



# BROWN

## Graduate Handbook in Applied Mathematics

Chi-Wang Shu, *Director of Graduate Studies*  
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## 1 Introduction

The graduate program in the Division of Applied Mathematics at Brown provides training and research opportunities in a broad spectrum of applied mathematics. A variety of professional development opportunities are available including teaching, internships in industry and national labs, and round table discussions on professional issues.

The principal areas of research activities represented in the Division of Applied Mathematics are ordinary, functional, and partial differential equations; probability, statistics and stochastic systems theory; neuroscience, pattern theory, and computational biology; and, numerical analysis and scientific computation. Research in all of these areas ranges from fundamental theory through to applications and development of computational algorithms. Many of our faculty are engaged in interdisciplinary and collaborative research with researchers both at Brown and elsewhere. This breadth of activity is one of the great strengths of the program and is reflected in the teaching and courses we offer.

Several on-going research seminar series are hosted in the Division and the [Institute for Computational and Experimental Research in Mathematics \(ICERM\)](#) hosts semester-long programs that may be attended by many of our graduate students and faculty. The Division has a large throughput of faculty visitors along with a large number of postdoctoral fellows who actively contribute to our research programs and to graduate education.

This handbook is intended to give you an overview of the graduate program in the Division of Applied Mathematics at Brown University and to answer some of the commonly raised questions about policies and procedures. However, *the definitive source for all matters is the [Brown Graduate School Handbook](#)* which can be found, along with other useful information, on the [Graduate School](#) web pages<sup>1</sup>. In particular, students should take note that **every official step in a graduate student's career requires written notification from the Graduate School and/or Registrar.**

Further information and specific advice may be obtained from your academic advisor, Jean Radican (Senior Graduate Program Coordinator) and Chi-Wang Shu (Director of Graduate Studies as of 7/1).

## 2 Basic Structure of the Program

The graduate program in Applied Mathematics is designed to enable graduates to develop a working knowledge of a broad area of applied mathematics along with a deep knowledge of a particular area in which the student generally writes their doctoral thesis. The doctoral program aims to provide the general training needed to undertake research in applied mathematics along with the associated intellectual and academic skills. Obtaining a PhD at Brown generally takes five years and broadly consists of two basic components: qualification for doctoral candidacy, and performing the research itself.

Your main objectives in the first component (Years 1-2) are to:

- identify the area in which you would like to carry out research for your doctoral thesis

<sup>1</sup> Graduate School website is located at [www.brown.edu/academics/gradschool](http://www.brown.edu/academics/gradschool)

- identify a faculty member who can advise and guide you in this research; and
- qualify for doctoral candidacy by passing the preliminary examination (typically referred to by students as the Prelim ).

All of these objectives, together with the formal learning and teaching requirements *must be completed before the start of Year 3*.

Your objectives in the second component (Years 3-5) consists of:

- working on a specific research problem in your chosen area with guidance from your thesis advisor
- further broadening your research interests and knowledge by attending seminars and special topics courses at Brown, and attending and presenting your research at conferences in your field, and
- writing up and defense of your thesis.

### **2.1 Years 1-2**

During the first two years, you take courses and serve, usually during your second year, as Teaching Assistants (TAs) to satisfy our teaching requirements. During this time, you will also identify the research area and a thesis advisor with whom you want to work on your PhD thesis.

### **2.2 The Prelim**

The Prelim is an oral examination on topics based on four, two-semester course sequences, taken in Years 1-2 and serves as your formal admission to doctoral candidacy. The Prelim must be completed *before the start of Year 3*. Details of the Prelim are described in Section 7.

### **2.3 Years 3-5**

After passing the Prelim, students should continue to enroll in three courses for credit in each semester, which may include Topics courses such as APMA 2810 or APMA 2820. However, their main effort will be research directed towards the PhD thesis with guidance from the Thesis Advisor.

## **3 Various Personnel and Their Roles**

### **3.1 Division Chair: Bjorn Sandstede**

The Division Chair has ultimate responsibility for the Division of Applied Math.

