FITCHBURG STATE UNIVERSITY

BIOLOGY

The undergraduate degree programs in Biology include both a BS and BA in Biology as well as Concentrations in Biotechnology, Environmental Biology, Health Sciences, Neuroscience and Behavior, and Biology with Initial Teacher Licensure. These biology programs emphasize basic scientific principles, while challenging students. The Department of Biology and Chemistry has a rich history of producing successful graduates in secondary education, biotechnology, environmental biology, health sciences, and neuroscience.

HOW TO USE THE ACTION PLAN

Use the Action Plan timeline to explore potential career paths and plan for success during and after your college experience. Maximize the time you have in college to prepare for your future. What do you want to do after you graduate with a multi-purpose Biology degree. Customize your own personal action plan using the **My Biology Action Plan tool** (next page). Remember, you do not have to do this all on your own, get the support you need from your **departmental academic advisor** and from **Career Services and Advising (CSA).**

WHY ENGAGE IN INDEPENDENT RESEARCH

- Develop valuable technical skills that will prepare you for future research and career.
- Learn to think scientifically by developing experiments to test hypotheses, analyzing your data, and generating your own conclusions.
- Opportunity to develop presentation and public speaking skills by presenting at the Fitchburg State University Undergraduate Conference.
- Build relationships with faculty who will mentor you as you progress on to graduate study or future employment.

EXAMPLES OF PAST RESEARCH PROJECTS

- Modeling muscular dystrophy in cultured muscle stem cells.
- Analyzing patterns in fish scale variation within individuals and across populations.

ALUMNI CAREER FIELDS

ALUMNI STORY
CRYSTAL McKINNON '11

"I ended up loving the biology program. There were so many interesting things that I could keep learning about, and keep expanding my knowledge about. And then there were so many parts of biology that I could choose to follow up on with all the classes and electives that were offered."

Crystal McKinnon, BS Biology 2011

Principal Associate Scientist, Valo Health

University Lecturer, Northeastern University

CAREER COMPETENCIES

Knowledge of Biology: Demonstrate biology content knowledge.

Scientific Inquiry and Analysis: Engage with and answer questions about the natural and physical world using scientific practices including collecting, analyzing and interpreting data.

Communication Skills: Effectively communicate science orally and in writing.

Quantitative Reasoning: Analyze and interpret mathematical information as a means to evaluate scientific arguments and make informed choices.

Laboratory Skills: Use appropriate laboratory skills and instrumentation to solve problems.

Laboratory Safety: Demonstrate and apply an understanding of the concepts of safe laboratory practices.

Information Literacy: Recognize what scientific information is needed and have the ability to locate, evaluate, and use that information effectively and ethically.

Teamwork and Collaboration: Interact effectively in a group to solve scientific problems and work productively with a diverse group of peers.

FITCHBURG STATE UNIVERSITY

BIOLOGY ACTION PLAN

Take a look at the suggested activities in the Action Plan below. You do not need to complete all these tasks, but it is a place to start generating ideas. Think about what you would like to work on now in order to feel well prepared to enter your career field or graduate school upon graduation. Use the blank My Action Plan tool with your advisor to come up with the action items that are priorities for you, revisit and revise this action plan each semester.

	FIRST YEAR	SOPHOMORE YEAR	JUNIOR YEAR	FINAL YEAR
ACHIEVE ACADEMIC MILESTONES	Begin to develop a 4-year course plan based on your career goals. Work with your advisor to ensure proper math placement, retaking placement exam if necessary and completing Algebraic Preparation (Math 0500) if needed. Complete General Biology I and General Chemistry I with at least a 2.0 to progress to more advanced courses. Complete Precalculus and plan to take Applied Statistics or Calculus I based on your interests and what you might need for career or graduate study.	Review your major, either continuing with no changes, changing your concentration in Biology, or if desirable, switching to a Biology minor. Choose Gen Ed courses to challenge yourself and explore interests, including either a language or speech course to strengthen your oral communication. If you have a strength or interest in a language, consider the BA in Biology. Intermediate language coursework or CLEP exam score removes Organic Chemistry II and replaces General Physics I & II with 1 PHYS and 1 GEOG.	Consider adding a minor in Chemistry or another field of interest. Select your Gen Ed courses with choices that meet your interests and goals. Plan your Biology electives so you take classes that interest you, and prepare you for career or graduate study. Plan which Biology capstone courses to take and identify other Integrative High Impact Practice courses (IHIPS) in the Gen Ed Curriculum that provide valuable, relevant experiences.	Go over remaining degree requirements with your advisor and apply for Graduation. Complete Biology Capstone course if you have not done so already, and be sure to consider independent studies with faculty members as an option. Complete Gen Ed requirements and ensure you complete 120 credits needed to graduate.
BUILD EXPERIENCE	Join the Biology and Chemistry Club and other university clubs and organizations. Attend the fall HNS faculty research symposium and the spring Undergraduate Conference. Students pursuing Health Professions meet with the Health Professions Advisor, register for the Introduction to Health Professions Seminar and consider the LECOM early acceptance program.	Seek out campus opportunities for relevant on-campus work including peer tutoring, peer mentoring, and departmental work-study. Explore research opportunities with faculty at the fall HNS faculty research symposium. Early in January-February talk with your advisor about and apply to opportunities for research, summer jobs or internships. Talk with your advisor about opportunities to study abroad.	Arrange for research opportunities with faculty at the fall HNS faculty research symposium. Early in January-February search and apply to summer jobs and internships in your career field or volunteer opportunities in health care, conservation, research, or education. Seek out leadership positions in campus clubs and activities.	Complete student-faculty research and apply to present at the spring Undergraduate Conference. Develop a list of potential employers and check for recruitment events/open positions throughout the year. Apply to jobs starting in December, and keep track of and follow up with job applications.
PREPARE FOR LIFE AFTER GRADUATION	Activate your Handshake account. Take a career strength/skills assessment Familiarize yourself with Career Services and Advising (CSA) workshops and services. Create a resume and have it approved by an advisor in the CSA Center.	Consider participating in alumni job shadowing or informational interviews with professionals in potential career fields. Create LinkedIn account/other accounts on industry specific platforms (i.e. schoolspring).	Attend events with employers and on campus, career fairs. Attend a CSA workshop or one-on-one meeting to go over cover letters and interview prep. Consider graduate or professional schools and decide if it's right for you and your career path.	If applicable, take graduate school entrance exams and complete applications. Practice skills by doing at least 2 mock interviews and getting feedback. Speak to your advisor and other faculty members about letters of recommendation.

Note for Transfer Students: This plan is not rigid and you may be at different points in each section than your class year. This plan is just a starting point to discuss with your advisor and customize for the experiences you want to have before completing your degree.