CHEMICAL AND BIOMOLECULAR ENGINEERING (PHD)

Admission Requirements

- A Bachelor's degree in chemical engineering or a related field such as chemistry, physics, mathematics, or engineering.
- A grade point average of 3.0 or greater (A=4.0) on all undergraduate work.
- International applicants whose native language is not English must have a minimum score of 550 on the written TOEFL, or a minimum score of 79 in the internet-based TOEFL, or a minimum band score of 6.5 on the IELTS, or a minimum overall score of 58 on the PTE academic test, or a minimum score of 100 on the Duolingo test.
- A GRE score is **not** required. Each application will be reviewed by the Admissions committee, which carries out a holistic review of all applications. This committee may reserve the right to evaluate additional credentials, such as but not limited to course work taken and letters of recommendation.

Degree Requirements

The core classes for this program are defined as CHE 510 Advanced Chemical Thermodynamics, CHE 520 Advanced Transport Phenomena I, and CHE 525 Chemical Reactor Analysis. For the proposed degree program, the student will complete a minimum of 43 credit hours of classwork courses and 18 credit hours for thesis research. In addition, a doctoral student must pass a PhD doctoral examination, which is comprised of the qualifying exam and a preliminary oral examination, to be admitted to candidacy. The qualifying exam requirement is satisfied by obtaining a B or better in the core courses defined above. The preliminary oral exam is completed at the end of the 6th semester, or earlier, where the student presents their proposed research. A doctoral plan of study must be submitted to the USA graduate school by the time the student completes 30 hrs of credit towards a doctorate. A final oral dissertation defense of the written dissertation is required to be presented to the students committee and a majority of the committee must approve.

Course Requirements

Code	Title	Hours
Program Core Courses		
CHE 510	Adv Chemical Thermodynamics	3
CHE 520	Adv Transport Phenomena I	3
CHE 525	Chemical Reactor Analysis	3
Program Support Courses		
CHE 501	Chemical Engineering Seminar	1
CHE 592	Directed Independent Study	6
GIS 501	Responsible Conduct of Researc	1
Program Elective Courses		
Select 21 hours from the following: see footnote table below (p. 1) [1]		21
Biology		
Chemical Engineering		
Chemistry		
Civil Engineering		
Mechanical Engineering		
Electrical Engineering		
Environmental Toxicology		
Math		
Statistics		
Pharmacology		
Other Areas		
Disertation		
GIS 799	Dissertation	1-3
Total Hours		**39-41**

Footnote

[1] Specific elective classes listed by course number are available from the Graduate School.

Graduation Plan

(61 Total Hours)

Course	Title	Hours
First Year		
Fall		
CHE 520	Adv Transport Phenomena I	3
Graduate Elective	PhD Elective [1]	3
CHE 501	Chemical Engineering Seminar	1
GIS 501	Responsible Conduct of Researc	1
	Hours	**8**
Spring		
Graduate Elective	PhD Elective	3
Graduate Elective	PhD Elective	3
CHE 501	Chemical Engineering Seminar	1
	Hours	**7**
Summer		
CHE 592	Directed Independent Study	3
	Hours	**3**
Second Year		
Fall		
CHE 510	Adv Chemical Thermodynamics	3
CHE 592	Directed Independent Study	3
CHE 501	Chemical Engineering Seminar	1
	Hours	**7**
Spring		
CHE 525	Chemical Reactor Analysis	3
CHE 592	Directed Independent Study	3
CHE 501	Chemical Engineering Seminar	1
	Hours	**7**
Summer		
GIS 799	Dissertation	3
	Hours	**3**
Third Year		
Fall		
GIS 799	Dissertation	3
Graduate Elective	PhD Elective	3
CHE 501	Chemical Engineering Seminar	1
	Hours	**7**
Spring		
GIS 799	Dissertation	3
Graduate Elective	PhD Elective	3

CHE 501	Chemical Engineering Seminar	1
	Hours	**7**
Summer		
GIS 799	Dissertation	3
	Hours	**3**
Fourth Year		
Fall		
GIS 799	Dissertation	3
Graduate Elective	PhD Elective	3
CHE 501	Chemical Engineering Seminar	1
	Hours	**7**
Spring		
GIS 799	Dissertation	3
Graduate Elective	PhD Elective	3
CHE 501	Chemical Engineering Seminar	1
	Hours	**7**
Summer		
GIS 799	Dissertation	3
	Hours	**3**
	Total Hours	**69**

[1] PhD Electives must be approved by the PhD program director.