include the three graduate core courses (BSC 6002L, BSC 6840, and PCB 6074) and may include six semester hours of thesis. Six semester hours or two courses of upper division of credit in undergraduate courses in biology may be approved as part of the program.

E. Submit an acceptable thesis and successfully defend it in an oral public presentation.

BIOLOGICAL CHEMISTRY FAST TRACK BACHELORS/ MASTERS SPECIALIZATION

This specialization is available as a stand-alone master's degree or as part of a fast track degree program that includes both the bachelor's and master's degrees. Students who already hold a bachelor's degree in biology or chemistry must complete the admission requirements previously listed for the Master's in Biology. Students currently enrolled in the fast track Biological Chemistry Specialization must complete the admission requirements previously listed for the Master's in Biology with the exception of having earned a baccalaureate degree.

Following acceptance into the program, students seeking the M.S. Degree in biology must meet the following departmental requirements:

A. Select a thesis advisory committee composed of a chairperson and at least two additional faculty members, at least one of whom is on the faculty of the Department of Chemistry. Chemistry faculty may serve as chairperson of the thesis advisory committee if their research is the primary site for the conduct of the thesis research.

B. Meet with the thesis advisory committee and complete a written plan of study that specifies courses and other work necessary for the program.

C. Submit a written research proposal acceptable to the thesis committee and demonstrate by oral examination that the proposed research is feasible.

D. Complete a minimum of 33 semester hours of credit.

Biological Chemistry Course Requirements

BSC	5459	Introduction to Bioinformatics	3
BSC	6002L	Contemporary Laboratory Skills	4
BSC	6840	Professional Development in Biology	3
PCB	5235/L	Immunology/Lab	4
PCB	5525	Genetic Engineering	3
PCB	5527/L	Molecular Biology/Lab	4
PCB	6074	Experimental Design in Biology	3
PCB	6971	Thesis Course offered 1-6 sh per semester	6
Advanced Chemistry Course approved by advisor			4

E. Submit an acceptable thesis and successfully defend it in an oral public presentation.

Total semester hours for completion of the entire Bachelor's/Master's Program is 139 (compared to 152 by normal route). The Chairs of Biology and Chemistry are liaison officers for the program - jointly in charge of changes in the program and in course requirements.

Students with a four-year degree in chemistry who wish to enter the Biological Chemistry Master's Program may enter the program as a non-degree student and must have had or must take all of the following courses prior to full acceptance into the Master's Program in Biological Chemistry:

BCH	3033/L	Biochemistry I/Lab	4
BCH	3034/L	General Biochemistry: Metabolism/Lab	4
BOT	2010/L	General Botany/Lab	4
MCB	3020/L	Microbiology/Lab	4
PCB	3063/L	Genetics/Lab	4
PCB	3253/L	Developmental Biology/Lab	4
ZOO	1010/L	General Zoology/Lab	4

COASTAL ZONE STUDIES SPECIALIZATION (NON-THESIS)

In this non-thesis specialization, students will learn methods to identify and solve problems, management practices, and procedures for policy-making as they pertain to a coastal zone. Students with bachelor's degrees in the physical sciences, geography, and resource management are encouraged to apply. Departmental requirements are:

A. Prior to registration, and in consultation with the department chairperson, select a faculty advisor and form a supervisory committee.

B. Meet with the committee and complete a plan of study that specifies courses and practical experience necessary for the program. The plan must be approved by the supervisory committee.

C. Complete 36 semester hours composed of the required selections from the course groups specified below and from graduate electives in biology.

BSC	5905	Directed Study*	3
		Course offered 1-3 sh per semester	
BSC	6002L	Contemporary Laboratory Skills	4
BSC	6329	Coastal Studies Seminar	1
BSC	6840	Professional Development in Biology	3
GEO	5225/L	Coastal Morphology and Processes/Lab	4
PCB	5446/L	Wetlands Ecology/Lab	4
PCB	6074	Experimental Design in Biology	3
5000/6000 level advisor approved courses			2
6000 level advisor approved courses			5

* A committee approved 3 sh directed study must be taken, involving exposure to experimental or sampling design, data collection, and analysis, and presentation of results to the supervisory committee.

