



JOHNS HOPKINS
UNIVERSITY
Chemical and Biomolecular Engineering

**Graduate Ph.D. Student Handbook
2023-2024**

Updated August 2023

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Office of the Ombuds

<https://www.jhu.edu/ombuds-office/>

Student Wellbeing

<https://provost.jhu.edu/about/mental-health-task-force/>

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Ph.D. Degree Program

1. Degree Requirements

The Ph.D. degree is awarded for original research performed under the guidance of a thesis advisor. To receive the Ph.D. degree in our department, you need to:

- Complete six graduate-level courses, including two required core courses, two electives from the list of strongly recommended electives (shown below), and two more elective courses. The choice of two other electives is at the student's discretion, in conjunction with their advisor. Students must keep a GPA equal to or above 3.0
- Complete the Department's lab safety requirements in terms of course instruction and adherence to all safety rules throughout their PhD program.
- Complete the Responsible Conduct of Research training.
- Complete an annual research evaluation (for every year in the program).
- Attend at least 75% of department seminars (540.600/601) during each enrolled semester when they are offered.
- Serve as a teaching assistant for at least two approved courses in the Department.
- Successfully pass the Graduate Board Oral Exam.
- Complete an original research project of acceptable scope and depth, documented in a dissertation that the candidate in a public presentation defends.
- Apply for Graduation submitted to Registrar's office.
- Complete and submit an electronic thesis (ETD) to the Johns Hopkins Library

2. Coursework

Students must successfully complete six graduate-level courses, including the **two** required core courses listed below,

540.630 Thermodynamics and Statistical Mechanics (*)

540.652 Advanced Transport Phenomena (*)

(*) Students who have not had the corresponding courses in the undergraduate level, are strongly encouraged to contact the Director of PhD Studies and arrange to first register for the undergraduate equivalent before taking the 600-level advanced courses the following Fall semester.

In their first semester, students are also required to complete EN500.601: Research Laboratory Safety.

Students must choose to take at least **two** courses from the list of strongly recommended electives here:

In the FALL semester, highly recommended courses include:

540.602: Metabolic Systems Biotechnology (offered in Fall 2023)

540.615: Interfacial Science with Applications to Nanoscale Systems (offered in Fall 2023)

540.674: Advanced Separation and Purification Processes in Practice (offered in Fall 2023)

In SPRING semester, highly recommended courses include:

540.605: Modern Data Analysis and Machine Learning

540.673: Advanced Chemical Reaction Engineering in Practice

540.681: Molecular Chemical Kinetics and Catalysis

The remaining two graduate-level engineering or science courses are chosen with the help of the student's advisor to design a curriculum appropriate for the student's research interests. These two courses cannot include seminars, independent study, graduate research, or special studies.

Each of the six courses must be completed with a passing grade. The student must maintain an overall grade point average (GPA) of 3.0 or better. If the student's GPA falls below 3.0, the student must retake one or more of the courses to attempt to earn a higher grade. All grades remain on the graduate student's transcript, and courses that are retaken are noted with an "R." If a student receives a grade of C+ or lower in a **core course**, the student will be allowed to retake the course once only in order to achieve a grade of B- or higher. Failure to receive a B- or better the second time will ordinarily be cause for dismissal from the program.

If the two elective courses are taken in other schools (e.g., School of Medicine (SoM) or School of Public Health (SPH)), they should be graduate-level and letter-graded. Such courses also should be approved by the thesis advisor as relevant to the Ph.D. thesis research. If such courses are half-semester in length or taken in a school that has a quarter system, then two half-semester (or four quarter-semester) courses of the same credit will count as one full semester course. Some elective courses in A&S are zero credit; they can be counted provided they are semester-long and A&S regular graduate classes; when in doubt, check with the Director of the Ph.D. program.

Each semester, students must also complete the course EN. 540.600/601: Chemical and Biomolecular Engineering Seminar when it is offered.

Students are strongly encouraged to take the required courses in the first year, and the core courses preferably in the first semester if offered. Students who do not have an undergraduate degree in Chemical & Biomolecular Engineering, or a closely related field, may need additional coursework and should discuss an appropriate course plan with the Director of the Ph.D. program at the start of their first semester.

The student must take care to ensure that they are registering for sufficient credits each semester to maintain full-time status. Note that if they decide to leave the Ph.D. program and graduate with an MSE degree, then such courses may not count towards fulfillment of the MSE degree, and they would need to ensure that they have completed the MSE curriculum.

2.1. Double-Counting Courses

It is possible to double-count graduate courses if you have received an MSE degree previously.

