

what can I do with a major in **Molecular Biology**

Molecular Biology is the study of cells: their structure, function, growth, and chemical processes. Mol. Bio. focuses on the subcellular level, and is commonly used to study regulation and coordination of DNA, RNA, and proteins. Students can obtain a strong background for many science careers by completing the major in one of two tracks: a) Biochemistry or b) Cell and Developmental Biology.

Some Characteristics of Molecular Biology Majors:

- ◆ Interests in biochemistry, genetics, oncology, microbiology, cell bio, or developmental biology
- ◆ Conducting research in a laboratory
- ◆ Desire to understand how an organism's growth and development is regulated
- ◆ Desire for intellectual growth
- ◆ Interest in government, academic, or private jobs
- ◆ Precision and attention to details
- ◆ Inquisitive

What You Gain From Studying Molecular Biology:

Knowledge:

The Molecular Biology major prepares students for pursuits in medical, dental, and other health-professional schools, and graduate schools in molecular biology, biochemistry, cell/developmental biology, and related disciplines. The major provides intensive training using modern mol. bio., and biochemistry techniques and conducting cutting edge genomic research.

Skills:

- ◆ Critical thinking and problem solving
- ◆ Work independently and on a team
- ◆ DNA sequencing & genomic research
- ◆ Understand protein function & relation to diseases
- ◆ Use of scientific lab equipment
- ◆ Record, analyze, and summarize data
- ◆ Oral and written communication

Participate in Student & Professional Organizations:

Student (Sponsored by Bio. Sci. Dept):

Biology Club
Ecology Club
Pre-Vet Club
Tri-Beta Honors Society

Professional:

American Society for Biochemistry and Molecular Biology
American Society for Cell Biology
American Society for Microbiology
Association for Clinical Biochemistry
Society for Developmental Biology

Careers in Molecular Biology:

Employment:

Molecular biology can be used in medical, academic, research, veterinary, environmental, public health, food, pharmaceutical, and biotechnology industries to examine molecular level interactions among viruses, animals, the environment, food and other products. Many entry level molecular biology jobs accept a Bachelor's degree. You can advance from entry level to higher-level positions with additional education.

Need Bachelor's Degree

Agriculturist
Bacteriologist
Biologist (Env., fisheries, plant, marine)
Biochemist
Biomedical researcher
Biotechnologist
Clinical trials asst
Food technologist
Horticulturalist
Lab tech
Microbiologist
Mycologist
Research Asst/tech

Need Further Education

Anesthesiologist
Dentist
Epidemiologist
Forensic scientist
Genetic engineer
Histopathologist
Immunologist
Nutritionist
Oncologist
Pathologist
Physician, asst.
Professor
Public health tech
Virologist

Learn more about Molecular Biology Careers:

Biological Sciences Advisors: Langley A258

www.biology.pitt.edu/undergraduate/advising

- ◆ Join the Bio. Newsletter for announcements
- ◆ Get advising info. before & after declaring major
- ◆ Learn about useful courses
- ◆ Inquire about research & internship opportunities

Career Development: WPU 2nd Floor

www.careers.pitt.edu/

- ◆ Meet with a Career Counselor (in person or virtual)
- ◆ Take interest inventories and self-assessment tests
- ◆ Assistance w/ CVs, resumes, & cover letters
- ◆ Internship placement (guaranteed)
- ◆ Employment search – via Future Links & Pitt
- ◆ Job shadowing program
- ◆ Career fairs

What You Can Do Now:

- ◆ Gain research experience by teaming with a Biology (or related field) professor and conducting research
- ◆ Get an internship at the CDC, NIH, hospital/clinic, research lab, public health dept, forensics lab, medical school, or Bio. Engineering company
- ◆ Get a part-time or summer job in a lab, hospital, or molecular biology dept.
- ◆ Study abroad to broaden cultural perspective and gain international experience

Ways to Acquire Skills in Molecular Biology:

Internships

Internships provide hands-on experience in an area that interests you as a potential career. To find a biology related internship speak with a Bio. Sci. advisor or a Career Development advisor, and visit the links below.

- ◆ www.biology.pitt.edu/undergraduate/research/outside-pitt
- ◆ www.biology.pitt.edu/undergraduate/research-internships/starting-intern

Research

Various opportunities exist for students to participate in research experiences outside of the classroom to develop an understanding of inquiry based research. Research can be performed on campus during the term for credit or no credit, or during the summer as part of an undergraduate

research experience program (REU, fellowship, co-op) on or off-campus. Check deadlines early.

- ◆ www.biology.pitt.edu/undergraduate/research
- ◆ www.asundergrad.pitt.edu/our/research
- ◆ www.undergradresearch.pitt.edu/research-opportunities/
- ◆ www.fws.gov/northeast/youth/college.html

Undergraduate Teaching Assistant (UTA)

Being an undergraduate teaching assistant is a terrific way to share your knowledge, gain confidence, and prepare yourself for leadership roles. Many courses utilize UTAs, and you should contact the instructor directly.

www.biology.pitt.edu/undergraduate/uta

Places Molecular Biology Majors Have Interned:

Pitt School of Dental Medicine

Pitt School of Medicine – Dept. of Pathology

Safer Center for Rehab. Research

UPMC Montefiore Hospital

UPMC Pittsburgh Institute for Neurodegenerative Disorders

Tutoring & Study Resources

Academic Resource Center (ARC)

Calculus & Statistics Labs

Fish Bowl – Chemistry Dept.

Learning Communities – Various residence halls

Math Assistance Center

Writing Center

This handout provides a brief sample of skills, jobs, and tips for individuals pursuing a degree in this major. It is not an exhaustive listing, but it gives initial insight into a particular career field that would employ the skills and knowledge gained through this major. Contact the Biological Sciences Advisors if you have any questions.