

**Certificate of Departmental Approval PhD  
Degree Program Fall 2021  
in Chemical and Biomolecular Engineering**

Name: \_\_\_\_\_ JHU ID: \_\_\_\_\_

Faculty Advisor: \_\_\_\_\_

Graduation Date: \_\_\_\_\_

**Degree Requirements:**

The Ph.D. degree is awarded for original research performed under the guidance of a thesis advisor. The formal requirements for this degree are:

- Completion of six graduate-level courses including the four required core and elective courses listed below.
- Completion of an annual research evaluation each year.
- Serve as a teaching assistant for at least two required courses.
- Completion in the first semester of 500.401 Research Laboratory Safety
- Attend graduate seminars (540.600/601) every semester. Students are expected to enroll and attend department seminars throughout their tenure in the department.
- Successful completion of the Graduate Board Oral Exam.
- Completion of an original research project, documented in a dissertation that is defended by the candidate in a public presentation.
- Completion of Responsible Conduct of Research training. For complete information, see [eng.jhu.edu/wse/page/conduct-of-research-training](http://eng.jhu.edu/wse/page/conduct-of-research-training).
- Application for Graduation submitted to Registrar's office.
- Successful completion of electronic thesis (ETD) to the Johns Hopkins Library <http://guides.library.jhu.edu/content.php?pid=450528&sid=3691622>.

**Required Courses:**

**1) Two Core Courses**

- 540.630 Thermodynamics and Statistical Mechanics
- 540.652 Advanced Transport Phenomena

**2) Four Elective Courses** (at least **two** courses from the list of strongly recommended electives)

- 540.602 Metabolic Systems Biotechnology
- 540.615 Interfacial Science with Applications to Nanoscale Systems (not offered AY 21-22)
- 540.605 Modern Data Analysis and Machine Learning
- 540.674 Advanced Separation and Purification Processes in Practice
- 540.673 Advanced Chemical Reaction Engineering in Practice
- 540.681 Molecular Chemical Kinetics and Catalysis

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This is to certify that \_\_\_\_\_ has satisfied all of the academic requirements laid down by the Department for granting a PhD in the Department of Chemical & Biomolecular Engineering.

\_\_\_\_\_  
Advisor's Signature

\_\_\_\_\_  
Date