If a student has an MSE in ChemBE from JHU, then all graduate JHU courses taken as a master's student will double-count toward the Ph.D. coursework requirement (though a student must remain an MSE student for at least one year prior to converting to Ph.D. candidate status). If the student has taken MSE thermo or MSE transport, they may request to waive the Ph.D. Thermo and Transport course requirements provided they received a B+ in the specific course and have an average GPA in the MS of B+ or higher.

If a student has an MSE from another institution, they can waive the core Thermo and/or Transport by submitting sufficient evidence of equivalency (syllabus) and competency (grade B+ or above) to the PhD program Director. The student will still need to take a minimum of four graduate courses, which can be electives. Additionally, elective courses cannot be waived.

3. Fellowships

Our students have a long history of success in earning external fellowships. Please visit the weblink to learn more about fellowships: <https://research.jhu.edu/rdt/funding-opportunities/graduate/>. There is a supplement provided by the PI for students with a Full Fellowship during the years in which they are received.

4. Research Advisor Selection Process

Some of our Ph.D. students are admitted to specific Ph.D. advisors, but most others need to choose and be assigned to a faculty research advisor. The selection and assignment process will take place during the first semester. All students, including students with assigned advisors, **must attend** (*i.e.*, mandatory attendance) all research presentations made by members of the ChemBE faculty. The presentations allow students to learn more about research opportunities within the faculty's group and help students with the selection process. Concurrently, students are required to meet individually with at least the **three** faculty members (and preferably more) whom they expect to list as their top three choices. [Note that preconceived ideas about their top three advisors may change because of the student's meetings with potential advisors, and hence meeting with more advisors is strongly encouraged]. **By November 1, 2023, students will submit their top three choices for advisor** (not research projects) to the PhD program director and Academic Program Coordinator.

Important: These top three choices **must be faculty with a *primary* appointment in ChemBE**. The Director of the Ph.D. program and Department Head will then make assignments of advisors to students, considering the student's preferences, openings in faculty labs, and input from individual faculty. The Department strives to honor students' top choices wherever possible, based on input from the faculty advisor, Director of the Ph.D. program, and Head of the Department. **The official announcements will be made for most students by the end of November.**

Inevitably, at that time, some number of students may still not be matched. At this point, the Director of the Ph.D. program, in collaboration with the Head, will work with faculty and students to find advisors for the remaining unmatched students by encouraging students to first meet again with faculty having a primary appointment in ChemBE, before considering meetings with faculty having a secondary appointment in ChemBE.

Continued financial support (tuition, stipend, and health insurance) is contingent upon a Ph.D. student joining an advisor's lab within their first academic year. If a Ph.D. student is unable to secure an advisor assignment by the conclusion of their second academic semester, they will be dismissed from the Ph.D. program, except under extenuating circumstances. A student may choose to apply to the course based MSE program at that point and, if accepted, remain to finish the MSE degree at their own cost.

4.1. Advisor eligibility

The primary contact for PhD students is the Director for the PhD Program. As described above, students are expected to be assigned to faculty with ***primary*** appointments in ChemBE and will be requested to provide their top three faculty choices only within primary appointed ChemBE faculty. If the students are not matched with any of their three faculty choices, the students will meet with the Director of the Ph.D. program who will suggest alternative primary faculty based on the research interests of the student. Only, if, after exploring options within the primary faculty, the students are still unable to find an advisor amongst the primary appointed faculty in the Department, the students can request from the Director of the PhD program to bring

them in contact with secondary appointed faculty member(s) outside the Department. This request may not necessarily be granted.

In this circumstance, students can work with:

Faculty who have a formal secondary appointments with ChemBE. A list of these faculty is available on the department website at

<https://engineering.jhu.edu/chembe/people/secondary-appointments/>

In the rare event that students are unable to secure an advisor with a primary or secondary appointment in ChemBE they should discuss the matter with the Director of the PhD program. If they decide to work with an external faculty member, they must have an internal co-advisor from the ChemBE primary faculty approved by the Director of the Ph.D. program. The co-advisor will be charged with ensuring that the research project is relevant to the chemical and biomolecular engineering field. In addition, the co-advisor must participate in all annual reviews and oral examinations. It is the co-advisor's responsibility to ensure that annual reviews have taken place between the primary advisor and the student. It is expected that the co-advisor will check-in with the student at least once per semester to discuss overall progress. Unless there is a specific agreement otherwise, the student's financial support is the responsibility of the primary (external) advisor and not the responsibility of the co-advisor in ChemBE.

