Welcome to the Brown School of Engineering!

We are glad that you have chosen to conduct your graduate studies at the Brown School of Engineering. Brown University has a proud history in American engineering education. Engineering at Brown is the third oldest civilian program in the country and the first program founded in the Ivy League. The School today is distinguished by outstanding students and faculty, an integrated school structure free from traditional departmental boundaries, a distinctive interdisciplinary curriculum, and a strong research environment.

The School of Engineering reflects the rigor, collaborative spirit, and creativity of its faculty and the excellence and innovative ethos of its students. Teaching and research in the School of Engineering reflects the unique position Brown holds in higher education – an institution that provides the close mentoring relationships characteristic of a liberal arts college and the intellectual excitement of a research-intensive university. Your acceptance into our highly selective programs indicates that we feel you have the capability and desire to contribute to the future of your field.

Note: this handbook format is intended to be viewed digitally (rather than in print), as it contains a large number of links to related university resources. The current digital version can be viewed at: https://www.brown.edu/academics/engineering/graduate-study/graduate-programs-guide
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>I.</td>
<td>STATEMENT OF PURPOSE</td>
<td>4</td>
</tr>
<tr>
<td>II.</td>
<td>INTRODUCTION</td>
<td>4</td>
</tr>
<tr>
<td>III.</td>
<td>MISSION STATEMENT</td>
<td>4</td>
</tr>
<tr>
<td>IV.</td>
<td>GRADUATE REPRESENTATIVES AND CONTACTS</td>
<td>5</td>
</tr>
<tr>
<td>V.</td>
<td>OFFICE OF ACADEMIC AND STUDENT AFFAIRS</td>
<td>5</td>
</tr>
<tr>
<td>VI.</td>
<td>UNIVERSITY POLICY INFORMATION</td>
<td>6</td>
</tr>
<tr>
<td>VII.</td>
<td>ETHICS AND PROFESSIONALISM</td>
<td>6</td>
</tr>
<tr>
<td>VIII.</td>
<td>NEW STUDENT INFORMATION</td>
<td>7</td>
</tr>
<tr>
<td>IX.</td>
<td>SAFETY TRAINING</td>
<td>8</td>
</tr>
<tr>
<td>X.</td>
<td>FINANCIAL SUPPORT</td>
<td>9</td>
</tr>
<tr>
<td>XI.</td>
<td>COMPONENTS OF PH.D. REQUIREMENTS</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>A. OVERVIEW OF REQUIREMENTS FOR PH.D.</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>B. THE PROGRESS REVIEW</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>C. THE PRELIMINARY EXAMINATION</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>D. COURSE REQUIREMENTS</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>E. OPTIONAL TRANSITIONAL MASTER’S AND MASTER’S IN SECONDARY FIELD</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>F. SPECIFIC RESEARCH GROUP PROCEDURES</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>1. Biomedical Engineering</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>2. Chemical and Biochemical Engineering</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>3. Electrical Sciences and Computer Engineering</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>4. Fluids and Thermal Sciences</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>5. Materials Science</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>G. ACADEMIC STANDING</td>
<td>15</td>
</tr>
<tr>
<td>XII.</td>
<td>RESEARCH AND TEACHING</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>A. SELECTION OF A RESEARCH TOPIC</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>B. INITIATING YOUR RESEARCH</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>C. TEACHING EXPERIENCE AND PROFESSIONAL DEVELOPMENT</td>
<td>17</td>
</tr>
<tr>
<td>XIII.</td>
<td>DISSERTATION DEFENSE AND SUBMISSION</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>A. DISSERTATION DEFENSE</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>B. DISSERTATION SUBMISSION</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>C. DEFENSE CHECKLIST</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>D. COMMENCEMENT</td>
<td>20</td>
</tr>
</tbody>
</table>
XIV. COMMUNITY RESOURCES ........................................................................................................... 20
   A. GRADUATE COMMUNITY ........................................................................................................... 20
   B. WELLNESS ................................................................................................................................. 20
   C. LEAVES OF ABSENCE ............................................................................................................... 21
      1. Types of Leave ......................................................................................................................... 21
      2. Procedure to Request a Leave ................................................................................................. 22
      3. Returning From Leave (Reinstatement) .................................................................................. 22
   D. STUDENT LIFE RESOURCES .................................................................................................... 22
   E. ATTENDING SCHOOL SEMINARS AND TALKS ....................................................................... 24
   F. WRITING RESOURCES ............................................................................................................. 25
   G. ENGINEERING CONTACTS ......................................................................................................... 25
I. STATEMENT OF PURPOSE

This handbook is provided to Ph.D. students of Brown University, School of Engineering to help students navigate the process of obtaining their respective degree. It does not replace the school’s graduate advising, but is intended as a reference to provide supplemental information.

II. INTRODUCTION

This handbook will serve as an aid for students in their transition into graduate school, as well as assisting all students toward the successful completion of their degree and associated requirements. It is each graduate student’s personal responsibility to read and understand the information pertaining to graduate studies at Brown University in both this handbook and in the University Bulletin.

III. MISSION STATEMENT

The mission of Brown University is to serve the community, the nation, and the world by discovering, communicating, and preserving knowledge and understanding in a spirit of free inquiry, and by educating and preparing students to discharge the offices of life with usefulness and reputation. We do this through a partnership of students and teachers in a unified community.