Choose one:

GIS	4035/L	Photo Interpretation & Remote Sensing/Lab	4
GIS	4043/L	Geographic Information Systems/Lab	3

Choose one:

EVR	4023	Coastal & Marine Environments	3
EVR	4035	Environmental Law	3

ENVIRONMENTAL BIOLOGY SPECIALIZATION (NON-THESIS)

There is a great demand from local, state, and federal government, as well as from industry, for students with a strong background in environmental biology. The Departments of Biology and Environmental Studies have collaborated to create a non-thesis specialization in Environmental Biology.

FOUNDATIONAL PROFICIENCIES

Biological Science Proficiencies

PCB	2131/L	Cell Biology/Lab	4
PCB	3063/L	Genetics/Lab	4
STA	4173	Biostatistics	3
ZOO	1010/L	General Zoology/Lab or	
BOT	2010/L	General Botany/Lab	4

8 hours of 3000/4000 level courses (BCH, BOT, BSC, MCB, MLS, OCE, PCB, or ZOO), one of which could be taken at the graduate level with the advisor's approval.

Environmental Studies Proficiencies

GIS	4035/L	Photo Interpretation & Remote Sensing/Lab	4
GIS	4043/L	Geographic Information Systems/Lab	3

Choose two:

BSC	4303	Biogeography	3
GEO	3210/L	Geomorphology/Lab	4
GEO	3250/L	Weather and Climate/Lab	4
GEO	3260/L	Geography of Soils/Lab	4

DEGREE REQUIREMENTS

The student must complete 36 hours of course work composed of the required selections from the list below and from graduate electives as indicated:

BSC	6002L	Contemporary Laboratory Skills	4
BSC	6329	Coastal Studies Seminar	1
BSC	6840	Professional Development in Biology	3
BSC	6905	Directed Studies*	1
		Course offered 1-3 sh per semester	
GEO	5225/L	Coastal Morphology and Processes/Lab	4
GIS	5039	Applications in Remote Sensing	3
GIS	5100	Applications in Geographic Information Systems	3
PCB	5446/L	Wetlands Ecology/Lab	4
PCB	6074	Experimental Design in Biology	3
5000/6000 level advisor approved biology courses			7

Choose one:

EVR	6930	Special Topics in Environmental Sciences	3
GEO	6936	Graduate Seminar	3

* A committee approved 1 sh directed study must be taken, involving exposure to experimental or sampling design, data collection, and analysis, and presentation of results to the supervisory committee.

BIOLOGY, M.S.T.

POST-SECONDARY TEACHING

This non-thesis track in the M.S.T. program is designed to prepare students to teach in the biological sciences at the post-secondary level. Applicants should have a bachelor's degree in some discipline of biological science from an accredited institution. Applicants holding the bachelor's degree in some other discipline will be considered using criteria appropriate to their backgrounds. Completion of Florida teacher certification is not an exit requirement for this track in the MST program.

Departmental requirements are as follows:

A. Form and meet with a supervisory committee within one semester after matriculation in the M.S.T. program. The committee will be composed of a major advisor and one additional faculty member, both from biology.

B. Complete a minimum of 36 semester hours of credit approved by the supervisory committee. Fifteen of these hours must be at the 6000 level.

C. Complete at least 21 semester hours of graduate credit in formal courses, including at least 8 semester hours in each of two broad areas, such as, botany, ecology, molecular biology, microbiology, physiology, and zoology. Completion of a formal college-level course in evolution is required. A committee-approved 3 sh directed study (6000-level) must be taken involving exposure to experimental or sampling design, data collection and analysis, and presentation of results to the supervisory committee.

D. Complete: EDF 6602 and EDF 6218 or supervisory committee approved substitutes.

E. Complete two semesters of BSC 6018 (3 sh each semester) which includes participation in biology laboratory instruction. As part of this course, the student will serve as a teaching assistant during the first semester, and as instructor of record during the second semester in a lower or upper division undergraduate course to be determined by the supervisory committee in conjunction with the Chairperson of Biology. In addition, students will participate in the design and presentation of laboratories and will be graded on both their presentation and design by the faculty member in charge of the course in which they are serving as teaching assistant or instructor of record.