Biochemistry is the branch of the life sciences devoted to understanding the molecular mechanisms by which life’s processes take place. Across disciplines, scientists work to answer questions about life and the world around us. Biochemists are unique in that they find themselves asking the question HOW?

- How is food converted to energy?
- How does a cell know when it is time to divide or differentiate?
- How can we block the transmission of malaria?
- How can we inhibit the growth of pathogens such as *Mycobacterium tuberculosis*?
- How do microbes “harvest” nitrogen from the atmosphere?

The answers to these questions involve the identification of the proteins, genes, or metabolites involved; the determination of their physical structures; and the analysis of their molecular mechanisms of action. Students in our department receive fundamental education in biochemistry, biology, chemistry, physics and mathematics and many of our students go on to pursue post-baccalaureate studies in graduate, medical, veterinary, dental, nursing, and pharmacy school.

**INTERESTING FACT:**
Virginia Tech’s undergraduate program in Biochemistry is one of the largest and most highly respected programs of its kind in the country, with over 600 undergraduates currently enrolled.

**RESEARCH**
Qualified undergraduate students of all academic levels are strongly encouraged to participate in undergraduate research with faculty members. Research interests in our department include: the regulation of gene expression by hormones and microRNAs, genetic engineering of plants and insects, dissecting the mechanism of metalloprotein assembly, identifying new drug targets to fight malaria, tuberculosis, and Chagas disease, and mapping out the metabolic pathways and sensor-response machinery of extremophiliic microorganisms.
SAMPLE CAREERS
Biochemists are employed in many sectors of the economy, including medicine and pharmaceuticals, infectious diseases and drug development, food and consumer products, chemicals and energy, environmental analysis and remediation, agriculture, biotechnology, forensics, etc.

CURRICULUM
This major allows 24-30 credit hours to be constructed with courses specializing in the area of veterinary, medical, or other area of specialization or interest. Core areas of study include:
- Biochemistry
- Chemistry
- Biology
- Physics
- Math
- Statistics

SKILLS
- Strong in math and science
- Inquisitive about biochemical processes
- Good communication and organization
- Decision making and problem solving

RESOURCES
- Department of Biochemistry website http://www.biochem.vt.edu/
- University Catalog http://www.undergradcatalog.registrar.vt.edu/
- Services for Students with Disabilities (SSD) http://www.ssd.vt.edu/students.htm
- Hokie Handbook www.hokiehandbook.vt.edu/
- University Advising at Virginia Tech www.advising.vt.edu
- The Student Success Center, tutoring and academic success http://www.studentsuccess.vt.edu/
- Study Skills Help http://www.ucc.vt.edu/academic_support_students/study_skills_information/index.html
- Cook Counseling Center http://www.ucc.vt.edu/
- Honor System http://www.honorsystem.vt.edu/
- Career Services http://www.career.vt.edu/
- Global Education, study abroad http://www.educationabroad.vt.edu/
- The Writing Center http://www.composition.english.vt.edu/writing-center/
- Language and Culture Institute http://www.lci.vt.edu/

For more information, please contact the undergraduate advisors in the Department of Biochemistry.
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