

CHEMICAL ENGINEERING (PHD)

NYS ED: 08800 HEGIS: 0906.00 CIP: 14.0701

Program Description

Chemical engineering is part of a rapidly expanding field that requires interdisciplinary engineers educated in both the molecular and medical sciences. For every discovery made in the health and industrial sectors, a chemical engineer finds a way to develop and implement it on a large scale.

The Ph.D. in Chemical Engineering program at the School of Engineering prepares you to fulfill that role. Our curriculum offers an advanced course of study to refine your research skills, and we teach you the problem-solving skills to surmount any problem along the way.

Our Ph.D. program in Chemical Engineering is designed to outfit you with expert knowledge of the field's core fundamentals as well as the latest research in its subtopics. By doing so, we further your specialization beyond a master's degree, helping you achieve superior competence in a minor topic within chemical engineering.

Admissions

A BS degree in chemical engineering or a related field of science or engineering is generally required for admission to graduate study. If you earned a bachelor's degree from a foreign institution, you must submit TOEFL scores. Submitting graduate Record Examination (GRE) scores are optional. Applicants with degrees in other fields or from other colleges may be admitted with undergraduate or graduate deficiencies as evaluated by the graduate adviser. You will need to have had at least one course in differential equations.

To ensure the most efficient application processing, submit your application before sending documents or submitting test scores.

Mailing Address

(For all application documents. Please note that this is our document processing center in Pennsylvania):

NYU Tandon School of Engineering
Graduate Admissions Processing Center
458 Pike Road
Huntingdon Valley, PA 19006

Cyber Fellows applicants can review application requirements here. (<https://engineering.nyu.edu/academics/programs/cybersecurity-ms-online/nyu-cyber-fellows/>) All other applicants, review the requirements below.

Personal Essay

As part of your application, you are expected to provide a response, in written form, to two prompts. A response to both prompts is required. This is an opportunity for you to give us a stronger sense of who you are, as a person. Your essay should be as unique as you are and should be written using your own voice. Include each prompt as the header for each of your two responses. When finished, combine your response to both prompts into one single PDF and upload it to the application. Your total essay upload should be 12 pt, Arial font and no more than two pages, double-spaced, in length.

Prompt 1: Drawing from your previous academic, professional and personal experiences, tell us what attracted you to the program of study you have noted in your application. Be very specific about your past experiences and how they shaped your interests.

Prompt 2: Students often have a wide range of ideas and plans for what they hope to achieve after they receive their graduate degree. Tell us what your 5-year plan is after completing a degree from NYU Tandon.

Resume

A copy of your most recent résumé or curriculum vitae must be uploaded to the online application.

Official Transcripts and Degree Conferral

For admissions review, we will accept copies of your official transcript and proof of undergraduate degree (if completed) uploaded to your application or emailed to us at engineering.gradinfo@nyu.edu. Screenshots or student portal downloads will not be accepted or used in your application review. Please note that we require transcripts from all institutions attended.

If you are offered admission, we will require official final transcripts sent to our office directly from your undergraduate institution to finalize your admission, prior to enrollment in your first semester. To satisfy this requirement, we will accept hard copy/physical transcripts, or electronic transcripts. No scanned copies will be accepted once you've been admitted.

A hard copy or physical transcript is considered official when it is in a sealed, unopened envelope mailed directly from your previous institution to NYU Tandon. An electronic transcript is considered official if it is sent through a digital credential service such as Parchment, Student Clearinghouse, Credential Solutions or a similar, secure third-party platform, or emailed directly from your institution's registrar's office.

English Language Proficiency Testing

All applicants to the NYU Tandon School of Engineering for graduate study must demonstrate excellent English language skills in reading, writing, speaking, and comprehension. Proficiency will be determined by the Test of English as a Foreign Language (TOEFL)* (<http://www.ets.org/toefl/>), International English Language Testing System (IELTS) (<https://ielts.org/take-a-test/>), Duolingo English Test (<https://englishtest.duolingo.com/applicants/>), Cambridge Assessment English (<https://www.cambridgeenglish.org/exams-and-tests/qualifications/general/>), or Pearson PTE Academic (<http://pearsonpte.com/test-takers/test/>) exams. You must submit your English language proficiency scores electronically via the testing agency. The name and date of birth on your test scores must match the name and date of birth on your application, in order for us to receive your scores correctly.

The Office of Graduate Enrollment Management and Admissions reserves the right to request proof of English competency from any applicant. At least one of these exams is required for:

1. All International applicants (those who have or will request a visa) OR
2. Applicants whose first language is not English and/or who have not completed a bachelor's degree in the United States.