The School of Engineering supports the University's overall mission in the following way: Brown University's School of Engineering educates future leaders in the fundamentals of engineering in an environment of world-class research. We stress an interdisciplinary approach and a broad understanding of underlying global issues. Collaborations across the campus and beyond strengthen our development of technological advances that address challenges of vital importance to us all.
IV. GRADUATE REPRESENTATIVES AND CONTACTS

<table>
<thead>
<tr>
<th>Program</th>
<th>Graduate Representative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biomedical Engineering</td>
<td>David Borton</td>
</tr>
<tr>
<td>Chemical, Biochemical &amp; Environmental</td>
<td>Kurt Pennell</td>
</tr>
<tr>
<td>Engineering</td>
<td></td>
</tr>
<tr>
<td>Electrical and Computer Engineering</td>
<td>Dan Mittleman</td>
</tr>
<tr>
<td>Fluids and Thermal Sciences</td>
<td>Tom Powers</td>
</tr>
<tr>
<td>Materials Science</td>
<td>Axel van de Walle</td>
</tr>
<tr>
<td>Mechanics of Solids</td>
<td>Yuri Basilevs</td>
</tr>
<tr>
<td>Director of Graduate Studies</td>
<td>Eric Chason</td>
</tr>
</tbody>
</table>

V. OFFICE OF ACADEMIC AND STUDENT AFFAIRS

Students with questions or concerns about academic policies and procedures should contact any member of the Office of Academic Programs and Student Affairs.

| Name              | Title                                                                 | Email                                      | Office     | Phone     |
|-------------------|                                                                      |                                           |            |           |
| Carolyn Harris    | Manager, Academic Programs and Student Affairs                        | Carolyn_Harris@brown.edu                  | B&H 307    | 863-6859  |
| Kathleen DiOrio   | Graduate Program Coordinator                                         | Kathleen_Diorio@brown.edu                 | B&H 312    | 863-1296  |
| Deborah Brown     | Coordinator, Program in Innovation Management and Entrepreneurship   | Deborah_Brown@brown.edu                   | Prince Lab | 863-6843  |
| (PRIME)           |                                                                      |                                           | Mezzanine Room 310 |           |
| Victoria Riccitelli| Undergraduate Program Coordinator                                      | Victoria_Riccitelli@brown.edu             | B&H 312    | 863-1471  |
| Jennifer Casasanto| Associate Dean for Programs and Planning                              | Jennifer_Casasanto@brown.edu             | B&H 318    | 863-1433  |
VI. UNIVERSITY POLICY INFORMATION

The following links provide information for important university-wide policies on:

- Affirmative Action
- Discrimination and Workplace Harassment
- Gender Inequity and Sexual Assault
- Title IX and Gender Equity
- Relationship and Interpersonal Violence

The University Bulletin also includes a General Regulations section containing information on academic requirements, course registration, grading, exams, and Student Conduct and Community Standards.

VII. ETHICS AND PROFESSIONALISM

Both Brown and the School of Engineering have strict policies regarding ethics and professionalism. Unethical behavior or any type of academic dishonesty will not be tolerated. As a graduate student, you are responsible for knowing and abiding by the Student Conduct and Community Standards.

From the Academic Code:

Academic achievement is evaluated on the basis of work that a student produces independently. A student who obtains credit for work, words, or ideas which are not the products of his or her own effort is dishonest. Such dishonesty undermines the integrity of academic standards of the University. Infringement of the Academic Code entails penalties ranging from reprimand to suspension, dismissal or expulsion from the University.

Honesty is expected of all Brown students, misrepresentation of facts, significant omissions or falsifications in any connection with the academic process (including Change of Course permits, the academic transcript, or applications for training or employment) are violations of the Code. This policy also applies to alumni insofar as it relates to Brown transcripts and other records of work at Brown. Misunderstanding the Code will not be accepted as an excuse for dishonest work. If a student has questions on any aspect of the Academic Code as it relates to a particular course or as it may be interpreted in practice, he or she should consult the instructor in the course or one of the associate deans of the Graduate School so as to avoid the serious charge of academic dishonesty.

All students are expected to have read and be familiar with the full Academic Code and Code of Student Conduct. In addition, all students conducting research must complete the University’s program on ethics and responsible research conduct, BEARCORE, which details responsible conduct of research.
VIII. NEW STUDENT INFORMATION

A. Prospective Students

The University prepares graduate students for distinguished careers in research, teaching, and as experts in the public and private sectors. Doctoral students perform research at the highest level, advancing knowledge in their fields. Brown students are distinguished by academic excellence, self-direction, and a collaborative style of learning. Faculty members advance research and scholarship while remaining deeply committed to teaching both graduate and undergraduate students.

B. New Graduate Student Orientation

At the beginning of each academic year, both the University and the School of Engineering hold new graduate student orientation meetings. It is required that new students attend these meetings. The School of Engineering graduate student orientation will be held Friday, August 30, 2019 in Hazeltine Commons of the Engineering Research Center (ERC), 345 Brook Street, Providence. This is the perfect setting for you to meet the School’s dean, associate deans, graduate advisors, faculty, staff, and your colleagues.

In addition to the School of Engineering orientation scheduled for Friday, August 30, 2019, students will be invited to attend the Graduate School Orientation scheduled for Tuesday, August 27, 2019. For international graduate students, the International Student Orientation is scheduled for Thursday and Friday, August 22 and 23, 2019. For students of color, the Graduate Student of Color Orientation (participation is optional) Sunday, August 25 - Monday, August 26, 2019. All orientation events are held in advance of the first day of classes, Wednesday, September 4, 2019.

We strongly encourage your attending all orientation events where you will receive excellent resources on navigating Brown University, answers to your administrative process concerns, and information about important campus community resources available to you.

C. Email and Internet Access

Accessing Accounts: Note that your Brown username (what you use to log into Canvas and Banner) and your Google login information are separate. For more information, see About Your Brown Usernames.

Most on-campus and departmental communication is done by email and, by default, your brown.edu email is used. To activate your electronic services, you will need your Brown identification number. You received this number once you committed to attending the university. Follow the steps below to activate electronic services:

1. Locate your Brown ID number at https://myaccount.brown.edu/
2. Click on “Activate Here” under Activate Your Brown Account
3. Enter the requested data on this secure site and click on “Continue”

Contact Computing & Information Services (CIS) if you require assistance with this process.

