

CHEMICAL ENGINEERING (PH.D.)

Offered by: Chemical Engineering (Faculty of Engineering)

Degree: Doctor of Philosophy

Program Description

The Ph.D. in Chemical Engineering focuses on advanced materials and polymers, biomedical engineering and biotechnology, environmental engineering, energy, plasma science and artificial intelligence-assisted design and optimization. The program offers advanced training in fundamentals as well as research methods and techniques, laboratory safety and research ethics.

Note: For information about Fall 2025 and Winter 2026 course offerings, please check back on May 8, 2025. Until then, the "Terms offered" field will appear blank for most courses while the class schedule is being finalized.

Thesis

A thesis for the doctoral degree must constitute original scholarship and must be a distinct contribution to knowledge. It must show familiarity with previous work in the field and must demonstrate ability to plan and carry out research, organize results, and defend the approach and conclusions in a scholarly manner. The research presented must meet current standards of the discipline; as well, the thesis must clearly demonstrate how the research advances knowledge in the field. Finally, the thesis must be written in compliance with norms for academic and scholarly expression and for publication in the public domain.

Required Courses (4 credits)

Expand allContract all

Course	Title	Credits
CHEE 681	Laboratory Safety 1.	1
CHEE 682	Laboratory Safety 2.	1
CHEE 687	Research Skills and Ethics.	2
CHEE 795	Ph.D. Thesis Proposal.	0
CHEE 796	Ph.D. Proposal Defence.	0
CHEE 797	Ph.D. Seminar. 1	0
CHEE 798	Ph.D. Seminar 2	0

Complementary Courses (6-12 credits)

6-12 credits at the 500 level or higher, in consultation with the supervisor and depending on student's background. May include the following:

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Course	Title	Credits
CHEE 611	Heat and Mass Transfer.	4
CHEE 621	Thermodynamics.	4
CHEE 631	Foundations of Fluid Mechanics.	4
CHEE 641	Chemical Reaction Engineering.	4

CHEE 651	Advanced Biochemical Engineering.	4
CHEE 662	Computational Methods.	4
CHEE 672	Process Dynamics and Control.	4
CHEE 688	Advanced Materials in Chemical Engineering.	4