

DOCTOR OF PHILOSOPHY (PHD) DEGREE IN THE FIELD OF CHEMICAL ENGINEERING

Program Learning Outcomes for the MS and PhD Degrees in the field of Chemical Engineering

Upon completing the MS and PhD degrees in the field of Chemical Engineering, students will be able to:

1. Demonstrate a solid foundation in the fundamentals of chemical engineering in four areas: applied mathematics, kinetics and reaction engineering, thermodynamics, and transport phenomena.
2. Apply advanced knowledge from several major areas of modern chemical engineering.
3. Conduct independent research by working on research projects, individually and in interdisciplinary groups.
4. Demonstrate professional written and oral communication skills.

Requirements for the MS and PhD Degrees in the field of Chemical Engineering

MS Degree Program

The MS degree is a thesis masters degree. For general university requirements, please see [Thesis Master's Degrees \(https://ga.rice.edu/graduate-students/academic-policies-procedures/regulations-procedures-thesis-masters-degrees/\)](https://ga.rice.edu/graduate-students/academic-policies-procedures/regulations-procedures-thesis-masters-degrees/). For additional requirements, regulations, and procedures for all graduate programs, please see [All Graduate Students \(https://ga.rice.edu/graduate-students/academic-policies-procedures/regulations-procedures-all-degrees/\)](https://ga.rice.edu/graduate-students/academic-policies-procedures/regulations-procedures-all-degrees/). Students pursuing the MS degree in the field of Chemical Engineering must:

- Obtain permission by the department to apply for the program.
- Accepted candidates must complete at least 18 credit hours, which must include:
 - 5 courses (15 credit hours) of core Chemical Engineering courses, and
 - 1 course (3 credit hours) as an Elective, taken at the 500-level or above.
- Complete at least 18 approved advanced course credit hours with high standing.
- Submit an original research thesis.
- Defend the thesis in a public oral examination.
- Complete a teaching requirement.

Summary

Code	Title	Credit Hours
	Total Credit Hours for the MS Degree in the field of Chemical Engineering	30

Requirements for the PhD Degree in Chemical Engineering

PhD Degree Program

For general university requirements, please see [Doctoral Degrees \(https://ga.rice.edu/graduate-students/academic-policies-procedures/regulations-procedures-doctoral-degrees/\)](https://ga.rice.edu/graduate-students/academic-policies-procedures/regulations-procedures-doctoral-degrees/). For additional requirements, regulations, and procedures for all graduate programs, please see [All Graduate Students \(https://ga.rice.edu/graduate-students/academic-policies-procedures/regulations-procedures-all-degrees/\)](https://ga.rice.edu/graduate-students/academic-policies-procedures/regulations-procedures-all-degrees/). Students pursuing the PhD degree in the field of Chemical Engineering must:

- Satisfactorily complete 24 credit hours of advanced coursework at the 500-level or above, including required core courses. Students who already have an MS degree in chemical engineering can request departmental approval to be excluded from the required core courses, but must satisfactorily complete the 24 required credit hours.
- Pass qualifying examinations demonstrating a general understanding of reaction engineering, thermodynamics, transport phenomena, and applied mathematics.
- Prepare and present a thesis proposal.
- Complete a publishable thesis representing research that is an original and significant contribution to the field of chemical and biomolecular engineering.
- Pass a public oral examination in defense of the thesis.
- Fulfill a residency requirement.
- Complete a teaching assignment.

Summary

Code	Title	Credit Hours
	Total Credit Hours for the PhD Degree in the field of Chemical Engineering	90

Policies for the PhD Degree in the field of Chemical Engineering

Department of Chemical and Biomolecular Engineering Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the department of Chemical and Biomolecular Engineering publishes a graduate program handbook, which can be found here: https://gradhandbooks.rice.edu/2021_22/Chemical_Biomolecular_Engineering_MS_Graduate_Handbook.pdf and here: https://gradhandbooks.rice.edu/2021_22/Chemical_Biomolecular_Engineering_PhD_Graduate_Handbook.pdf

Transfer Credit

For Rice University's policy regarding transfer credit, see [Transfer Credit \(https://ga.rice.edu/graduate-students/academic-policies-procedures/regulations-procedures-all-degrees/#transfer\)](https://ga.rice.edu/graduate-students/academic-policies-procedures/regulations-procedures-all-degrees/#transfer). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program's advisor when considering transfer credit possibilities.

Departmental Transfer Credit Guidelines

Students pursuing the PhD degree in the field of Chemical Engineering should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

Additional Information

For additional information, please see the Chemical and Biomolecular Engineering website: <https://chbe.rice.edu/>

Opportunities for the PhD Degree in the field of Chemical Engineering

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