**Wireless Internet Access:** Connect devices by visiting [https://ithelp.brown.edu/kb/52-brown-wireless](https://ithelp.brown.edu/kb/52-brown-wireless). For a browserless device like a printer, gaming system or Roku, see [brown.edu/go/browserless](http://brown.edu/go/browserless).

**D. Acceptable Use and Computing on Campus**

The computing resources at Brown University support the educational, instructional, research, and administrative activities of the University. As a user it is important to engage in these resources in a responsible, ethical, and legal manner. In general, acceptable use means respecting the rights of other computer users, the integrity of the physical facilities, and all pertinent license and contractual agreements. If an individual is found to be in violation of the Acceptable Use Policy, the University will take disciplinary action including the restriction and possible loss of network privileges. Please visit the full [Acceptable Use Policy](https://computing.brown.edu/acceptable-use-policy) on the Computing & Information Services (CIS) website.

Learn more about computing life at Brown through the Computing & Information Services (CIS) website. For questions prior to your arrival on campus, visit this site or contact a Help Desk Specialist by emailing help@brown.edu or call 401-863-HELP (4357).

**E. Graduate Student Community Space**

In addition to the working space assigned to you in your group, students are encouraged to use the dedicated Grad Lounge located at 42 Charlesfield Street. The entrance to the Graduate Lounge is accessed from Thayer Street, south of the Graduate Center dormitory, beneath the winding staircase.

**Horace Mann 4th Floor**, located at 47 George Street, is open and reservable for graduate students and graduate student organizations who are welcome to use the space for meetings or study. Enter Horace Mann through the main door and take the elevator or stairs to the 4th floor. The space occupies the east side of the top floor. Hours of availability: Monday through Friday, 8:30 am to 5 pm. To request use of the space, email Esther Reynoso in the Graduate School.

**IX. SAFETY TRAINING**

All Engineering Ph.D. students must attend a Safety Training Seminar prior to starting work in the labs. The Engineering Safety Officer informs all graduate students of the dates and times that these three-hour seminars are held. Failure to attend one of these seminars can revoke a TA or RA appointment.
Depending upon the nature of the particular research that a student becomes involved with, students might need to attend other safety trainings prior to having access granted to a lab (e.g., hazardous waste, laser safety, biosafety, radiation safety, etc.). A basic Laboratory Safety Training as well as more specialized trainings are often required, depending on the nature of your work and the type of lab. Laboratory safety courses are available through Brown’s Office of Environmental Health & Safety (EH&S). Please visit the EH&S website to view available courses and descriptions of who is required to attend.

X. FINANCIAL SUPPORT

Brown University offers substantial financial support to doctoral students. All incoming doctoral students are guaranteed five years of support (with appropriate academic progress), which includes a stipend, full tuition remission, health services fee, and a health insurance subsidy. All commitments of student support are subject to students being on a funded research project and making satisfactory academic progress as determined by their programs of study.

All students entering the Graduate School with any form of financial support are required to complete an Employment Eligibility Verification Form (I-9). Please note: The I-9 cannot be completed without a valid Social Security Number or receipt proving that a Social Security Number has been applied for. See additional details here.

Current Ph.D. students are also eligible for conference travel funds. Graduate students who present at academic conferences can apply to the Graduate School for up to $650 to cover travel-related expenses. Apply early in the semester as funds are limited.

XI. COMPONENTS OF PH.D. REQUIREMENTS

A. Overview of Requirements for Ph.D.

To graduate with a Ph.D., a student must attain candidacy, pass the depth exam, and complete a dissertation that embodies the results of original research and gives evidence of high scholarship. Ph.D. program information, general requirements, and procedures for all research groups can be found in the Program Guide on the School of Engineering web site, linked below: http://brown.edu/academics/engineering/graduate-study/phd-requirements

The requirements for a Ph.D. degree in Engineering consist of successfully completing:

- Core and advanced courses (as advised by area)
- A qualifying examination (if required by area)
- A preliminary examination (if required by area), and
- An original investigation under the sponsorship of a faculty member leading to a final dissertation and dissertation defense examination.
B. The Progress Review

The progress of Ph.D. students is reviewed early in the program of study and on a regular annual basis thereafter. Each year near the beginning of semester two, the Graduate Representative and advisors for each area meet and review the academic progress of each of the school's graduate students. These area reviews are then heard by the Graduate Committee and reviews are subsequently communicated to each student. The individual research groups may supplement the Annual Review with their own internal procedures (progress seminars, reports, etc.) and students should consult the Graduate Representative in their group for details. For students with poor performance in course work or research, the advisor or group Graduate Representative can at any time request a decision from the Graduate Committee on whether the student will be allowed to continue. The Graduate Committee will make a recommendation based on the student’s transcript and advisor's report on research progress, if any.

To schedule your Progress Review, please contact Kathleen DiOrio, Graduate Program Coordinator, at least 2 – 4 weeks prior to the date you have chosen for your review, providing the name of your advisor, your committee members, and the Graduate Representative from your area of research as well as the date, time, and location. You may reserve a room through the School of Engineering Room and Equipment Reservations. Check the room’s calendar first to confirm its availability for the date and time you wish to use it.

C. The Preliminary Examination

This is a comprehensive examination covering the student’s main area of expertise. Requirements for this exam are determined by area, and the exam must be taken no later than the sixth semester of doctoral study for a student entering with a Sc.B., and no later than the fourth semester of doctoral study for students entering with an Sc.M. (see table in Section F for details). The exact timing and format of the exam varies between the different research groups. The details are outlined in the sections below. The results of the examination are presented to the Graduate Committee along with the student’s academic record and the recommendations of both the group’s Graduate Representative and the student’s Ph.D. faculty advisor. The Graduate Committee then decides whether to certify the student as a candidate for the degree of Ph.D. in Engineering. In the event of a failing grade, the Graduate Committee will decide whether to re-examine the student, require remedial action, or to request their withdrawal from the graduate program.