4. 2. Advisor Reassignment

Students who are having difficulty in a lab to which they are assigned or, in rare cases, students who are considering switching advisors must discuss the matter with the Director of the Ph.D. program as soon as possible. Students should consider talking with their current research advisor and/or the WSE Assistant Dean for Graduate and Postdoctoral Academic Affairs, Christine Kavanagh, to formulate a course of action to resolve the situation.

Students who voluntarily leave a lab, or students who are dismissed from a lab but not from the Department, have **four weeks** following this time point to identify a new research advisor who agrees to be their mentor and to support their stipend, tuition, and other expenses. Students who do not find a new advisor within this time normally are dismissed from the program. Students who leave a lab while under probation will continue to remain under probation, and the terms of probation will be reassessed based on the new circumstances.

Students who are forced to leave a lab for circumstances beyond their control (e.g., an advisor leaves the university) should work with the Director of the Ph.D. program to plan a course of action for changing research groups. Students will generally be subject to the WSE policy to identify a new advisor **within four months**.

5. Graduate Student Academic Review

At the end of every semester, the Department reviews the academic records of graduate students to evaluate their academic progress. The student should also inform the Director of the Ph.D. program promptly if their GPA is less than 3.0. If the overall grade point average (GPA) is less than 3.0, the student will be required to remediate the situation and may be placed on probation.

In addition to this evaluation, the Department annually evaluates each student's research progress through a written evaluation that includes the student's self-evaluation, completion of the advisor and / or faculty committee's evaluation form, and, additionally, an oral research presentation which is conducted in all years of study except for the second year. In the second year, a research proposal will be required in addition to an oral examination. This proposal should include information on the Background / Motivation, Significance, Innovation, Preliminary Data,

Aims, Approach and References relevant to the Ph.D. thesis. Details of the proposal will be provided in advance. This process is designed to probe the student's critical thinking, dedication, and approach towards research and learning. The faculty will use this evaluation process to provide students with constructive feedback regarding their research progress, including recommendations and goals for the coming year. More details of the reviews are below.

5. 1. Review by Oral Research Presentations

Oral presentations are conducted in all years of study. All annual oral reviews should be scheduled in conjunction with their advisor and committee between May and August each year and completed by the end of the summer and before the start of the Fall semester. This is a WSE-wide requirement.

Oral research presentations will be made to a committee consisting of the advisor and two other faculty members. The two additional members must be primary appointed ChemBE faculty in the first year. **In the second year** and beyond, one of the two additional members may have primary appointments in another department. The outside member may hold a primary appointment at another university or in industry if there is a special case such as situations in which they are a collaborator. The date of the oral presentation should be chosen by mutual agreement between the advisor and the student. The presentations should last 30 minutes and include an additional 15 minutes for questions and completion of the evaluation form.

For the second year evaluation, a written proposal is required that is expected to describe the research to be conducted by the student towards completion of the PhD degree. Details on the possible formats and expectations of the proposal are explained to the students by the Director of PhD studies in the Fall semester of the second year. The written proposal is submitted to the members of the review committee preferably one week before the scheduled evaluation date.

Students who are within six months of completing their degree may request exemption from the final-year oral research presentation. The expected graduation date must be emailed from the student's advisor to the graduate academic coordinator. The student and advisor must still complete and submit the WSE-mandated self-evaluation form.

5. 2. Review by Self-Evaluation and Faculty Evaluation Form

Students in all years of study must complete the WSE-mandated review form, which includes a section for self-assessment and a section to be completed by the advisor and committee members at the oral research presentation or review. Students should complete the self-evaluation portion of the form and provide it to their committee one week before the oral presentation (if applicable). Students should bring the completed self-evaluation form to their presentations, where the faculty committee will complete a separate section on the back of the form at the conclusion of the research presentation. The student and faculty committee will sign and date the form. Copies of the form will be provided to the student and the advisor, and a scanned copy must be sent to the graduate academic coordinator to be placed in the student's departmental file.

6. TA Requirement and Policy

All Ph.D. students must serve as teaching assistants (TAs) for two semesters, preferably during the first three years of study. We do not recommend students choose to TA in the first year of study, and PI and approval by the Director of the Ph.D. program is needed for this. The three-year time frame may be extended if TA positions are not available. To fulfill this requirement, students must be a TA for required UG/MS or Ph.D. courses only.

While the typical workload for a TA is often, on average, ten hours per week, a full-time TA can be expected to work up to 20 hours per week. During mid-term and/or final exam periods, in

particular, TAs might need to spend up to twenty hours in one week. Duties may vary from course to course and may include grading.

