

MOLECULAR BIOLOGY CAREERS

General Information

- **Molecular Biology is the study of cells—their structure, function, growth, and chemical processes. It focuses on the subcellular level, and is commonly used to study regulation and coordination of DNA, RNA, and proteins.**
- Molecular Biology is useful for: (a) students who plan to enter a research career in Mol. Bio. or related areas such as biochemistry, genetics, oncology, microbiology, cell biology or developmental biology; (b) pre-professional students planning to enter a research or clinical career in medicine or allied health fields; and (c) students who plan to teach.
- Most molecular biology jobs require a Bachelor's degree. Post-grad programs, University level teaching & research, and administrative positions require a graduate degree.
- It is critical to gain relevant work experience through internships, research, jobs, and volunteer work.

The following list provides a brief sample of responsibilities, employers, jobs, and industries for individuals with a degree in this major. This is by no means an exhaustive listing, but is simply designed to give initial insight into a particular career field that would employ the skills and knowledge gained through this major.

Areas	Employers	
Environmental/Government <ul style="list-style-type: none"> • Cellular level examination of how organisms function and react to themselves and other processes in the environment, such as pollution, plants, animals, and seasonal & evolutionary changes. • Evaluate the relationships between the structure and function of biological molecules in the cycling of inorganic nutrients, weathering of minerals, and toxic clean up. • Purify and treat water for safe consumption and use. 	<ul style="list-style-type: none"> • BLM • DOI • EPA • NOAA • USDA • USFS • USFWS • USGS 	<ul style="list-style-type: none"> • Zoos/Aquariums • Private Contractors • National Parks • State Wildlife Agencies • Army Corp of Engineers
Industry <ul style="list-style-type: none"> • Biotechnological manufacturing of molecules and materials. • Develop methods to process, store, and use food, drugs, and chemical compounds. • Genetically engineer crops resistant to pest, disease, and environmental changes. 	<ul style="list-style-type: none"> • DOD • FBI/ Law Enforcement • NIH, NCI • Military Services • Food & Drug Administration • U.S. Dept. of Agriculture • Food & Beverage Suppliers 	
Medical/Pharmaceutical <ul style="list-style-type: none"> • Examine how diseases and drugs affect the human body (<i>Medical</i>). • Conduct biomedical research to understand the body's response to new medicines. • Manufacturing of vaccines, antibiotics, and new drugs medicine to treat or prevent illness. 	<ul style="list-style-type: none"> • NIH • Hospitals, Clinics, • Research Universities • Pharmaceutical Companies • Department of Health and Human Services 	
Research <ul style="list-style-type: none"> • Develop and execute tests to detect disease, genetic disorders, or other abnormalities. • Research and determine chemical action of substances, such as drugs, serums, hormones, and food on tissues and vital processes. • Perfecting DNA analysis techniques in criminal investigations. 	<ul style="list-style-type: none"> • CDC • Hospitals • Health Dept. • Private Companies • Research Universities & Institutions 	

Teaching	
<ul style="list-style-type: none"> Lecture about the systems and advances of mol. biology. Conduct mol. biology research, write grants and publications, and train students. 	<ul style="list-style-type: none"> Primary/Secondary/Tech. School Community Colleges Universities, Med./Dental Schools

Job Titles	
Agriculturist Anesthesiologist Bacteriologist Biologist (Env., fisheries, plant, marine) Biomedical researcher Biophysicist, biotechnologist Clinical lab tech Clinical biochemist Dentist Entomologist Epidemiologist Food technologist Forensics scientist Geneticist, Gen. Engineer Histopathologist Horticulturalist Lab coordinator Lab research analyst Lab tech Immunologist Medical illustrator, technologist Medical diagnostics	Medical research scientist Med. Tech. sales rep Microbiologist Mycologist Nutritionist Oncologist Pathologist Pharmacologist/Pharmacist Phlebotomist Physician/ Phys. Asst. Plant pathologist Professor Quality control Research assistant Research tech Technician Technical writer Toxicologist Veterinarian Virologist
Industries	
Academia Biotechnology Chemical & Petroleum Commercial medical labs Environmental engineering Food Processing/engineering Government Healthcare Hospitals	Independent research foundations Law firms Medical Research Lab Manufacturing Military Pharmaceutical companies Regulatory agencies Research & Development Sales and Marketing

References:

- www.asbmb.org/uploadedFiles/ProfessionalDevelopment/Professional_Development/ASBMB_2011CareerText_Web_Final.pdf
- www.bls.gov/ooh/life-physical-and-social-science/biochemists-and-biophysicists.htm
- <http://pages.jh.edu/~careers/students/explore/majors/molcellbio/Options1.html#industry>