The NYU Tandon School of Engineering requires that graduate applicants achieve a minimum TOEFL score of 90 on the internet-based test, an overall band of 7.0 on IELTS, a score of 125 on the Duolingo English

Test, a 65 on the Pearson PTE Academics exam, or a C1 Advanced or C2 Proficiency on the Cambridge Assessment English exam.

The NYU Tandon School of Engineering TOEFL institution code is 2668. Please send electronic IELTS scores to New York University Tandon School of Engineering (<https://www.ielts.org/en-us/usa/ielts-for-test-takers/results/>).

TOEFL, IELTS, and PTE scores are valid for two years. The test must be taken again if your score is older than two years at the time of application submission.

ETS offers at-home testing for the TOEFL. Please visit their website here for more information and to see if you are eligible for this option: TOEFL iBT Home Edition (<https://www.ets.org/toefl/test-takers/ibt/why/options/>)

Applicants may request a waiver of English Language Proficiency Testing for special cases by submitting a waiver request form. If you have only attended a US institution for four years and earned a bachelor's degree, or two years, and earned a master's degree, you will automatically be reviewed for a waiver and do not need to submit a waiver request form. If you have attended both a US school and a school outside of the US, please submit a waiver. This request will be reviewed only after transcripts have been received.

Deadlines to submit your waiver request are below:

All Applicants

Fall: March 1

Spring: November 15

Recommendations

You are required to send two recommendations; we will accept up to three. Recommendations should be provided by professors, employers, supervisors, or others (no friends or relatives) who are able to comment on your academic achievements, research potential and your professional goals. We ask that you input your recommender's information into the online application and they will be prompted to complete a recommendation form electronically. Additionally, there is an option to submit a recommendation letter along with the recommendation form. The letter is optional and not required. Please note that if the optional recommendation letter is submitted, it **MUST** be on professional letterhead and come from the recommender's company or university email address. Recommendation letters received outside of these requirements will be subject to further review and asked to be resubmitted in order to meet our requirements.

Special Notes from the Office of Graduate Admissions

- Due to the volume of applications and related materials received, the Office of Graduate Admissions will only contact you if your application was successfully submitted and is deemed incomplete because of missing required materials. Otherwise, you will hear from us when a decision has been rendered.
- All graduate programs at NYU Tandon School of Engineering are considered STEM Programs based on the government classification (CIP codes) and are available for the STEM OPT extension. The STEM OPT extension is a 24-month period of temporary training that directly relates to an F-1 student's program of study in an approved STEM field. Eligible F-1 students with STEM degrees who finish their program of study and participate in an initial period of regular 12-month post-completion OPT have to option to apply for this extension

for a total OPT period of 36 months. More information on STEM OPT at NYU. (<http://www.nyu.edu/students/student-information-and-resources/student-visa-and-immigration/alumni/extend-your-opt/stem-opt.html>)

Program Requirements

The program requires the completion of 75 credits, comprised of the following:

Course	Title	Credits
Major Requirements		
CBE-GY 6153	APPLIED MATHEMATICS IN ENGINEERING	3
CBE-GY 6333	Transport Phenomena	3
CBE-GY 6733	Chemical Engineering Thermodynamics	3
CBE-GY 6813	Chemical Reactor Analysis and Design	3
CBE-GY 9910	SEMINAR IN CHEMICAL & BIOLOGY ENGINEERING	0
CBE-GY 9920	SEMINAR IN CHEMICAL & BIOLOGICAL ENGINEERING	0
Electives		
Select at least three approved CBE courses, 6000-level and above ¹		18
Dissertation		
CBE-GY 999X	PHD DISSERTATION IN CHEMICAL AND BIOLOGICAL ENGINEERING	36
CBE-GY 998X	Research in Chemical & Biomolecular Engineering ²	9
Total Credits		75

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The remaining courses may be chosen from other graduate programs with the approval of the graduate advisor in chemical engineering.

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Note: Up to 9 credits of CBE-GY 998X Research in Chemical & Biomolecular Engineering can be included here.

Additional Program Requirements

Comprehensive Qualifying Examination and Dissertation

Students must pass a comprehensive qualifying examination in chemical engineering and present a doctoral dissertation. The qualifying exam is given once a year. Additional details on the qualifying examination will be provided by the graduate adviser.

