What can I do with a degree in... **BIOLOGY** (B.S. in Biology)

Why study **BIOLOGY?**

Biology is the science of life and living organisms, including their structure, function, growth, origin, evolution, distribution, and taxonomy. Scientists in the field work on scales from electrons to the entire planet. Studying biology at Western Carolina University includes a program of discovery in genetics, physiology, and ecology... and that's just the beginning! If you enjoy the field of biology, our core curriculum is designed for you with research opportunities ranging from regenerative medicine and protein dynamics to animal behavior and ecological conservation.

The Biology Program prepares students to succeed at the next level, whether that's pursuing a career in biological research, health professions, management, or education. We offer a broad range of learning opportunities, including traditional classroom experiences, hands-on experiences in the field and the laboratory, independent study, and full student engagement in research.

What are the **DEGREE OPTIONS?**

Bachelor of Science (B.S.) in Biology
Accelerated B.S./M.S. Bachelor's to Master's (ABM) track
NOTE: Students who wish to teach Biology at the high school level may earn a Bachelor of Science in Education (B.S. Ed.) in Secondary Science Education and choose the Biology concentration. Students may also opt to minor in Biology.

What are the **CONCENTRATIONS?**

There are three undergraduate degree options available to students within the biology major: **Cellular and Molecular Biology, Ecology and Evolutionary Biology, and Pre-health Professional.**

- **Cellular and Molecular Biology:** for students more interested in basic biochemistry and how the cells operate and interact.
- **Ecology and Evolutionary Biology:** for students more interested in the interactions among organisms and between organisms and their environment.
- **Pre-health Professional:** for students interested in continuing their education to obtain advanced professional degrees in healthcare fields such as medical school (MD/DO), dental school (DMD), physical thereapy (DPT), physicians assistant programs (PA), veterinary school (DVM), etc.

What is the **ADMISSION PROCESS?**

Students may declare the Biology Major and concentration by speaking with someone in the Advising Center, 2nd floor of Killian Annex or find more information about the department and contact info for department chair and program coordinator at the department website **biology.wcu.edu**. Please make an appointment with your advisor via your MyWCU student portal.

What **JOBS ARE AVAILABLE?**

All careers that touch on the life sciences may be approached from a degree in Biology, with some jobs requiring continued education in an advanced degree or training for which our program helps provide the necessary credentials. Regardless of the career, a biologist will have many responsibilities, such as conducting research, collecting samples, and performing tests. Our graduates work in a tremendous variety of careers including:

- Biochemistry
- Bioengineering
- Education
- Environmental Sciences & Man.
- Evolutionary Science
- Fisheries & Wildlife Research & Management
- Food Science
- Forensic Science

Who employs **BIOLOGY** graduates?

Our graduates work in a variety of sectors including governmental agencies and non-governmental organizations, the healthcare industry including hospitals, diagnostic laboratories, biotechnology and research centers as well as research and development for the pharmaceutical industry, and educational organizations including primary and secondary schools, colleges and universities, science museums, zoos and aquariums.

MAJOR MAP

How to use this map: Review the four categories and suggestions of activities and when you should consider engaging in them. Remember, these are just suggestions! There is a fillable space for you to add in any other ideas you have to set yourself up for success in life after college.

	1st YEAR	2nd YEAR
EXCEL IN ACADEMICS	The courses you take your first year should include your introductory biology and chemistry classes (BIOL 150, 151, & 180 and CHEM 139 & 140). Become acquainted with the **Hunter Library Research Guide for Biology**. The remaining space in your schedule should be used to begin work on your math pathway and Liberal Studies requirements. You should also check out the **8-semester plan** for your concentration, check sheets are available on the Biology Major Canvas site, and make an appointment with your advisor.	In your second year you should take BIOL 240 & 241 and CHEM 241 & 242. You should also focus on completing your math pathway and Liberal Studies requirements. Be sure to check out the **8-Semester Plan** for your concentration and make an appointment with your advisor. If you are interested in the ABM track you should meet with the Graduate program coordinator to discuss requirements.
GET HANDS-ON EXPERIENCE	Check out **WCU's DegreePlus program** and choose which events in any of the four categories you want to attend. Categories include: Professionalism, Teamwork, Leadership, or Cultural Responsiveness. See what on-campus employment opportunities are available by logging in to JobCat via your MyWCU. Remember to complete your FAFSA and apply for **scholarships**.	Get involved with the Biology Club and consider serving as a tutor for Biology courses that you have excelled in. Explore the research interests of **Biology Department faculty** and reach out to them to talk about research opportunities. If you are thinking about attending a health-related professional school, review Pre-Professional Advising Check Sheets available on the Biology Majors Canvas site to begin planning for admission requirements, including start engaging in hands-on experiences.
BE PART OF THE COMMUNITY	Connect with the **Center for Service Learning** and ask about the **Spark Award,** a program aimed to encourage students to be connected with their community.	Develop deeper relationships with the organizations for which you volunteer. Explore options or opportunities on **Engage**. Ask for special projects or responsibilities that you can highlight on a resume. If you want to **study abroad,** this is a good year to have that experience. Talk with a study abroad advisor about targeted experience for your concentration. Make sure you meet with a study abroad advisor in your 1st year to arrange the study abroad ahead of time.
PREPARE FOR LIFE AFTER COLLEGE	Further explore your career options or career interests using the **Center for Career and Professional Development's** online resources, **Focus 2,** and Onet Online. Connect with a career counselor early on to explore opportunities and experiences you can do while in college to further develop your professional resume.	Check out **CCPD's list of career-building activities** and participate in an activity this year, such as attending Career Fair Plus. Start a spreadsheet of professional/ graduate schools you wish to apply to in a few years with their admission requirements so that you are aware of what the expectations are.