The general expectations of the TA are:

a) the TA should be prepared to give a 60- to 90- minute recitation section every week. To this end, the TA should possess complete mastery of the course's fundamentals. To achieve this, the TA is expected to spend around three hours per week to review course material. Although not required, the TA might find it helpful to attend the instructor's lectures for the course they are assigned as the TA.

b) The TA should offer office hours (typically a 1-hour window per week which must be different from the recitation section) to address students' queries pertinent to the course. Office hours should be chosen to accommodate all students attending the course, keeping in mind the schedule of other required courses.

- The TA may be asked to grade specific problems from a homework set or all problems from certain homework sets. However, the TA should not spend, on average, more than an average of two hours per week on such a task. Most importantly, TAs are not required to prepare the homework sets distributed to the class. However, they may be occasionally asked to "modify" or "contribute" a problem in the homework.
- The TA may be occasionally asked to give class lectures. In such cases, detailed notes should be provided to the TA by the instructor.
- The TA may be asked to help the instructor grade the mid-term and/or the final exams. In this case, the solutions along with clear grading instructions should be provided by the instructor. The instructor should closely supervise the TAs and address all their queries during this exercise. The TAs are not required to devise the questions of the mid-term and/or final exams.
- The TA may be asked to collect data for the Department's ABET report as required by the accrediting agency and the Whiting School of Engineering.

If the imposed workload is significantly higher than that specified above, the students should report this to the Director of the Ph.D. program and the Department Head.

Note: Being a TA for the undergraduate senior lab course (540.311/313) entails different duties and a higher workload than discussed above. As a result, being a TA for senior lab once is sufficient to fulfill the TA requirement (i.e., being a TA for a second course is not required if you TA senior lab).

The process of securing TA positions is the responsibility of the students and the instructor, and the Graduate Academic Coordinator and Director of the Ph.D. program will assist in coordination. Students interested in being a TA for a course should directly contact the instructor of that course. Occasionally, courses that need TAs will be announced to graduate students about a month before the start of the semester.

If a student serves in additional TA assignments with the permission of their advisor and at the behest of the Director of the Ph.D. program, they will be eligible to receive extra pay.

The University holds a TA Orientation in August. Attendance at the TA training session is mandatory for all students who will be TAs for the first time in either the fall or spring semesters.

For Ph.D. students who completed their MS degree in the Department, any TA service performed as an MS student may count toward the Ph.D. TA requirement and the student should contact the DGS for approval.

7. Steps for Graduation

Several steps need to be completed prior to Graduation, as outlined below.

7. 1. Notify the Academic Program Coordinator

Students must notify the Academic Program Coordinator one semester PRIOR to the semester of their intent to graduate, which should be decided after discussing with your Ph.D. advisor. In addition, students should contact the Academic Program Coordinator at least **eight weeks** prior to the proposed defense date to ensure that all necessary information is exchanged. Allow **at least eight weeks** for scheduling and approval from the Graduate Board. The earlier that the student lets the Academic Program Coordinator know their plans, the better.

7. 2. Complete the "Application for Graduation" in SIS

Note: If no "Application for Graduation" is on file in the Registrar's Office, the student will not be included on the degree candidates list signed by the President. Should a student's degree requirement materials be received after the deadlines listed above, that student's name will be added to the next semester's Graduate Board list for completed degrees.

7. 3. Contact the Johns Hopkins Office of International Studies if you are an international student and want to apply for Optional Practical Training (OPT) for F-1 students. OPT applications must be created several months before completion.

7.4. Check that you have completed the course requirement

Each of the six courses must be passed with a letter grade of B- or higher.

7. 5. Complete the Graduate Board Oral Exam and Thesis Defense

Candidates must write a thesis (dissertation) conforming to university requirements that describes the students work and results in detail. A public defense of the thesis is required, and the defense will be followed by a closed session or graduate board oral (GBO) examination. Because the closed examination session fulfills the university Graduate Board Oral (GBO) examination requirement, all procedures pertaining to GBO's as established by the University Graduate Board must be followed. The procedures can be found at the Homewood Graduate and Postdoctoral affairs website:

<http://homewoodgrad.jhu.edu/academics/graduate-board/graduate-board-oral-exams/>

7.5. 1. Graduate Board Oral Exam

The Graduate Board Oral (GBO) Exam is a university requirement for obtaining a Ph.D. The GBO Examination for candidates for the Ph.D. degree has three primary objectives:

- a) To assess a candidate's proficiency in the discipline.
- b) To give a student the benefit of a critical examination of his or her work by scholars outside the department or program committee.
- c) To provide a means for extra-departmental monitoring of the academic quality of departments and committees sponsoring candidates.

