UNDERGRADUATE STUDY IN CHEMICAL AND BIOMOLECULAR ENGINEERING

Chemical engineering is a discipline that traditionally has been based in the application of chemistry as an enabling science. The strength of that foundation has resulted in enormous advances in the chemical, petroleum, and related industries that have relied on chemical engineering to provide much of the intellectual capital on which they depend. Over time, and with increasing speed, the discipline has expanded so that biological sciences and chemistry now fill the position once uniquely held by chemistry. Georgia Tech's School of Chemical & Biomolecular Engineering is a national leader in restructuring its curriculum and research initiatives to reflect that evolution.

The chemical and biomolecular engineering undergraduate curriculum leads to a Bachelor of Science in Chemical and Biomolecular Engineering. Chemical and biomolecular engineering principles are taught as the foundation of that degree but students also are expected to develop an ability to solve all kinds of problems, to view systems in their entirety, and to formulate and test solutions irrespective of the framework of the problem. Completion of the B.S. degree prepares students for entry into the workforce, for advanced study in chemical and biomolecular engineering, or for countless other graduate programs.

Program Educational Objectives

The mission of the School of Chemical & Biomolecular Engineering is to provide students with the intellectual basis to be educated citizens, to prepare them for successful professional careers, and to advance the science and technology that form the basis of chemical and biomolecular engineering. In pursuit of this mission, the School has adopted the following program educational objectives.

- Graduates will be recognized for excellence and leadership and selected for high-impact industrial, academic, government, and other professional positions
- Graduates will be intellectual leaders in solving global problems in a diverse and evolving landscape of technology, environment, and public policy
- Graduates will demonstrate critical-thinking and problem-solving abilities in developing creative, innovative, and ethical solutions to contemporary challenges using the tools of chemical and biomolecular engineering
- Graduates will engage in self-initiated, life-long learning for professional growth in their chosen career paths.

Student Outcomes

In pursuit of its educational objectives, the School has adopted the following student outcomes. Upon graduation students are expected to be able to demonstrate:

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics;
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors;
3. an ability to communicate effectively with a range of audiences;
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts;
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives;
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

In pursuit of these outcomes, the curriculum is designed to provide coverage of core areas of chemical and biomolecular engineering, and to allow students opportunities to explore the breadth of the discipline. The curriculum requires a total of 132 credit hours for the B.S. degree. The biotechnology option allows the student to focus intensely in this rapidly emerging area of chemical engineering. The standard option provides the flexibility to explore other areas of chemical engineering practice while providing an understanding of the biomolecular aspects of modern chemical engineering. The standard program will also allow chemical and biomolecular engineering students to tailor their educations to their particular interests and plans for their professional careers. Students are encouraged to use the required elective hours to earn a minor or certificate, or at least to focus their electives in an area of particular interest.

Many graduates have found international experience obtained as a student to be valuable later in their careers. The School is developing special initiatives to facilitate such experiences, and it has a longstanding five-week summer program at Imperial College London in which students receive six credit hours of elective credit and credit for CHBE 4200.

Finally, although the focus of the curriculum is development of technical skills, it has elements geared to enhance communication, teamwork, and business skills.

Minors and Certificates

Special opportunities exist for students wishing to pursue minors or certificates in fields of particular interest. The School of Chemical and Biomolecular Engineering participates in the interdisciplinary Energy Systems minor and offers a Pulp & Paper certificate.

General information regarding minors at Georgia Tech can be found here: Minor Program of Study & Guidelines.

Bachelor's Degrees

- Bachelor of Science in Chemical and Biomolecular Engineering

Transfer Students

Due to the sequence of courses and the order in which they must be taken, students who transfer into the school of Chemical and Biomolecular Engineering (ChBE) from another university should expect to be enrolled for a minimum of six semesters (Fall, Spring, Summer). If, for financial aid purposes, insurance, etc., students are required to be full-time, they should transfer to Georgia Tech having sufficient non-chemical

and biomolecular engineering courses remaining to enroll full-time for six terms. All prerequisites and co-requisites must be followed.

The B.S. in Chemical and Biomolecular Engineering degree program is accredited by the Engineering Accreditation Commission of ABET, www.abet.org.