Looking for a minor? Consider these options:

Chemistry
Environmental Health
Forensic Anthropology
Geology
Natural Resource Management
Neuroscience
Parks & Recreation Management
Philosophy
Psychology

3rd YEAR

Third year courses depend on your concentration and will include a mix of prescribed upper-level biology electives within your chosen concentration and a menu of other upper-level biology electives you may choose from to broaden your knowledge. Also, all students are required to take BIOL 496 the Biology Seminar where guest speakers from different areas of Biology share about their work and research. Be sure to check the **8-Semester Plan** for your concentration and your advisor for more information.

If you are considering graduate school, strongly consider doing an undergraduate thesis with a faculty mentor which must be arranged by the start of your Junior year. If you are thinking about professional or graduate school, study for the GRE or MCAT and schedule the test. Consider Internship and Research Experiences for Undergraduates (REU) - Review a list of opportunities on the Biology Majors Canvas site or JobCat

Network with professionals in your field at national or regional conferences or with visiting seminar speakers.

Continue to build relationships and volunteer with area organizations in your field.

Connect with alumni in your field through social media. Create a LinkedIn account and follow the **Biology Department** to connect with alumni and news highlights.

Talk with your Academic Advisor aboiut your career interests to get suggestions about experiences and skills to develop. Visit the CCPD to hone your CV and cover letter. Apply for Internships and Research Experiences for Undergraduates (REU). Review list of opportunities on the Biology Majors Canvas site or JobCat. Utilize the **Writing and Learning Commons** for MCAT, GRE, and other professional exam preparation sessions. Take the MCAT, GRE, etc. Use **Big Interview** to learn more about professional interviews. Schedule a visit to tour professional schools of your choice, if applicable.
Take advantage of mock interview opportunities.

4th YEAR

In your fourth year, you will continue to take the upper-level electives begun in your third year and complete your Liberal Studies requirements. Be sure to review the **8-semester plan,** make an appointment with your advisor, complete your degree audit, and **apply for graduation!**

Connect with your faculty advisor or career counselor to discuss job searching, job and graduate school applications, and how to highlight your skills on your CV/resume.

Take on leadership roles in a student club such as Biology Club.

If you have been involved in research or Honor's projects, look for opportunities to present your work such as **RASC** and regional/national meetings like **NCUR.**

Join professional Biology organizations suggested by your research mentors or instructors.

Network with employers and non-profits at the annual Career Fair Plus event, held each Sept.-October and February-March.

Talk with your Academic Advisor about your next steps and consider/create backup plans for gap years to strengthen CV/application if needed to re-apply to graduate/professional programs. Apply to professional/ graduate schools, if applicable.

Look for and **apply for jobs** between 4 and 6 months before graduation. Jobs and post-baccalaureate opportunities are frequently posted on the Biology Majors Canvas site.

Polish your CV, cover letter, and interview skills by vising the **CCPD.**

DID YOU KNOW? Internships are still the number-one educational experience employers look for in a recent college graduate resume. (Chronicle of Higher Education's study on 50,000 employers)

MORE INFORMATION

INTERNSHIP Information

Cooperative education is a program in which students combine academic study with career-related work experience while pursuing a degree. Designed to be an integral part of the educational experience, the program offers experiential learning in both full-time and part-time positions in virtually all majors. Biology majors may receive up to 3 credit hours for BIOL 389, Cooperative Education in Biology, for approved internships or summer research experiences. Discuss this with your Biology Advisor.

SKILLS LEARNED in the classroom

The core competencies will center on developing scientific research skills, knowledge, and attitudes such as:

- independent thinking
- critical thinking
- problem solving
- written and oral communication
- professional teamwork
- analytical and quantitative reasoning
- curiosity and creativity
- statistical evaluation
- technical skills

KNOWLEDGE Base

This program will prepare students to:

- understand the basic principles of biology and how they are connected by evolutionary processes
- perform basic biological investigations, to apply the disciplines of mathematics, chemistry and physics to biological problems
- Develop the quantitative, communication, and technical skills necessary to make successful contributions to the sciences and to society

Professional **RESOURCES**

- A list of professional organizations links associated with the Biological Sciences maintained by the National Associatoin of Biology Teachers: https://nabt.org/Professional-Organizations
- Careers in Biology information from the American Institute of Biological Sciences: https://www.aibs.org/careers/%20with%20links%20for%20career%20development%20and%20job%20hunting.
- The National Science Foundation's list of Research Experiences for Undergraduates (REU) sites: https://www.nsf.gov/crssprgm/reu/list_result.cfm?unitid=5047

QUESTIONS?

For questions, please call the Biology program at 828-227-3648 or visit biology.wcu.edu.

To schedule an appointment with a career counselor, contact the Center for Career and Professional Development, 828-227-7133 or careerservices@wcu.edu.

Western Carolina University