COLLEGE OF
NATURAL SCIENCES AND MATHEMATICS

Advancing Science. Impacting Life.

UNIVERSITY of HOUSTON
The College of Natural Sciences and Mathematics (NSM) at the University of Houston is committed to excellence in teaching, the pursuit of knowledge through fundamental and applied research, and engagement in community and professional service. We want students to succeed and to exceed their own expectations. Become part of our programs dedicated to Advancing Science and Impacting Life.

OUTSTANDING INSTRUCTION
Our more than 200 faculty members hold doctorates from some of the world’s leading universities. These nationally and internationally recognized professors include members of the National Academy of Sciences and a National Medal of Science winner. One of the largest colleges on campus, NSM provides core science and math courses for all UH students. Our professors offer personal attention to students for an optimal learning experience.

ADVANTAGE: HOUSTON
Our students have many opportunities to connect with leading global energy companies, the world’s largest medical center, and NASA Johnson Space Center. UH is your link to internships and more.

- Fourth largest city in the nation
- Affordable living, great campus environment
- Energy capital of the world
- Ranked fifth – Best Cities to Start a Career

DIVERSE STUDENT POPULATION
Mirroring the city of Houston, UH and NSM boast a diverse student population. The breakdown of NSM undergraduate students is:

- 7% African-American
- 37% Asian-American
- 25% Hispanic
- 23% White
- 8% International or Other Ethnicities

- 46% Female
- 54% Male

NSM enrolls more than 3,900 undergraduate majors.
CUTTING-EDGE RESEARCH: INTELLIGENT SOLUTIONS TO GLOBAL CHALLENGES

The College’s highest priority is to prepare the next generation of scientists to solve global health, energy, and environmental challenges. Our research centers and facilities bring together undergraduates, graduate students, and faculty giving them the room, freedom, and support to pursue new ideas and develop breakthroughs that impact their field and the world.

WITH A RESEARCH FUNDING BASE OF $32 MILLION, NSM IS KNOWN FOR ADVANCES IN MANY AREAS:

- Energy
- Biosciences
- Materials and Nanoscience
- Networks and Nonlinear Science
- High Performance Computing

UNDERGRADUATE RESEARCH: OPPORTUNITY KNOCKS

Research opportunities abound at UH. Whether students choose to do research through the Office of Undergraduate Research or their major department, UH professors welcome undergraduate participation in their labs. Students can apply for a Provost’s Undergraduate Research Scholarship, a semester research program for juniors and seniors, as well as the Summer Undergraduate Research Fellowship program, a 10-week summer research experience.

OUR DEGREES TAKE YOU PLACES

Math, science, and computer science graduates are well prepared to enter the workforce with opportunities in many sectors as well as competitive salaries. In addition, NSM graduates often pursue advanced degrees in their field or enter medical and other professional schools.
NSM DEPARTMENTS:
Biology and Biochemistry
Chemistry
Computer Science
Earth and Atmospheric Sciences
Mathematics
Physics

CORE VALUES:
Outstanding Teaching Informed by Research
Innovative Science with Global Impact
Academic Freedom and Growth
Collaborative and Diverse Community of Faculty and Students
Student Success through Academic Excellence
Biology and Biochemistry at UH encompasses a wide range of subdisciplines at molecular, cellular, organismal, and population levels of investigation. Course offerings address both basic and applied aspects of the biochemical and biological sciences.

Undergraduates in our programs develop a comprehensive foundation in biology and biochemistry through core courses and through investigation of more specialized areas via a wide array of elective courses – ranging from biochemistry to cellular, molecular, and developmental biology, and from human physiology and neuroscience to ecology and evolution. Our undergraduate biochemical sciences program is one of the largest in the nation.

Students are encouraged to participate in undergraduate research under the guidance of our faculty members. The department includes more than 42 research laboratories investigating major issues across the life sciences. Our Director of Undergraduate Research can assist students in identifying opportunities for undergraduate research, and stipends are available on a competitive basis to support summer and semester-based research for undergraduates. A bachelor’s degree in biology or biochemistry provides an outstanding foundation for the pursuit of a wide variety of careers.