To schedule your Preliminary Examination, please contact Kathleen DiOrio, Graduate Program Coordinator, at least 2 weeks prior to the exam, providing the name of your advisor, your committee members, and the Graduate Representative from your area of research, as well as your major and minor areas of research and the date, time, and location of the exam. You may
reserve a room through the School of Engineering Room and Equipment Reservations. Check the room’s calendar first to confirm its availability for the date and time you wish to use it.

D. Course Requirements

During the first two years of study, we expect each Ph.D. student to meet at least once a semester with your advisor to review and discuss your fulfillment of course requirements.

The normal residence requirement for the Ph.D. degree is the equivalent of three years of full-time study beyond the Bachelor's degree (i.e., 24 tuition units). At least two semesters beyond the Master's degree must be spent exclusively in full-time study at Brown, although most engineering Ph.D. students spend four to five years in residence at Brown.

Students in the Ph.D. program typically take a comprehensive series of courses in the area of their expertise as well as several other courses in mathematics, physics, engineering, and other related disciplines. The course ENGN 2980 Special Projects: Reading Research and Design is designed for a student to enroll in during their research semesters. The number and choice of courses is made in close consultation with the student's advisor who must approve the student's choice at the beginning of each semester.

E. Optional Transitional Master’s and Master’s in Secondary Field

Students have an opportunity to earn a transitional Master’s Degree (Sc.M.) en route to their Ph.D. This transitional degree recognizes a significant level of academic achievement beyond an undergraduate degree. Minimum requirements consist of eight courses. Approval of the request for a transitional degree is not guaranteed. The student’s performance must be reviewed and the request must then be granted by the program.

The Open Graduate Education (OGE) program allows select Brown doctoral students to pursue a Master’s degree in a secondary field. The objective of this program is to enable students to combine fields in unique ways and acquire expertise in more than one area. Visit the Graduate School website for more information on OGE program scope and details.

F. Specific Research Group Procedures

Each research area group administers their respective Ph.D. program and defines the details of coursework, the Preliminary Exam, and other requirements (e.g., Progress Review.) These requirements, along with the details of each group’s administration of the preliminary examination, are outlined below.
1. **Biomedical Engineering**
Students must complete a prescribed course of study, pass a qualifying examination, complete and publicly defend a doctoral dissertation, and participate in the undergraduate and graduate teaching programs in Biomedical Engineering, which include course offerings in both the School of Engineering and the Division of Biology and Medicine. Visit the [Graduate Program in Biomedical Engineering](#) website for full requirements on the Ph.D. in Biomedical Engineering.

2. **Chemical and Biochemical Engineering**

**Progress Review:** An in-depth faculty review of the student’s progress at the end of the 2nd semester in the program. This report is shared with the student in writing.

**Preliminary Examination:** Before the end of the 5th semester in residence, the student will prepare and present a proposal for his or her research consisting of a written document followed by an oral examination of approximately two hours’ duration presented to a faculty committee of not fewer than three members, including the advisor. The document and presentation should describe a plan for original research including scientific or technological motivation, background on the relevant literature, a statement of objectives, preliminary research results, and a research plan with description of methods. The document should be submitted to the committee no later than two weeks prior to the oral portion of the exam. During the presentation, the student will be expected to demonstrate a sound grasp of the fundamental concepts and methodologies of the field, not limited to the specific research proposed. The committee reports to the Engineering Graduate Committee on the outcome of the examination which covers the document, oral exam, and a review of the student course work and research progress to date. If the performance is unsatisfactory, the committee will also make a recommendation on whether or not the examination may be repeated after a certain time has elapsed.

**Minor Area:** The student will, in consultation with their advisor, select one minor area of study satisfied by passing at least two courses forming a cohesive subject but distinct from the student’s main discipline. Proficiency is demonstrated by receiving grades of B or higher in the courses constituting the minor.

3. **Electrical Sciences and Computer Engineering**

**Progress Review:** An oral presentation of approximately 40 minutes’ duration to a forum of faculty and graduate students summarizing their research progress by the end of October in their 3rd semester (second year in residence). Their academic advisor and at least two other members of the faculty will formally evaluate this presentation and make a recommendation to the Engineering Graduate Committee regarding the student's ability to continue in the Ph.D. program and to undertake doctorate-level research. Students normally prepare for this examination by completing ENGN 2980 *Special Projects: Reading Research and Design*, and by conducting independent research during the summer months.

**Preliminary Examination:** With the approval of their academic advisor, students must choose a Preliminary Examination Committee consisting of four examiners. These examiners will
conduct an oral examination of the student no later than the end of the sixth semester in residence. Two examiners must be in the student’s major research area(s). The two other examiners must be in minor areas outside the student’s immediate research area. The Preliminary Examination will presume that students are prepared in two minor areas outside the student’s main expertise.

**Minor Areas:** Students are prepared in two minor areas outside the student’s main expertise by completing courses in each of the chosen minor areas in consultation with their advisor. These areas will be represented by two examiners in their oral preliminary examination.

4. **Fluids and Thermal Sciences**

**Progress Review:** An in-depth faculty review of the student’s progress at the end of the second semester in the program. This report is shared with the student in writing.

**Preliminary Examination:** Before the end of the 5th semester in residence, the student should take the Preliminary Examination which establishes Ph.D. candidacy. The students should prepare a written document describing a plan for the student’s own Ph.D. research including scientific or technological motivation, background on the relevant literature, a statement of objectives, preliminary research results, and a research plan with description of methods. The research proposal should be submitted to the committee who are expected to provide feedback.

The student should then schedule an oral presentation and defense of the research proposal. The committee members and any other interested faculty should participate in the presentation and exam. During the presentation, the student will be expected to demonstrate a sound grasp of the fundamental concepts and methodologies of the field, not limited to the specific research proposed. The advisor and Graduate Representative will work with the candidate to define which fundamental areas the student should be able to show proficiency in during the oral examination. The committee reports to the Engineering Graduate Committee on the outcome of the examination which covers the written proposal, the oral presentation, the oral exam, and a review of student course work and research progress to date.