The GBO should concentrate on the student's doctoral dissertation and its implications. It is reasonable for the Graduate Board Oral Examination Committee to explore the candidate's breadth of knowledge in areas ruled germane to the thesis by the chair of the committee.

7. 5. 2. Scheduling the GBO examination and thesis defense

In our Department, the GBO exam and thesis defense are held at the same time. Students should contact the Academic Program Coordinator at least **eight weeks** prior to the proposed defense date to ensure that all necessary information is exchanged. Allow at least **eight weeks** for scheduling and approval from the Graduate Board.

Students are not permitted to schedule this GBO exam. The advisor must contact the Academic Program Coordinator directly to begin the process. Although consultation of doctoral candidates with their faculty advisors regarding possible exam committee members is appropriate, it is the advisor's responsibility to suggest potential examination committee members to the Academic Program Coordinator and the Director of the Ph.D. program. The academic program coordinator will schedule the date and location after the Ph.D. program director approves the names. The student may only contact committee members after everything has been officially confirmed.

7. 5. 3. Composition of the committee for the GBO examination and thesis defense

Please refer to the weblink above regarding university committee rules. (<http://homewoodgrad.jhu.edu/academics/graduate-board/graduate-board-oral-exams/>)

The committee for the closed examination should consist of seven faculty members composed of three + one alternate from within the department and two + one alternate from outside the department. The outcome of the closed examination will be decided by the majority vote of the committee.

From this committee, three thesis readers (advisor, one member from within, and one from out of the department) need to approve the written thesis.

7. 5. 4. Thesis preparation and defense

The Ph.D. thesis must be submitted to the thesis readers **two weeks** (or earlier, if requested by a reader) before the scheduled defense of the thesis. It will then be defended at an open seminar, whose date and location will be publicized within the Department.

Refer to the *Guidelines for the Preparation of Dissertations and Theses*, which can be found online: <https://www.library.jhu.edu/library-services/electronic-theses-dissertations/>

7. 5. 5. Submission of the thesis to the library

After successfully completing the GBO and approval by the thesis readers, submit your electronic thesis (ETD) to the Johns Hopkins Library and email the Academic Program Coordinator the confirmation of approval of electronic submission. These steps are crucial for completing all documentation and approval by the Homewood Graduate Board. Please note that the Department does not pay the ETD submission fee, though individual advisors may choose to pay it from their discretionary accounts.

ChemBE General Ph.D. Information

ChemBE Ph.D. Student Conflict Resolution

The Department of Chemical and Biomolecular Engineering tries to provide a supportive environment for its graduate students. Occasionally disagreements and problems occur, and students may need help in resolving an issue. The Department recommends several options to help in finding resolution to such issues:

- The student could talk to their advisor.
- The student could attempt to resolve the conflict by having an in-person conversation with the involved parties. If the student is uncomfortable with this or needs assistance with these discussions, there are faculty members (in addition to the Departmental Head, Jennifer Elisseff) who are prepared to help and can be contacted for their assistance:
 - Director, Ph.D. Program (Director of the Ph.D. program) – Stavroula Sofou
 - Director, Graduate Admissions – Honggang Cui

Students can also reach out for assistance beyond the Department- there are several offices on the campus that can assist in helping students resolve issues:

- Whiting School of Engineering Office of Academic Affairs
- GRO (Graduate Representatives Organization)
- JHU Counseling Center
- JHU Office of Institutional Equity
- Office of the Dean of Student Life
- Office of the Ombuds
- Homewood Graduate Affairs and Admissions Office
- Office of Student Disability Services

If the situation is severe and cannot be reasonably resolved through any of these options, the Whiting School has a grievance policy, and we will stand with the student to help if a formal complaint is appropriate.

General Laboratory Safety

The importance of laboratory safety cannot be overstated. All students are required to complete the safety course prior to beginning work in the lab. This course is offered in the fall and spring semester. Any concurrent BS/MSE students have already taken the undergraduate version of the course and are not required to take it. It should be noted that the laboratory safety course does not cover everything one needs to know regarding safety in each individual lab but is intended to create a safety-minded experience through which the student will be able to evaluate their own lab for potential safety issues and work with their advisor to determine how he/she would respond in that situation. Students are expected to follow all safety rules, including use of PPE, always in the laboratory. Students working with either biological, laser, or radiation hazards are required to take additional courses through the medical campus and WSE. The departmental faculty safety officer and university safety officer will conduct annual departmental and university laboratory inspections, respectively. Random laboratory checks are also conducted.