CAREERS
- Health Care: Doctor, Dentist, Optometrist, Pharmacist, or Veterinarian
- Wildlife or Conservation Biologist
- Environmental Specialist/Consultant; Environmental Policy
- Science Journalist
- Science Education (K-12, nature centers, museums)
- Research: Forensics Specialist, Biomedical Researcher, Medical Technician, or Biometrician
- Public Health Policy or Patent Law
- Biomedical Research Industry (sales/marketing of equipment, supplies, chemicals)

UNDERGRADUATE DEGREES

Biochemical and Biophysical Sciences (B.A., B.S.)
The study of chemical processes in living organisms. Students examine the role of biomolecules, including proteins, carbohydrates, lipids, and nucleic acids, in the development of structure and function of living organisms. Commonalities among organisms are emphasized. This degree is ideal for those fascinated with life at the molecular level.

Biology (B.A., B.S.)
The study of living organisms and how they interact with their environment. Students examine structure, regulation, function, growth, origin, evolution, and distribution of living things. This degree is ideal for those who enjoy looking at cellular, physiological, and developmental relationships as well as interactions between living systems and the environment.

Mathematical Biology (B.S.)
This degree plan prepares students to apply mathematical analysis to biological phenomena. Experts are needed to manage and analyze the increasingly complex and vast data sets generated by genome scale projects. This degree, offered jointly with the Department of Mathematics, is ideal for those who wish to combine expertise in math, technology, and the natural sciences.
The Department of Chemistry’s teaching and research encompasses organic, inorganic, and physical chemistry. Energy and biomedical applications and materials chemistry are research focus areas.

Our faculty strongly supports undergraduate research. The best way to learn about the excitement of chemistry is to perform research in a laboratory with experienced graduate students and postdoctoral researchers. Chemistry faculty members welcome undergraduates into their research groups as early as the sophomore year.

Recognized as some of the best teachers on campus, the department’s faculty members have won numerous university-level and NSM teaching awards. Several have won multiple teaching awards.

**CAREERS**
- Industrial, Government, or Medical Researcher
- Physician, Pharmacist, Dentist, or Veterinarian
- Quality Control Manager
- Environmental or Technical Consultant
- Scientific or Medical Instrument Technician
- Technical Writer or Editor
- Patent and Trademark Lawyer

**UNDERGRADUATE DEGREES**

Chemistry (B.A., B.S.)
A physical science that involves the study of composition, properties, and transformations of matter with a focus on the understanding and manipulation of matter at the atomic and molecular levels. The B.S. program has been accredited by the American Chemical Society since 1954.
Computer science is the systematic study of the principles and practice of computing systems. Students considering a major in computer science should have strong ability in logical reasoning and applied mathematics.

The computer science program at UH emphasizes a balance of rigorous theoretical principles and practical training. The degree offers a fundamental core curriculum with a choice of many elective courses.

Our students receive extensive instruction in computing fundamentals, such as computer architectures, operating systems, software engineering, and algorithm design. Students can choose to specialize among several areas of computing, including artificial intelligence, interactive game development, computer graphics, image processing, data mining, security, and networks.

Computing impacts every industry – aerospace, banking, energy, medicine, gaming – in addition to the core software and hardware industries. Department of Computer Science graduates can be found in all of these fields and are consistently in high demand.
The mission of the Department of Earth and Atmospheric Sciences is to advance the understanding of the Earth, oceans, atmosphere, and solar system. One of the largest, most diverse, and comprehensive geosciences programs in the nation, the department covers all major areas of geology, geophysics, and atmospheric sciences.

Coverage of these disciplines ranges from the environment to energy and natural resource exploration, from solid earth to its fluid envelopes, and from subsurface to planetary and space sciences. As stewards of the Earth, graduates serve a wide variety of societal needs.

Experiential learning opportunities are an integral part of the student experience through geological field trips and summer capstone courses at the department’s field camp near Red Lodge, Montana. UH is the only U.S. school running four field camps each summer, with two camps covering geology and one each on environmental sciences and geophysics.

