

## **Emphasis - Chemical Engineering**

- [Ph.D. in Engineering Science](#)
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### **Ph.D. in Engineering Science Description**

The Ph.D. in engineering science is offered in a number of emphasis areas: aeroacoustics, chemical engineering, civil engineering, computational hydroscience, computer science, electrical engineering, electromagnetics, environmental engineering, geology, geological engineering, hydrology, mechanical engineering, and material science and engineering.

**Minimum Total Credit Hours: 54**

#### **Course Requirements**

A student must complete the requirements for one of the emphasis areas. All doctoral programs require completion of a comprehensive examination, dissertation prospectus, and a dissertation. See the department chair or adviser for specific requirements for an emphasis area.

### **Emphasis - Chemical Engineering Description**

A Ph.D. in engineering science with emphasis in chemical engineering prepares graduates to apply chemical engineering science (transport phenomena, thermodynamics, chemical reaction engineering, and applied mathematics). It enables them to independently execute complex projects and pursue successful careers in engineering, medicine, law, professional education, public policy, the military, management, and sales. It further equips them with the experience to conduct research—generating and disseminating new knowledge.

#### **Course Requirements**

The Ph.D. in engineering science with an emphasis in chemical engineering requires a minimum of 54 hours of graduate credit past the bachelor's degree. The specific course work is worked out between the student and his or her committee, but must include all four core courses:

- Advanced Transport Phenomena I (Ch E 560)
- Advanced Transport Phenomena II (Ch E 561)
- Thermodynamics of Chemical Systems (Engr 665)
- Chemical Reaction and Reactor Analysis I (Engr 669)

Students pursuing a Ph.D. must complete at least 21 hours of graded 500-/600- level graded course work, plus 3 hours of Research Seminar (Ch E 515). The remainder of the hours comes from research, 18 of which must be dissertation (Engr 797) credit.

#### **Other Academic Requirements**

Students in the Ph.D. track must satisfy the Graduate School requirements, achieve a GPA of 3.25 or higher in the four core courses and pass a qualifying examination to be admitted to candidacy. A student may retake one of the core courses one time in order to meet GPA requirements. The qualifying exam consists of writing and defending an Original Research Proposal (ORP). After the ORP, the Ph.D. candidate must successfully complete a dissertation prospectus and defend a dissertation.