As a guideline, the proposal should be 15-25 pages (1.5 spacing; not including cited references) and should be professionally formatted in a manner similar to a research publication. The document must be submitted to the exam committee at least two weeks prior to oral defense. For the oral proposal defense, the student should be prepared to present for 30 minutes and the entire exam should last less than two hours.

**Minor Areas:** The student will, in consultation with their advisor, select one minor area of study satisfied by passing at least two courses forming a cohesive subject, but distinct from the student’s main discipline.

5. **Materials Science**

**Progress Review:** This portion is the official written portion of the preliminary exam taken in the 4th semester. This exam consists of two parts to be completed in two three-hour sessions. In
the morning session, students will be examined on thermodynamics and kinetics (paralleling the course work in ENGN 2410 and ENGN 2420). In the afternoon session, the students will be examined on mechanical properties and crystallography (paralleling the course work in ENGN 2430 and ENGN 2490).

**Preliminary Examination:** Students complete the oral portion of their preliminary exam through a presentation of their proposed research in their 5th semester. In preparation for this presentation, they will be responsible for reading and understanding a number of seminal papers (typically on the order of 10) critical to the completion of their research. These papers will be chosen in consultation with the student’s advisor and another faculty member chosen by the student and his advisor. During the presentation, the student will be expected to demonstrate understanding of the important scientific and technical issues in his proposed research, as well as an understanding of the relevant issues contained in the assigned papers.

**Minor Areas:** Each student must show proficiency in two minor areas of study. Proficiency is demonstrated by receiving grades of B or higher in the courses constituting the minor. Two courses are required to fulfill the minor, of which at least one must be a 2000-level course. The choice of appropriate courses for the minor areas will be determined by the Materials Science Graduate Student Representative. The sequence ENGN 2010 and ENGN 2020 may be used to fulfill the minor requirement in the area of applied math.

6. **Mechanics of Solids and Structures**

**Progress Review:** The progress review is typically administered during the 3rd semester in residence. Changes to this timeline are acceptable subject to the approval of the student’s research advisor and the Graduate Representative for Mechanics of Solids. The progress review includes a 30-minute oral presentation of independent research work by the student based either on a project in progress or on completed work and a review of progress in the academic program of study by the examination committee. The examination committee is to consist of the student’s advisor, the Graduate Representative for Mechanics of Solids, and at least one additional faculty member of the student’s choice from the Mechanics of Solids group. Depending on the student’s research topic, additional faculty from outside Mechanics of Solids may be added to the committee.

The committee’s recommendation to the Engineering Graduate Committee following this review as to whether or not a student will be allowed to continue will be based on an evaluation of the research presented and achievements in formal course work. If a student fails the examination once, they will be given an opportunity to repeat. Since students enter the graduate program with diverse backgrounds, this review should establish whether or not deficiencies still exist in a student's preparation and if so, they will be advised on a path for improvement to correct any deficiencies prior to taking the Preliminary Examination their second time. If they fail a second time, they will be required to withdraw from the Ph.D. program.

**Preliminary Examination:** The Preliminary Exam typically takes place during the students 5th semester in residence. However, as for the Progress Review, changes to this timeline may be
requested and are subject to the approval of the student’s research advisor and the Graduate Representative for Mechanics of Solids. The Preliminary Examination is an oral examination approximately two hours in duration and designed to test the student’s knowledge of the major field (one hour) as well as knowledge of two minor fields (30 minutes each) selected by the student and their research advisor. The student is expected to demonstrate a sound grasp of the fundamental concepts and methodologies of the major field and to demonstrate a proficiency in specific topics in the minor areas. The examination committee consists of a major area examiner, one examiner in each of the two minor areas, the Graduate Representative, and the student’s research advisor. This committee reports on the outcome of the examination to the Engineering Graduate Committee. If the performance is unsatisfactory, the committee makes a recommendation as to whether or not the examination may be repeated after a certain amount of time has elapsed.

**Minor Areas:** The Preliminary Examination will presume that the student has a level of knowledge in each of two minor areas corresponding to successful completion of two graduate courses in each of the minor subjects. Possible minor subjects include applied mathematics, materials science, physics, biology, geology or another discipline in engineering or science. If applied mathematics is to be one of the minor areas, two courses beyond ENGN 2010 and ENGN 2020 or equivalents should have been successfully completed.

**G. Academic Standing**

The university has four official statuses for graduate student academic standing: Good, Satisfactory, Warning, or Termination. The School of Engineering’s Student Affairs Office, together with the Director of Graduate Study (DGS) maintains an updated and comprehensive census of the status of each student in his/her graduate program.

Advisors should update students on a regular basis regarding their academic status. A student who believes they are overdue for an update should contact their advisor to request a meeting to review their academic standing. Students should receive written notification following the successful completion of each academic milestone in their program, if there is a delay in written notification being provided, the student can request it.

Students in **Good standing** are making both good and timely academic progress. No more than one incomplete can be carried on a student record in good standing.

To be in **Good standing**, a student is expected to have:

- Passed three approved courses each semester if a Teaching Assistant, or four courses if holding a Fellowship; then passes or is excused from taking the remainder of the "core" courses by the end of four semesters of graduate study at Brown
- Achieves the following core course grade record: No NC's and at least 50% B's or better by the end of two semesters and no remaining NC's or I's and 50% B's or better by the end of four semesters. It is expected that all core courses will be taken ABC/NC.
• Passed the Preliminary Exam (if required by their program) by the end of the 6th semester of graduate study at Brown.
• Passed the Qualifying Exam (if required by their program) and receives faculty approval to continue a graduate career in Engineering by the end of his or her 4th semester of graduate study at Brown.
• Satisfactorily performs any teaching and/or research duties. A student failing to meet at least one of these criteria is not in Good standing unless a prior exception has been made by the Dean in consultation with the Director of Graduate Study.