CAREERS

- Atmospheric Scientist
- Economic or Environmental Geologist
- Geochemist or Petroleum Geologist
- Exploration Geophysicist
- Solid Earth Geophysicist or Seismologist
- Glacial or Marine Geologist
- Meteorologist, Paleontologist, or Hydrogeologist
- Environmental Scientist
- Teacher

UNDERGRADUATE DEGREES

Earth Science (B.A.)
The study of science related to planet Earth, its origin, composition, history, and future change.

Environmental Sciences (B.S.)
The study of interactions among physical, chemical, and biological components of the environment. The program has options in environmental geosciences and atmospheric sciences. Areas of study include climate change, conservation, water quality, groundwater and soil contamination, use of natural resources, waste management, sustainable development, and air pollution.

Geology (B.S.)
The study of Earth and the materials it is made of, processes that act on those materials, products formed, and the history of the planet and its life forms since its origin.

Geophysics (B.S.)
The study of Earth by quantitative physical methods, especially seismic, electromagnetic, gravity, heat flow, and radioactive, with a primary application of searching for natural resources and delineating the structure and composition of Earth’s interior.
Mathematics is the language of science and engineering. The field is fundamental to almost every aspect of modern life.

You’ll find mathematics in trading strategies of financial markets, designs of shapes and materials, modeling of future oil and gas production, analysis of weather patterns, the study of complex biological function, and the design of medical equipment. It is a key element in computer simulation and design, in computer-aided visualization used in medical imaging, in the statistical analysis of complex systems, and of course, in the classroom.

Face-to-face tutoring and information technology play an important role in our teaching efforts. Math majors at UH can pursue a variety of specialties, such as computational mathematics, mathematical biology, financial mathematics, and statistics.

CAREERS

- Stockbroker or Investment Banker
- Actuary
- Financial Analyst
- Biometrician/Statistician
- Government Agency Employee (CIA, EPA, NASA)
- Teacher

UNDERGRADUATE DEGREES

Mathematics (B.A., B.S.)
Mathematics is used worldwide in many fields, including computer science, engineering, medicine, energy, and social sciences, such as economics.

Mathematics with Mathematical Finance Option (B.S.)
Mathematical finance is a branch of applied mathematics concerned with financial markets.

Mathematics with Teacher Certification through teachHOUSTON (B.A., B.S.)
This degree plan prepares students for a career in secondary teaching. Students gain exposure to public school teaching experiences beginning in their freshman year, and they learn valuable teaching skills from UH master teachers and mentor public school teachers.

Mathematical Biology (B.S.)
This degree plan prepares students to apply mathematical analysis to biological phenomena. Experts are needed to manage and analyze the increasingly complex and vast data sets generated by genome scale projects. This degree, offered jointly with the Department of Biology and Biochemistry, is ideal for those who wish to combine expertise in math, technology, and the natural sciences.
Physics provides the underlying basis for the natural laws that govern the structure of the universe. Physicists attempt to understand these natural laws using in-depth analysis of simple systems.

Studying physics requires insight about those features of a problem that are most significant, and possession of the experimental, analytical, or numerical skills to solve these problems. Students considering a major in physics should have strong mathematics backgrounds and an interest in other natural sciences, such as chemistry. Those who have a natural curiosity for investigating how things work would enjoy physics as a major.

The department boasts strong programs addressing condensed matter physics, materials science, particle and nuclear physics, statistical and nonlinear physics, atmospheric and planetary physics, biophysics, nanoscience, photovoltaics, and seismic physics. UH Physics also created the first formal program in the U.S. in econophysics, the physics of finance.

Beginning at the undergraduate level, our students have numerous opportunities to participate in internationally visible scientific programs. Due to the diverse collaborations of our faculty, undergraduates often have the opportunity to experience summer research at laboratories around the world. These experiences position our students for admission to top graduate programs as well as for a variety of career paths.

CAREERS

- Physicist or Geophysicist
- Physician/Radiologist
- Systems Analyst
- Teacher
- Commodities Broker/Stockbroker
- Nuclear Engineer
- Government/Policy Maker
- Space and Atmospheric Researcher

UNDERGRADUATE DEGREES

Physics (B.A., B.S.)