### **3.2 Director of Graduate Studies: Chi-Wang Shu**

Every department or program offering a graduate-level degree at Brown has a director of graduate study (DGS). The DGS is responsible for all graduate related issues in their respective programs. *The DGS is the primary point of contact for students* on all issues related to admission, academic standing, funding and appointments, etc. The DGS is responsible for the regular evaluation of their program's students, and for notifying students in cases where there may be problems. All official changes to graduate students' academic or financial records require the

signature of the program DGS. **The Graduate Program Advisors are Professor Chi-Wang Shu, Director, and Professors Constantine Dafermos, George Karniadakis and Kavita Ramanan.**

### **3.3 Senior Graduate Program Coordinator: Jean Radican**

The Senior Graduate Program Coordinator performs most of the administrative work of the graduate program. Jean Radican can answer questions of an administrative or procedural nature.

### **3.4 Academic Advisor**

Each incoming graduate student is assigned an Academic Advisor who is a member of the Division's faculty. The Academic Advisor provides advice during Years 1-2 with all academic matters such as choosing courses, preparing for the prelims, thinking about possible future thesis research areas, and identifying potential thesis advisors. The Academic Advisor needs to approve your course selections and any changes to your course program.

### **3.5 Academic Buddy**

During Year 1, each incoming graduate student is assigned a more senior graduate student or Academic Buddy, who can provide you with informal advice and guidance from a student's perspective. (For the Academic Year 2020-21 an Academic Adviser will be assigned to all first year graduate students.)

### **3.6 Graduate Student Representatives**

The graduate student representatives, Patrick Liscio and Becky Durst are available for discussion of graduate student issues in the Division and will address any matters needed with the Director of Graduates Studies or the Division Chair as appropriate.

### **3.7 Thesis Advisor**

The Thesis Advisor provides the main guidance during Years 3-5 with research towards the PhD thesis. As such, the Thesis Advisor is one of the most important persons with whom a student interacts. Further details regarding Thesis Advisors are given in Section 8.

## **4 Basic Requirements**

**PhD students in Years 1-2** are required to successfully complete either

- four courses for credit per semester (Year 1)
- or
- three courses for credit per semester in which they are acting as an RA or as a TA (Year 2).

Students should note that

- All courses should be taken for a letter grade.<sup>2</sup>

<sup>2</sup> Exceptions may be made for mandatory S/NC courses. The student should show a copy of the course description of the course to both the Academic Advisor and the DGS and obtain prior written approval from both.

- Students are responsible for ensuring that their quota of courses remains at or above the basic requirements.
- Students may not drop courses if it brings their quota below the above levels.<sup>3</sup>
- In order to conduct research in Applied Mathematics you must register for APMA 2980 This may be counted for the Division's requirements, and are equivalent to 1 – 3 normal course credits.<sup>4</sup> In registering for this class, you must choose a section number that coincides with the name of your advisor.

Students enroll in courses online through [Banner](#). The relevant deadlines for registration, adding/changing/dropping courses, and for changing grade options (letter grade, satisfactory/no credit, or auditing) are posted on the Registrar's calendar.

## 5 Planning in Years 1-2

### 5.1 Courses

The number of course credits required for PhD students are detailed in Section 4. In terms of the choice of particular courses, students can tailor their course plan to fit their own personal interests. The Academic Advisor, Thesis Advisor or Director of Graduate Studies can help and advise students in designing their own individual course program.

In planning a course program, one should keep the Prelim requirements in mind (see Section 7). A common and recommended program for Year 1 might consist of two two-semester course sequences from the list of introductory courses given below:

- Applied Statistics (AMPA 2610)
- Fluid Dynamics (APMA 2410-2420)
- Real Analysis & Hilbert Spaces and their Applications (APMA 2110-2120 or Math 2210-2220)
- Nonlinear Dynamical Systems (APMA 2190-2200)
- Theory of Probability (APMA 2630-2640 or Math 2630-2640)
- Numerical Solution of Partial Differential Equations (APMA 2550-2560)
- Partial Differential Equations (APMA 2230-2240 or Math 2370-2380)
- Mathematical Statistics (APMA 2670-2680)

These standard course sequences are regularly offered. Detailed descriptions of these, and other courses, can be found on the Division's website or on Banner. All courses can be taken at most once. Courses such as APMA 2570A and 2570B are distinct courses. The department offers many advanced topics courses which may be taken by students who have successfully completed the appropriate introductory courses.

Students typically choose the sequence which reflects the student's anticipated major area of research, along with another distinct sequence which might represent a possible area of research or a minor area for the preliminary examination. Sometimes it may be appropriate to take courses from other disciplines.

<sup>3</sup> Any exceptions must be approved in advance in writing by the Director of Graduate Studies.

<sup>4</sup> At least two courses per semester must be other than APMA 2980.