Examples of exceptional circumstances include illness, inadequate preparation for some graduate courses and/or postponement of the Qualifying Exam, or personal problems. A record of any exception and the relevant reasons will be kept by the Chair and the Director of Graduate Study along with each student's course grades, Qualifying and Preliminary Examination results, and current standing.

Satisfactory standing indicates that a student has encountered difficulties of some kind — inadequate performance or slow progress in course work, research, writing, etc. Two or more incompletes will, at minimum, result in a shift from Good to Satisfactory standing. This status level has no immediate impact on funding. If the concerns impacting a student’s status are not resolved, the student will move on to Warning status.

Warning status signals chronic or severe problems. Students with unsatisfactory progress will be placed on warning status and given a written notice of their deficiencies and the consequences of those deficiencies. Students will receive clear, written instructions of the steps to be taken (if possible) to regain Good or Satisfactory standing, and date-specific deadlines (typically one semester) for recovery. Such notice should be communicated every semester that a student is on Warning status. Warning could lead to an immediate removal of funding depending on the severity of the problem. If the deficiencies are not resolved by the specified deadline, the student on warning moves to termination.

Termination status signals severe and irrevocable problems. Termination indicates an immediate removal of matriculation/enrollment status as well as all forms of financial support.

XII. RESEARCH AND TEACHING
A. Selection of a Research Topic
Students may enter graduate school without a clear preconception of their intended research field and should use the first year to refine their research interests through courses, colloquia and seminars, and informal discussions with faculty and other graduate students to help identify a field and join a research group. Students are responsible for finding an advisor for the research and dissertation requirements. In most cases, the same faculty member will serve as the advisor for both requirements. However, in infrequent cases, the student, the faculty member or both may elect to not continue working together and the student will be responsible for finding another advisor.
B. Initiating Your Research
The research requirement varies by each of the research areas in the school. Students may anticipate a timeline similar to the example laid out below, but should consult with their advisor for what is expected in their specific area:

- By March of the first year, the student should have selected an advisor and two additional committee members – one, a member of the Engineering faculty, and one from outside the School of Engineering, or within Engineering but outside your research group (these committee members should also be approved by your advisor)
- By April of the first year, the student should have their intended research topic under consideration
- In fall of the 2nd year, the student should be prepared to communicate their research topic to their selected thesis committee
- By the end of the 2nd year, the student must complete the University’s program on ethics and responsible research conduct, BEARCORE, which is an eight-hour, in-person training program that is supplemented by online instruction.

C. Teaching Experience and Professional Development
Doctoral programs train students to become educators as well as researchers. The successful dissemination of research also depends on teaching ability, therefore teaching is an integral part of graduate education. All Ph.D. students are expected to train as teaching assistants for at least one semester. This requirement can be waived with approval of the Director of Graduate Studies.
The University provides a multitude of resources for teaching and professional development, including:

- The Harriet W. Sheridan Center for Teaching and Learning for teaching workshops
- The Academy in Context - a Graduate School dinner-seminar series
- Effective Performance: Improvisation and Performance Techniques for Graduate Students - a workshop series on effective teaching communication
- The Writing Center for peer support and writing and publication advising

XIII. DISSERTATION DEFENSE AND SUBMISSION

A. Dissertation Defense
The dissertation must complete the proposed work, satisfy the requirements of the Graduate School, and meet the highest standards of both content and presentation. The student must defend the dissertation at an oral presentation where the first Q&A session is open to the public. The defense will take place once the advisor determines the student is ready to defend and the written thesis is in a condition that is defendable, which means that the thesis is completely written and all chapters, front material, and references can be provided to the advisor for review. The student should then provide a hard copy of the thesis to the advisor and set up a defense date and time.

Please contact Kathleen DiOrio, Graduate Program Coordinator, at least 2 - 4 weeks prior to your anticipated defense date. You will need to complete a Defense Information Form, which can be provided via email or in person through the Student Affairs Office, Barus and Holley Room 312. You may reserve your presentation room through School of Engineering Room and Equipment Reservations. (Check the calendar for the room first to confirm its availability.)

A complete draft of the dissertation must be presented to the committee and department at least four weeks prior to the defense.

B. Dissertation Submission
Students submit a copy of their dissertation to their advisor. Once reviewed, a final copy must be submitted to the Graduate School on or before the first business day in May. The following items must be brought to the Graduate School at the time of submission:

- A receipt from the Bursar indicating that all outstanding debts have been paid
- The original, plus one copy of the original, of your dissertation signature page (two pages in total)

For detailed Ph.D. dissertation guidelines, please visit: https://www.brown.edu/academics/gradschool/dissertation-guidelines
C. Defense Checklist

A useful checklist summarizing the thesis defense process is provided below. Before the defense, please be certain you have reviewed and followed this planning checklist:

☐ 1. Set a date and time with your Thesis Committee

☐ 2. Confirm that one member of the faculty who is not on your committee will be present for the defense (if this is required by your area)

☐ 3. At least two weeks prior to your defense date and time, send an email to Kathleen DiOrio, our Graduate Coordinator, that includes:
   a. Your advisor approved title and abstract
   b. A URL for your dissertation that is externally accessible
   c. Your proposed defense date and time and the room you have reserved
   d. The name of the faculty member not on your committee who will attend

Kathleen will send an informal announcement to the faculty for attendance at the defense. If not enough faculty can attend, the student will be asked to find a new date and time, if feasible, still providing Kathleen 2 – 4 weeks’ advance notice of new date.

At least two weeks before the defense:

☐ Complete the Dissertation Defense Information Form and submit it to Kathleen DiOrio who will obtain the appropriate signature and submit the form to the Graduate School.

IMPORTANT NOTE: If you do not complete this information form and submit it on time, the paperwork will not be available on the day of your defense and you will need to reschedule.