Required Safety Training

All PhD students in Chemical Engineering must complete a three hour training session offered by the NYU Environmental Health and Safety (EHS) Office (<https://www.nyu.edu/life/safety-health-wellness/environmental-health-and-safety.html>) during their first semester, prior to beginning any work in the lab. Students will enroll in the training session on BioRaft (https://nyu.bioraft.com/frontpage_panel/). The sessions cover: Lab Safety, Hazardous Waste, Bloodborne Pathogens and International Air Transport Association (IATA) shipping. Students must show proof (e.g. certificate) that they completed this training to their advisors. Each subsequent fall, they must take the above mentioned online refreshers (excluding IATA) until they graduate.

CBE-GY 9910 SEMINAR IN CHEMICAL & BIOLOGY ENGINEERING/CBE-GY 9920 SEMINAR IN CHEMICAL & BIOLOGICAL ENGINEERING must be taken each semester.

Sample Plan of Study

Course	Title	Credits
1st Semester/Term		
CBE-GY 6333	Transport Phenomena	3
CBE-GY 6733	Chemical Engineering Thermodynamics	3
CBE-GY 9910	SEMINAR IN CHEMICAL & BIOLOGY ENGINEERING	0
Elective		3
Credits		9
2nd Semester/Term		
CBE-GY 6813	Chemical Reactor Analysis and Design	3
CBE-GY 6153	APPLIED MATHEMATICS IN ENGINEERING	3
Elective		3
RE-GY 9990	PHD QUALIFYING EXAM	0
CBE-GY 9920	SEMINAR IN CHEMICAL & BIOLOGICAL ENGINEERING	0
Credits		9
3rd Semester/Term		
CBE-GY 999X	PHD DISSERTATION IN CHEMICAL AND BIOLOGICAL ENGINEERING	3
CBE-GY 9910	SEMINAR IN CHEMICAL & BIOLOGY ENGINEERING	0
Elective		3
Elective		3
Credits		9
4th Semester/Term		
CBE-GY 999X	PHD DISSERTATION IN CHEMICAL AND BIOLOGICAL ENGINEERING	6
CBE-GY 9920	SEMINAR IN CHEMICAL & BIOLOGICAL ENGINEERING	0
Elective		3
Credits		9
5th Semester/Term		
CBE-GY 999X	PHD DISSERTATION IN CHEMICAL AND BIOLOGICAL ENGINEERING	6
CBE-GY 9910	SEMINAR IN CHEMICAL & BIOLOGY ENGINEERING	0
Elective		3
Credits		9
6th Semester/Term		
CBE-GY 999X	PHD DISSERTATION IN CHEMICAL AND BIOLOGICAL ENGINEERING	6
CBE-GY 9920	SEMINAR IN CHEMICAL & BIOLOGICAL ENGINEERING	0
Credits		6
7th Semester/Term		
CBE-GY 999X	PHD DISSERTATION IN CHEMICAL AND BIOLOGICAL ENGINEERING	6
CBE-GY 9910	SEMINAR IN CHEMICAL & BIOLOGY ENGINEERING	0
Credits		6
8th Semester/Term		
CBE-GY 999X	PHD DISSERTATION IN CHEMICAL AND BIOLOGICAL ENGINEERING	6
CBE-GY 9920	SEMINAR IN CHEMICAL & BIOLOGICAL ENGINEERING	0
Credits		6
9th Semester/Term		
CBE-GY 999X	PHD DISSERTATION IN CHEMICAL AND BIOLOGICAL ENGINEERING	6
CBE-GY 9910	SEMINAR IN CHEMICAL & BIOLOGY ENGINEERING	0
Credits		6
10th Semester/Term		
CBE-GY 999X	PHD DISSERTATION IN CHEMICAL AND BIOLOGICAL ENGINEERING	6
CBE-GY 9920	SEMINAR IN CHEMICAL & BIOLOGICAL ENGINEERING	0
Credits		6
Total Credits		75

Learning Outcomes

Upon successful completion of the program, graduates will:

1. Develop an expert knowledge of the field's core fundamentals as well as the latest CBE research.
2. Enhance problem-solving skills and refine research skills for advanced scientific and engineering problems.
3. Effectively convey scientific concepts and/or research findings in both written and oral formats.

Policies NYU Policies

University-wide policies can be found on the New York University Policy pages (<https://bulletins.nyu.edu/nyu/policies/>).

Tandon Policies

Additional academic policies can be found on the Tandon academic policy page (<https://bulletins.nyu.edu/graduate/engineering/academic-policies/>).