Students are permitted to take at most one 1xxx (undergraduate) level course per semester. However, it should be noted that *1XXX courses are subject to several restrictions as regards to the Prelim*<sup>5</sup>

## 5.2 Research

In addition to taking courses, students use Years 1-2 to decide on the area in which they wish to carry out research for their PhD thesis. There are many opportunities to find out about areas of research including:

- Attend seminar and colloquium talks that are advertised on the Division's website. Even though you may not understand everything that speakers say, these talks can give you insight into current research trends and what research in individual mathematical areas looks like. All seminars and colloquiums for the Fall semester will be virtual.

- The Division of Applied Mathematics, the Department of Mathematics, and the Institute for Computational and Experimental Research in Mathematics (ICERM) regularly host workshops and conferences that you are encouraged to attend.

- The weekly departmental teas on Thursday afternoon provide an opportunity to meet informally with faculty or other graduate students. (For Fall 2020 there will be no Thursday afternoon gatherings.)

The summer between Years 1 and 2 provides an ideal opportunity to get hands-on experience of what it is like to work on a research problem. Students may, for example,

- work on research projects, pursue internships in industry or at national labs.
- work with various faculty over the summer on one or more research projects.

## 5.3 Teaching

The teaching component of the program takes place in Year 2. However, non-native English speakers should note that there is a formal English language evaluation process that takes place in early September before the beginning of Semester 1, Year 1. See Section 9.3 for more details.

## 6 External Fellowships

The Division strongly encourages students to independently seek external funding. Receiving a fellowship award is a sign of distinction and writing grant applications is an important part of a student's professional development. In view of the importance attached to pursuing External Fellowships:

The Division will contribute \$500 to the Research Account of any student who submits a

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<sup>5</sup> At most one 1XXX course may be examined in the Prelim and, even then, only as a Minor topic and only when there is no graduate level course in the same area.



bona fide application for an External Fellowship regardless of whether the application is successful or otherwise. Additionally, \$250 will be given for a second application, with a capped amount of \$750 in research account funds, per student.

The Director of Graduate Studies will provide information on what constitutes a *bona fide* application. An *external fellowship* is considered to be those awarded to graduate students via competitive external funding agencies based on the student's initiative and application. Competitive internal fellowship awards and external fellowship grants based on faculty applications do not qualify for incentive funding under this policy.

It is worth noting that the Graduate School operates an [\*Incentive Program for Doctoral Students\*](#) created to reward students who secure funding from sources outside the University (see Appendix of the Graduate School Handbook for more details) which will continue to apply in addition to the Division's incentive scheme.

Information on fellowships can be found on the Graduate School website <sup>6</sup> along with a series of videos provides guidance on how to compete for and win external awards.

## **7 PhD Candidacy and The Prelim**

To become a PhD candidate, it is necessary to pass a preliminary oral examination, known as the Prelim, and to find a Thesis Advisor.

### **7.1 Content**

The Prelim covers a major area with two topics and a minor area, comprising another two topics. Each topic covers the equivalent of at least two semester long courses. Further requirements for the major and minor topics are discussed below. The major area is usually related to the students' intended research area; the minor topics are meant to demonstrate breadth of subject matter.

### **7.2 Format**

The Prelim is an oral exam that is administered by an examination committee of four distinct faculty members, one for each topic. The preliminary examination committee is chaired by a faculty member, usually the students' anticipated thesis advisor, who may or may not be one of the four examiners. The two major topics are examined during a two hour session, and the two minor topics in another two hour session. Each topic is examined for one hour. The two parts of the examination must take place within a two-week window.<sup>7</sup>

Examiners may give the candidates written questions in addition to the oral examination. The material covered in the examination is normally taken from course work but the examiners may ask new questions on the basic material or which integrate topics from different course areas.

### **7.3 Timelines**

Graduate students take the Prelim during Year 2. If the Chair of the preliminary exam

<sup>6</sup> [www.brown.edu/academics/gradschool/external-funding](http://www.brown.edu/academics/gradschool/external-funding)

<sup>7</sup> Exceptions to this timing are rare and written approval must be obtained from the Director of Graduate Studies.

committee is not the Thesis Advisor, then the student must find a Thesis Advisor within one month after passing the Prelim exam. Students who fail to pass the Prelim and/or who are without an Advisor before the end of Year 2 jeopardise their financial support.