Some relevant contact information people to contact for safety issues are:

1. ChemBE faculty safety officer: Rebecca Schulman, Email: rschulm3@jhu.edu

2. Homewood laboratory safety advocate: Daniel Kuespert, 410-516-5525,
dkuespert@jhu.edu
<https://labsafety.jhu.edu/author/dkuespe1/>

3. Emergency resources
<https://labsafety.jhu.edu/emergency-resources/>

4. JHU University Health, Safety & Environment

<https://www.hopkinsmedicine.org/hse/>

5. Relevant Security and Safety phone numbers

JHU Security

Emergency: (410) 516-7777 (24/7)
Non-emergency: (410) 516-4600 (24/7)

6. Other important numbers

Health, Safety, and Environment: (410) 516-8798 (business hours)
Maryland Poison Center: (800) 222-1222 (24/7)
JHU Radiation Safety: (410) 516-7278
JHU Biosafety: (410) 955-5918
JHMI Needlestick Hotline: (410) 955-STIX
Blue Jay Shuttle: (410) 516-5121 (24/7)
Plant Operations: (410) 516-8063
Occupational Health Services: (410) 516-0450
Student Health Services: (410) 516-8270

Link to Johns Hopkins Whiting School Graduate Policy Information

<https://engineering.jhu.edu/graduate-studies/>

Policy on Mentoring Commitments for PhD Students and Faculty Advisors

(Mentoring policy) <https://provost.jhu.edu/wp-content/uploads/2019/08/Policy-on-Mentoring-Commitments-for-PhD-students-and-Faculty-Advisors.pdf>

Homewood Policies for Academic Policies and Procedures

The Academic Policies & Procedures for All Whiting School of Engineering Ph.D. students is available online and can be accessed using the following link:

<https://engineering.jhu.edu/graduate-studies/academic-policies-procedures-graduate>

Registration

Students are required to register for every semester of study. Registration deadlines are published by the Registrar well in advance.

<https://studentaffairs.jhu.edu/registrar/>

It is the student's responsibility to check their account and make sure there are no holds in place to bar registration. For advisor holds, the student should speak to their advisor to plan their schedule and request that the advisor release the hold. For financial holds, the student should contact the Department Administrator. If a student misses the registration deadline, they will be responsible for a late fee of \$150-\$300.

Students must register over the summer in order to avoid paying extra FICA taxes. You can contact the GAC about the procedure and deadlines. Students who miss the deadline will incur a late fee of \$50.

Graduate Credit Hours

All courses through the Whiting School of Engineering carry credit hours. Graduate Research carries a flexible credit-hour assignment. Students should meet with their advisor to discuss the appropriate number of credit hours to enroll for Graduate Research based on effort and time in the lab. Typically, full-time Ph.D. students must register for 20 credit hours per semester. For more information about graduate credit hours, please read the Q&A regarding credits at:

<https://homewoodgrad.jhu.edu/academics/wse-graduate-%20%20credit-hours/>

Graduate Board

The Graduate Board is responsible for the administration of University-wide policies and procedures for the award of Master of Arts; MA; and Doctor of Philosophy, Ph.D.

OIS Office of International Services

The primary mission of the Office of International Services (OIS) is to assist international students, scholars, and faculty at Johns Hopkins University's Homewood Campus. OIS works with the academic and administrative departments to facilitate the immigration process. Additionally, OIS' staff members are available to answer your questions about immigration status, financial concerns, health matters, housing, employment possibilities, as well as other issues that may arise during your stay.

Please refer to the website: <http://ois.jhu.edu/>

Health Insurance

All graduate students are required to carry sufficient health insurance. The University offers a health insurance plan, and the advisor/Department covers 100% of this University plan expense for all Ph.D. students.

Students who are already under a plan through their parents or employer have the option to waive the JHU plan by filling out a waiver form and turning it into the Registrar's Office. This waiver must be completed every year, as appropriate. Students who plan to choose this option must also notify the Academic Program Coordinator and Department Administrator. A copy of the waiver form must be turned in to the Department office and kept on file.

Department Information

Current information on the Department is available on our Departmental website at:

<https://engineering.jhu.edu/chembe/>

The weblink for our primary faculty is:

<https://engineering.jhu.edu/chembe/faculty/>

The link for secondary-appointed faculty is:

<https://engineering.jhu.edu/chembe/people/joint-appointments/>

Department Staff: Our departmental staff is listed on our department website:

<https://engineering.jhu.edu/chembe/people/staff/>

Students may contact the following Department staff for assistance:

Graduate Academic Coordinator – registration problems, missing grades, access to documents in your application file, assistance understanding departmental and university policies, help with university paperwork, letters for leaving the country, financial hold, advisor holds, GSLC, and graduate affairs.

