CHEMICAL AND BIOMOLECULAR ENGINEERING, PHD

The Chemical and Biomolecular Engineering Department offers a Doctor of Philosophy degree, in which students perform cutting edge research in advanced engineering topics. Graduate students pursuing PhD studies are supported as research or teaching assistants. The PhD degree culminates in an open defense of a written dissertation based on the original research performed by the student.

A master's degree is not a prerequisite to the beginning of study for the Doctor of Philosophy degree. Completing the Ph.D. requirements normally requires five years of full-time study beyond the B.S. degree.

Requirements

The Ph.D. degree requires a student to reach a critical understanding of the basic scientific and engineering principles underlying their field of interest. In addition, the student must demonstrate the ability to conduct independently an intensive research project and document their results in the form of refereed publications, presentations, and a final thesis dissertation. Specifically, candidates for the Ph.D. degree must:

- Complete a minimum of 48 credit hours of approved course work;
- Pass a qualifying examination;
- Present an acceptable dissertation prospectus to a dissertation committee;
- Make an original contribution to the field of chemical engineering in the form of a dissertation suitable for publication; and
- Defend the dissertation during a public presentation.

The Ph.D. degree requires 48 hours of approved graduate course work plus a thesis. These courses must include three core graduate chemical engineering courses:

Course ID	Title	Credits
CENG 7110	Modern Thermodynamics	3
CENG 7320	Advanced Transport Phenomena	3
CENG 7150	Advanced Reactor Design	3
or CENG 6870	Biomolecular & Cellular Engr	
CENG 7010	Graduate Mentoring Seminar I	1
CENG 7020	Graduate Mentoring Seminar II	1

Ph.D. candidates are also allowed 25 independent study credits toward the 48 credit requirement. Ph.D. candidates who have completed an M.S. at another institution will be potentially allowed to transfer a small number of credit hours toward the Ph.D.

Frequently, students without an undergraduate chemical engineering degree will enroll in the graduate program. To ensure that all students are familiar with the fundamental principles required of chemical engineers, students entering the graduate program with a bachelor's degree in an area other than chemical engineering will be required to take four undergraduate courses—Unit Operations I, II and III, and one of either Reactor Design, Process Control or Process Design. On the recommendation of the Graduate Committee, these requirements can be modified based on each student's specific background. These undergraduate courses do not count toward the total graduate-level credit requirement for the advanced degree. Graduate students may take these courses out of sequence and/or concurrently in order to expedite completion of this requirement.

Completing the Ph.D. requirements normally requires four to five years of full-time study beyond the B.S. degree. Students already possessing an M.S. degree in chemical engineering typically require one year less time. Financial aid is given to all full time graduate students working towards the doctoral degree.