#### 7.4 Prelim Proposals

The proposed topics and examiners for the preliminary examination are prepared in consultation with and approved by the anticipated Thesis Advisor or another faculty member who agrees to be the Chair of the examination committee. It is the responsibility of the student to:

- contact the four proposed examiners to get their approval
- complete the Prelim proposal form<sup>8</sup> including (a) the dates and times for the two exams, (b) the names of proposed examiners, (c) the designated applied and theoretical topics, and (d) detailed syllabi for any topics that relate to courses not taken at Brown
- submit the completed Prelim proposal form to the Director of Graduate Studies, the Chair of the Prelim Committee and the Division Chair, and obtain their approval by e-mail and request to cc: Jean Radican on the approval. You must receive the approval at least two months in advance of the scheduled dates of the examination. Please note that, for the AY 2020-21, we will accept approvals of this form by e-mail only.
- submit the completed Prelim proposal form to Jean Radican.

#### 7.5 Eligible topics

The major area should present a unified body of material that is viewed by the Director of Graduate Studies and the examiners as the main area needed for the student to conduct research in the chosen field. For instance, the two major topics may be based on two different aspects of the same subject area, such as theoretical and applied fluids or theoretical and computational numerical methods. In addition, the following aspects need to be considered:

- one of the four topics must be designated as an applied topic with the expectation that most of the questioning for the applied topic will concern the scientific or engineering aspects of the subject.
- One of the four topics must be designated as a theoretical topic with the expectation that the examination will concentrate on the mathematics of that topic.
- at least one of the minor topics must be in an area distinct from the major area.

Topics should be chosen from the following:

- Analysis (Real and Functional)
- Dynamical Systems
- Fluid Mechanics
- Numerical Analysis and Scientific Computation
- Pattern Theory and Statistics
- Partial Differential Equations

<sup>8</sup> The necessary forms can be downloaded from the Division's Google Site at <https://sites.google.com/a/brown.edu/applied-math/>.

- Probability and Stochastic Processes
- Mathematical Methods (minor only)
- A minor from a department such as Biology, Computer Science, Economics, Engineering, Mathematics or Physics
- Alternative topics may also be proposed, subject to the approval of the Director of Graduate Studies.

## **7.6 Preparing for the Prelim**

For many graduate students, the Prelim will be the first oral examination. As part of the preparation for the Prelim, some students find it useful to get together in small groups and simulate oral exams: have one student stand at the blackboard and respond to questions by others in the group. This will help students become acquainted with oral questioning. The process of preparing questions also helps students to assimilate the material and anticipate what questions might be asked. Some of the senior students may be willing to help by asking questions in an exam setup. The ability to respond to questions on the spot is a vital skill that will prove very useful when students start presenting talks at conferences and meeting with other researchers.

## **7.7 Outcomes**

The outcome of the Prelim may be a Pass, in which case a student with a Thesis Advisor becomes a PhD Candidate, or a requirement for further study of one or more components of the Prelim, in which case the Prelim is retaken within one month. The Prelim examination may be taken at most twice.

## **8 More About the Thesis Advisor**

### **8.1 Who?**

The Thesis Advisor can be any faculty member from the Division, or even from another department at Brown University. Students who are considering working with a Thesis Advisor from another department should consult both their Academic Advisor and the Director of Graduate Studies.

### **8.2 What?**

The role of the Thesis Advisor has many facets including:

- advises on the course selection for the Prelim and usually serves as the Chair of the Prelim committee.
- provides advice and input on all aspects of the student's research during the crucial Years 3-5 during which research is being carried out.

### **8.3 When?**

The choice of Thesis Advisor should be determined by the end of the Semester 1 of Year 2.

### **8.4 Finding a Thesis Advisor**

Identifying a Thesis Advisor is a two-way process between the student and the prospective

advisor and is generally initiated by the student. Some of the factors to consider when identifying a potential Thesis Advisor include:

- in what area do you wish to carry out research?
- is the research area one in which the potential advisor's has research interests?
- is the potential advisor someone with whom you wish to work closely with during your research?

In answering these questions, it often helps to take independent study courses with a variety of professors, to work with faculty members over the summer on research projects, or to talk with other students to get a better sense of specific research areas or advisors.

It is quite common for students to be interested in the research of several different faculty members. Students should feel free to talk to as many faculty members as possible in their search to identify a potential Thesis Advisor.

Students should not feel reticent about approaching faculty as potential Thesis Advisors!