Senior Research Analyst – budgets, policies, payroll questions, tuition/health insurance, expense accounts reimbursement, petty cash voucher, questions about lab budgets, turning in receipts, procurement card or purchasing questions, assistance with SAP.

Administrative Assistant– reserve space for lab meetings, key requests, mailboxes, package deliveries, assistance with the copier.

Department Office and mailing address:

Department of Chemical and Biomolecular Engineering
Maryland Hall 221, Johns Hopkins University
3400 N. Charles Street Baltimore, Maryland 21218, USA

Mail and Supplies Policies

Laboratories are responsible for procuring their supplies and managing their shipping accounts (FedEx). Each lab should have a person designated to oversee such purchases and track budget spending.

The door to the mailroom will be locked after regular business hours; graduate students may request a key to that room, a laboratory, or workspace by filling out a Key Request Form located in 221. Keys may only be given to those students who have either completed the Safety Course or watched the equivalent DVD and passed the safety test administered by the Administrative Secretary every week. A multi-function photocopier is also available for student use for tasks related to the conduct of research or the academic pursuits of the faculty.

Graduate Student Liaison Committee (GSLC)

The Graduate Student Liaison Committee represents the graduate student body in the Department. The group is a voice for all graduate students and works to create a cohesive work and social environment in Chemical and Biomolecular Engineering. Typically, each group sends a representative to this committee. The committee also organizes social and athletic events that bring together faculty, graduate students, and undergraduates regularly. See the GSLC Instagram page for updates:

https://www.instagram.com/chembe_gslc_jhu/?hl=en

Other Useful Contacts

Office of the Registrar

<https://studentaffairs.jhu.edu/registrar/>

75 Garland Hall

JCard Services (JHU student ID)

<https://studentaffairs.jhu.edu/jcard/>

51 Garland Hall

Student Financial Services

<http://www.jhu.edu/finaid>

146 Garland Hall

Student Accounts

<http://www.jhu.edu/studacct>

31 Garland Hall

Office of Student Disability Services

<http://web.jhu.edu/disabilities>

385 Garland Hall

Office of Institutional Equity

<http://oie.jhu.edu>

Wyman Park Building Suite 515

Ralph O'Connor Recreation Center

<http://web.jhu.edu/recreation/>

Community Living (Housing)

<https://studentaffairs.jhu.edu/community-living/>

JHU Information Technology

<http://www.it.johnshopkins.edu>

JHU Career Center

<https://studentaffairs.jhu.edu/life-design>

Graduate Representative Organization (GRO)

<https://studentaffairs.jhu.edu/gro/>

JHU Sheridan Libraries

<https://www.library.jhu.edu/>

Homewood Student Affairs

<https://studentaffairs.jhu.edu>

Digital Media Center

<https://studentaffairs.jhu.edu/dmc/>

Campus Security

<http://www.jhu.edu/~security/>

Campus Police: 4105167777

Security office: 4105164600

Safety Escort Services

Phone: 4105164600

JHU Transportation Services (including parking)

<http://ts.jhu.edu>

Barnes & Noble Bookstore

<http://johns-hopkins.bncollege.com>

JHU Charles Commons

Office of International Services

(visas etc.)

<https://ois.jhu.edu>

Annual Review Form

Chemical and Biomolecular Engineering Ph.D. Student Annual Review Form (Please type out answers)

Student Name:

Year of Study:

Advisor:

Date:

PART A: GRADUATE STUDENT SELF-ASSESSMENT (To be completed by the graduate student)

1. Courses completed in the past two semesters:
2. Were you a teaching assistant? If yes, list the course and how do you think you performed in this area?
3. Journal papers published/submitted during the last year:
4. Conference and internal/informal presentations made during the last year:
5. Research accomplishments:

6. Plans/Goals (including research and courses) for the coming year:

7. Confirm that you understand and are committed to employing safe procedures for handling chemicals and experiments in your project, including the daily use of PPE.

8. The number of leave days in the past year:

9. Additional comments or concerns

Please attach your (a) current CV and your (b) working thesis title and abstract to this review.