The science of matter and its motion, and space and time using concepts such as energy, force, mass, and charge. Physics is an experimental science, creating theories tested against observations.
STUDENT RESOURCES AND PROGRAMS: COMMITTED TO YOUR SUCCESS

UNDERGRADUATE ADVISING CENTER
This is your one-stop shop for academic advising for all NSM majors and minors. The dedicated staff assists students with class selection, academic issues, and utilization of campus resources. From orientation to graduation, your academic advisor will be with you every step of the way. Departmental faculty advisors are also available to assist with advanced course selection, research opportunities, medical and graduate school applications, and guidance on career options.

SCHOLAR ENRICHMENT PROGRAM (SEP)
This program focuses on improving the academic experience and performance of NSM students. Through peer-to-peer workshops that improve learning and problem-solving skills, SEP helps nearly 1,400 students each year succeed in science and math courses. SEP also has tutoring programs and funding to assist students with the financial aspect of school.

CENTER FOR ACADEMIC SUPPORT AND ASSESSMENT (CASA)
CASA provides various forms of academic support to students enrolled in many types of courses, including mathematics, chemistry, physics, and biology. Each semester, nearly 15,000 students use the Center’s online course management system and secure testing environment. Through CASA, students also access electronic learning materials and receive face-to-face math tutoring. During a typical fall semester, students take more than 600,000 online tests and quizzes, and more than 40,000 student visits are made for tutoring.

teachHOUSTON
A partnership between NSM and the College of Education, teachHOUSTON is changing the way future math and science teachers are trained. Students participate in classroom teaching experiences throughout their four years at UH with rotations at local elementary, middle, and high schools. They learn valuable teaching skills from mentor teachers at public schools and master teachers at UH.

STUDENT ORGANIZATIONS, STUDY ABROAD AND COMMUNITY OUTREACH
Join one or more student organizations or activities to fast track your success at UH. NSM majors typically participate in groups focused around a specific major or department (American Chemical Society Student Chapter, CougarCS, and Society for Physics Students) or a professional interest (American Student Dental Alliance, American Association of Petroleum Geologists, Allied Health Professions Society, and Pre-Med American Medical Student Association). Our students also participate in learning abroad programs and as volunteers for NSM outreach activities such as the Cougar and Houston Area Math Program. For a complete list of organizations of interest to NSM majors, visit www.nsm.uh.edu/academics/student-organizations.
BECOME PART OF NSM

ADMISSION TO UH AND NSM
Students choosing a major within the College of Natural Sciences and Mathematics have additional selection criteria beyond the general admissions requirements for University of Houston. To review NSM’s current admission standards and to learn how to apply to UH, visit the Admissions web pages at www.uh.edu/admissions/apply/.

CREDIT BY EXAMINATION (AP CREDIT)
You may be able to get ahead on your degree plan and save on college costs by earning credit through examination. UH offers credit by examination through several programs, such as Advanced Placement Examinations (AP), Scholastic Aptitude Test (SAT) Subject Tests, and the College Level Examination Program (CLEP). To earn credit by examination, you must be enrolled at UH, have official test scores sent to University Testing Services, and must not be enrolled in the course for which credit is being attempted. Learn more about credit by exam at the University Testing Services website, ussc.uh.edu/uh-credit-by-examination.aspx.

PAYING FOR COLLEGE
Scholarships
NSM awards scholarships to highly qualified incoming NSM majors. These funds can be combined with the university’s Academic Excellence and Tier One scholarships and with other scholarships to help you graduate with little or no debt. All awards are subject to fund availability. You’ll also want to check to see if your department has specific scholarships for majors. To learn more about eligibility and deadlines, visit www.nsm.uh.edu/scholarships and www.uh.edu/scholarships.

Financial Aid and Grants
You may be eligible for financial aid. Complete the Free Application for Federal Student Aid (FAFSA) online at www.fafsa.ed.gov and review submission deadlines. The Office of Federal Student Aid, a part of the U.S. Department of Education, is the nation’s largest provider of student financial aid. The organization is responsible for managing the student financial assistance programs authorized under Title IV of the Higher Education Act of 1965. These programs provide grants, loans, and work-study funds to students attending college or career school. Filling out a FAFSA online form may be required by certain organizational grants or scholarships to determine an applicant’s financial need.