After a successful defense:

ALL completing doctoral candidates are required to submit the paper or electronic documents listed below. (The clearance letter, title page and abstract can be sent electronically to Barbara Bennett, the Academic Affairs Manager.) The dissertation will not be accepted and the candidate's degree will not be conferred if an item from this list is missing or incomplete. The online submission system will send notifications when each document has been received and approved by the Graduate School.

☐ A Letter of Clearance from the Bursar indicating that all outstanding debts, the $50 dissertation fee, and the $150 filing fee (if applicable) have been paid; this may be sent by email

☐ Ph.D. Exit Survey for the Brown University Graduate School; you may forward your email receipt

☐ Survey of Earned Doctorates, National Research Council (the NRC sends the
Visit the Graduate School website for additional information about dissertations and required documentation. If you have any questions after consulting the website, please contact Barbara Bennett in the Graduate School (Barbara_Bennett@brown.edu or 401-863-2843).

D. Commencement

Graduate students intending to complete in May must follow the essential steps to prepare for Commencement which provides information on submitting an application to graduate, registering to attend (required), regalia, rehearsal, and other important information. If you plan to attend Commencement, you must register here to participate in the Commencement Procession and Graduate School Ceremony.

Please pay close attention to commencement announcements from the Graduate School. For updated information, frequently visit: https://www.brown.edu/academics/gradschool/about/commencement

XIV. COMMUNITY RESOURCES

A. Graduate Community

The Graduate Student Council
The Graduate Student Council (GSC) helps to foster a sense of community among graduate students across departments, to facilitate engagement on graduate student-related issues, and serve as a voice for the graduate community. The council coordinates social events and provides information on resources, such as an alternate source for conference funding, that support the academic and social lives of Brown graduate students.

The GSC also hosts yoga, fitness, dance, and other classes that are free of charge and open to current Brown graduate students in the Graduate Lounge.

Brown’s Grad Center Bar (GCB) located at 42 Charlesfield Street is a fun place to socialize with fellow graduate students, undergrads, and other members of the Brown community.

B. Wellness

We believe that when our students are psychologically healthy, they perform better academically, form and sustain more meaningful relationships, and will make the most of their time at Brown. We are committed to supporting the wellness of our students and have created a
space for relaxation within the walls of the Engineering Research Center (ERC). Our **Wellness Room** is located on the 2nd floor of the ERC, Room 203. Use of this space must be reserved in advance and can be reserved in 30-minute increments twice daily. This room is for wellness use only, including mental health, for nursing mothers, and for private conversations with health care providers. (Priority is given to nursing mothers, both in scheduling priority and unlimited usage.) Check the [online schedule](#) for room availability and to make your reservation. You will receive a Google calendar confirmation once you have scheduled the room.

**CAPS**, the university’s [Office of Counseling and Psychological Services](#), is an important resource for students facing a sudden crisis or seeking short-term individual therapy, group therapy, or referral services. CAPS staff work with students through a broad range of emotional, social, identity, and adjustment-related issues. Appointments are confidential and free of charge to all currently registered students.

**Dean Maria Suarez** serves in the Graduate School as Associate Dean of Student Support and is well-versed in the challenges and issues unique to graduate students. Graduate students may see her to discuss:

- Support practices and policies
- Medical and personal leave
- Liaison to the Offices of Campus Life and Student Services, Institutional Diversity, Student and Employee Accessibility Services, as well as to Counseling and Psychological Services

Meeting times with Dean Suarez are available through [online self-scheduling](#) and by appointment.

Friends are often the first to notice that a student might be experiencing high levels of distress. Please access these [resources for a friend in distress](#) as needed. We hope you never feel that you are alone or that you need to solve difficult situations by yourself. Many university services stand ready to assist you in an emergency.

**C. Leaves of Absence**

The Graduate School has a detailed policy that regulates various forms of [Leaves of Absence](#) as outlined in the current online version of the Graduate School Handbook.

1. Types of Leave

   See [Graduate School Handbook](#) for details on each type of leave.

   - **Family Leave**: May be granted for family needs.
   - **Medical or Psychological Leave**: May be granted for a serious physical or psychological problem encountered by a graduate student.
   - **Professional Development Leave**: May be granted for an approved educational or professional development opportunity that advances a student’s pedagogic goals.
   - **Probationary Leave**: May be granted to students for issues with academic performance.
• **Personal Leave**: This leave is an elective leave taken for personal reasons.

All leaves except Probationary and Personal allow students to extend the terms of their guaranteed funding and should not affect their academic progress or standing. Reinstatement after Probationary and Personal Leaves usually requires that the student meet certain conditions that are mutually agreed upon at the time when the leave is formally requested.

2. **Procedure to Request a Leave**

Students are required to discuss their intention for a Leave of Absence with their Research Advisor and the Engineering Director of Graduate Study (DGS). Students must use the standard form to formally request a leave (found [here](#) on the Graduate School website) and attach a separate note explaining the reason for their request. In some cases, typically for a Personal or Probationary Leave, this note also contains specific conditions that the student must meet before reinstatement into the program. This form must be signed by the DGS then submitted to the Graduate School by the Student Affairs Graduate Coordinator, Kathleen DiOrio, for further processing.

3. **Returning From Leave (Reinstatement)**

A Leave of Absence is normally granted for one to two semesters. To return to active status and to be eligible for funding in the next academic term, students must notify the Graduate School in writing by May 1 for a Fall semester return or November 1 for a Spring semester return. Additional requirements apply to readmission after a Medical Leave (refer to the Graduate School Handbook section titled [Readmission from Leave](#)).

To extend a leave of absence beyond one year, students must file a request for an extension with the Graduate School prior to the expiration of their leave. This request must be accompanied by a supporting letter from the Director of Graduate Studies. Students who do not file extension requests will receive a warning from the Graduate School and may be automatically withdrawn from their graduate program at Brown.