Additional Form to be completed and signed by both student and advisors. The student and advisor need to each respond to the statements below using the following scale:

1= disagree, 2 = improvement needed, 3= agree. A written explanation is needed for all "1s".

| Lab Work | Student | Advisor |
|--|---------|---------|
| The student is adept at designing well-controlled experiments that address the questions at hand. | | |
| The student conducts lab work following all safety regulations. | | |
| The student positively engages with other lab members, respects the boundaries of lab mates' projects, and is willing to teach and | | |
| The student participates in helping to maintain and improve the lab as a whole (e.g., lab duties). | | |

| Research Project | Student | Advisor |
|--|---------|---------|
| The student sets achievable goals by prioritizing experiments and maximizing the effective use of resources. | | |
| The student understands big-picture implications as well as finer details of their project. | | |
| The student can focus, effectively manage stress, and meet deadlines. | | |
| The student is fully committed to progress in their project (effort, attitude, motivation). | | |
| There are adequate resources for the student to conduct the planned research | | |

| Communication | Student | Advisor |
|---|---------|---------|
| The student can design and organize an effective scientific presentation. | | |
| The student incorporates appropriate suggestions/information from progress reports, committee meetings, and/or reviewers into their work. | | |
| The student successfully networks with others inside and outside of their chosen field. | | |

| Scientific and Career Development | Student | Advisor |
|---|---------|---------|
| The student reads the scientific literature, both within and outside of | | |
| The student has taken advantage of course opportunities to advance their knowledge. | | |
| The student has made progress toward deciding what their future career goals are and are gaining the experience needed to achieve them. | | |

| Advisor/Student Relationship | Student | Advisor |
|-------------------------------------|---------|---------|
| | | |

| | | |
|---|--|--|
| There are adequate opportunities for meetings between the student and advisor. | | |
| The student receives adequate mentorship from their advisor. | | |
| The advisor provides positive feedback and incentive to encourage the student. | | |
| The advisor responds on time to the student's emails and requests to read manuscripts, thesis drafts, and other essential documents | | |

Questions for the Second Year Review ONLY

Evaluation of the Research Proposal

1= disagree, 2 = improvement needed, 3= agree. A written explanation is needed for all "1s".

| | Advisor | Faculty Reviewer 1 | Faculty Reviewer 2 |
|---|---------|--------------------|--------------------|
| Was the research proposal submitted to the committee in a timely manner allowing adequate time for review ? | | | |
| Proposal Evaluation | | | |
| Overall evaluation | | | |
| Significance | | | |
| Innovation | | | |
| Approach | | | |
| Comments | | | |

OVERALL PROGRESS (tick one): ____5 (exceeds expectations); ____4; ____3 (satisfactory); ____2; ____1(unsatisfactory)

ADVISOR: Comments on student self-assessment & research presentation and/or recommendations/goals for the coming year can be attached on a separate sheet of paper if necessary.

Advisor's signature _____ Date _____

Faculty signature #1 _____ Faculty signature #2 _____

I have read the comments and discussed this document with my advisor

Student's signature _____ Date _____

Checklist for Departmental Approval
Ph.D. Degree Program 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. A checklist is below.

- Completed six graduate-level courses, including the four required core courses listed below.
- Completed an annual research evaluation each year.
- Served as a teaching assistant for at least two courses.
- Completed the first semester of 500.601 Research Laboratory Safety
- Attended graduate seminars (540.600/601) every semester when it is offered. Students are expected to enroll and attend department seminars throughout their tenure in the Department whenever the course is offered. There have been some disruptions in the Seminar due to social distancing rules caused by COVID-19.
- Passed the Graduate Board Oral Exam.
- Completed an original research project, documented in a dissertation that is defended by the candidate in a public presentation.
- Completed Responsible Conduct of Research training. For complete information, see eng.jhu.edu/wse/page/conduct-of-research-training.
- Completed and applied for Graduation to the Registrar's office.
- Completed and submitted an electronic thesis (ETD) to the Johns Hopkins Library <https://www.library.jhu.edu/library-services/electronic-theses-dissertations/>

Required Core Courses:

540.630 Thermodynamics and Statistical Mechanics

540.652 Advanced Transport Phenomena

Two courses from:

540.602: Metabolic Systems Biotechnology

540.615: Interfacial Science with Applications to Nanoscale Systems

540.674: Advanced Separation and Purification Processes in Practice

540.605: Modern Data Analysis and Machine Learning

540.673: Advanced Chemical Reaction Engineering in Practice

540.681: Molecular Chemical Kinetics and Catalysis

This is to certify that STUDENT NAME has satisfied all of the academic requirements necessary to grant a Ph.D. degree as required by the Department of Chemical & Biomolecular Engineering.

Advisor's Signature