D. **Student Life Resources**

[Academic Support](#) (Office of the Dean of the College, University Hall): Provides academic support services that supplement the support provided by course instructors.

[Brown Center for Students of Color](#) (68 Brown Street): The Brown Center for Students of Color is a student-focused center designed to provide students of color with a base for social, academic, administrative, cultural, and organizational support.

[Brown Recreation](#): Information about on-campus fitness facilities, aquatics, and club sports.

[CareerLAB](#) (167 Angell Street): CareerLAB works in collaboration with academic departments to connect students with career resources; help students identify their skills, interests and values...
and to explore a wide range of career options; and to articulate their unique experiences to employers.

Counseling and Psychological Services (CAPS), 69 Brown Street, Room 512: Provides crisis intervention, short-term individual therapy, group therapy, community outreach, and referral services.

Graduate Student Professional Development, Horace Mann, 47 George Street: Development opportunities include advanced teaching opportunities, Global Mobility grants and research travel funds, interdisciplinary scholarly opportunities at Centers and Institutes, communications workshops and public research talks, and a series on exploring careers in higher education administration.

Health Services, 13 Brown Street: Your resource for emergency medical services, non-urgent medical care, and confidential sexual assault hotline. Bwell Health Promotion provides educational resources for nutrition, sexual health, sexual assault and dating violence, physical and emotional health, alcohol and drug use, and more.

LGBTQ Center, Stephen Robert ’62 Campus Center, 3rd Floor, Room 321: Provides a comprehensive range of education, information and advocacy services and works to create and maintain an open, safe, and inclusive environment for lesbian, gay, bisexual, transgender, queer and questioning students, faculty, and staff, their families and friends, and the campus community at large.

Office of the Chaplains and Religious Life (Page Robinson Bldg, Room 410): Works to ensure that a diversity of beliefs has voice and vitality throughout the University community. OCRL sponsors programs, coordinates a broad set of chaplains and affiliates that advise a breadth of spiritual traditions, and hosts open office hours to meet with university Chaplains.

Office of Institutional Equity & Diversity (Horace Mann 3rd Floor): Provides leadership for the formulation and oversight of policies related to pluralism and equity and initiates programs and practices that promote diversity, inclusion, and fair treatment for all members of the Brown community.

Office of International Student and Scholar Services (Page Robinson Bldg, 3rd Floor): Facilitates the integration of international students and scholars into the Brown community. OISSS provides workshops and advising services on immigration and visa matters, work permission, orientation, cultural adjustment and personal concerns.

Division of Campus Life (20 Benevolent Street): Provides a variety of services, support and outreach to undergraduate, graduate, and medical students designed to promote academic achievement and personal development.

Office of Military-Affiliated Students (Stephen Robert ’62 Campus Center, 75 Waterman Street): Brown is committed to building a community that actively supports veterans who are beginning,
returning to, or advancing their pursuit of higher education. This office supports the experience of all student veterans, including those who served in the military for countries other than the United States.

**Ombuds Office**, Hillel Building, 80 Brown Street, 3rd Floor: The Ombuds Office provides an independent, confidential, neutral and informal resource for faculty, staff, postdoctoral fellows and associates, graduate students and medical students who have concerns arising from or affecting their work and studies at Brown.

**Sarah Doyle Center for Women and Gender** (26 Benevolent Street): Seeks to provide a comfortable, yet challenging place for students, faculty, and staff to examine the multitude of issues around gender. The Center offers programs and services for all members of the Brown community and is a site for research into and exploration of gender issues that extend into and beyond the classroom.

**SHARE Advocates (Sexual Harassment and Assault Resources and Education)**, 13 Brown Street: Confidential services include support for a survivor or friends of a survivor, help filing a complaint (if that is the student's choice), and help navigating resources at Brown and the community.

**Sheridan Center for Teaching and Learning**, 201 Thayer Street, 7th floor: Provides practical advice about teaching and professional development; promotes best practices and promising new practices in teaching; supports instructors as they launch and develop their professional careers.

**Student and Employee Accessibility Services (SEAS)**, 20 Benevolent Street: SEAS coordinates and facilitates services for students (including graduate students and postdoctoral trainees), faculty, staff and visitors with physical, psychological, and learning disabilities.

**Substance Abuse Support**: The University dedicates resources to support students in recovery from addiction and substance use disorders, and to assist all students negatively affected by their own or others' substance use. The Dean of the College office and the Division of Campus Life provide overlapping services to students with substance use disorders, to develop campus policies regarding alcohol and other drugs, and to educate all members of the campus community about alcohol and drugs and their effects. For more information about available services, please contact Dean for Recovery and Substance-Free Student Initiatives, Shannon O'Neill in the Office of the Dean of the College.

E. **Attending School Seminars and Talks**

A key component to being a successful graduate student is intellectual curiosity. As such, the department strongly encourages the attendance of all graduate students at all thesis defenses. Ongoing Engineering seminars are held throughout the year by visiting scholars and other professionals which we encourage you to attend. Check the **Engineering Events calendar** frequently to learn about current school-wide activities.
F. Writing Resources

In graduate school, it is expected that students become proficient in technical writing, including but not limited to class reports and summaries, term projects, technical papers, thesis or dissertation proposals, and theses or dissertations. The Writing Center, 201 Thayer Street, Sciences Library, 5th Floor, is an excellent resource available to all graduate students.

Additional library resources for research on engineering-related topics.

Other Writing Resources:


G. Engineering Contacts

STAFF
A School of Engineering Staff Directory may be found at http://www.brown.edu/academics/engineering/people or, for a university-wide People Search, http://directory.brown.edu/search

FACULTY
Visit the School of Engineering website for a listing of current faculty and areas of expertise: http://www.brown.edu/academics/engineering/people/faculty

GRADUATE STUDENTS
A full graduate student directory, including PhD and Master’s students, may be found at: https://www.brown.edu/academics/engineering/graduate-student-directory