Faculty are *expecting* students to approach them with questions about research topics, possible research projects in the faculty member's area of interest, whether they are currently taking on new graduate research students, etc. Faculty will:

- **not** assume that a student who approaches them is making a commitment to work with them;
- **not** be offended if a student decides to work in a different area or with someone else.

Finding a compatible Thesis Advisor is extremely important. The main thing is to bear in mind that this process requires effort, time and thought on the part of the student. It is important to find a Thesis Advisor in a timely manner.

## 8.5 Change of Thesis Advisor

Occasionally, it may be necessary for a student to change Thesis Advisor and there are no restrictions on doing so. However, any student wishing to initiate a change of advisor should discuss the matter in confidence with the Director of Graduate Studies when considering such a change.

## 9 Being A Teaching Assistant (TA)

Teaching is an important component of the training of our PhD students. Developing excellent communication skills and the ability to interact with undergraduate students and to communicate technical and nontechnical content efficiently and effectively is crucial for all careers, whether in industry or in academia. Serving as a Teaching Assistant (TA) enables PhD students to develop these skills, and is a prerequisite to teaching a course as a sole instructor.

All graduate students are required to serve as TAs for at least two semester-long courses,<sup>9</sup> and this typically takes place during Year 2. The Division takes graduate students' preferences into

<sup>9</sup> Exceptions are made only for students on certain federal fellowships that do not permit teaching duties.

account when allocating TAs to courses.

The performance of students while acting as TA is evaluated by the course instructor and through student feedback, both of which are communicated to the TA.

### 9.1 TA Duties

A TA performs up to 20 hours per week of teaching duties for an undergraduate course or, occasionally, an introductory graduate course. The specific duties vary from course to course, but the minimum involves a total of four hours per week of recitation sessions and office hours. A significant amount of time is spent in preparing the course material, either by attending the lectures or by reading the textbook and handouts, which are then used in recitation sessions. TAs might also be asked to grade homework assignments and exams, to prepare answer keys, etc.

### 9.2 Training

Information sessions on being a TA are generally organized by the Division in late summer or at the start of Semester 1. Students who are interested in further pedagogical training and independent teaching experiences are welcome to explore the following resources and programs:

- Sheridan Center workshops and Certificate programs
- Dean's Faculty Fellows Program—open to all doctoral students (opened to non-Biomed students only)
- Brown/Wheaton Faculty Fellows Program - open to all doctoral students.
- Brown/Tougaloo Faculty Fellows Program - open to all doctoral students.

Participation in any of these programs is strongly encouraged. In particular, students in Applied Mathematics have in recent years been highly successful in obtaining Deans' Faculty Fellowships.

### 9.3 Certification of Non-Native English Speakers

All non-native English speaking graduate students must obtain certification by the Center for Language Training (Contact: Barbara Gourlay) for competency in oral English, before being allowed to teach. If the evaluation reveals a need for supplementary training in oral English, the Center for Language Training will assist the student in choosing the most effective method to achieve competency.

Accordingly, **all first-year non-native English speaking graduate students must take the language evaluation no later than the end of Semester 1, Year 1.** The result of the evaluation should be passed to the Senior Graduate Program Coordinator and to the Director of Graduate Studies. Further information about the evaluation may be obtained from the Senior Graduate Program Coordinator.

Any student who does not pass this evaluation will be required to take an English class in the first semester and retake the evaluation exam again at the end of Year 1, Semester 2. Students who do not pass the second evaluation jeopardise their financial support.

## 9.4 Being an instructor

Graduate students who excel in their TA duties may be able to teach a course as the sole instructor. Two options are (i) to teach a course in the [Summer@Brown](#) program, (ii) to teach a regular undergraduate course in the Division in fall or spring (contingent on the teaching needs of the Division). If you are interested, please let Bjorn Sandstede (chair) know well in advance: Courses for [Summer@Brown](#) are finalized in early November, while the teaching schedule for the Division is finalized in January for the following academic year.

## 9.5 Stand Up for Graduate Student Employees (SUGSE)

On June 4, 2020, Brown reached a tentative three-year agreement with Stand Up for Graduate Student Employees (SUGSE) and, the American Federation of Teachers (AFT), together who represent graduate students that hold these positions at Brown. The union covers all TA's and RA's in our graduate program. Please see the link to the Union Website for more details: <https://www.brown.edu/about/unionization-be-informed/>. For Teaching Fellows and Senior TAs who independently teach a course, the enrollment is limited to no more than 25 students. For all TAs teaching a formal, in-class recitation session, the enrollment is limited to no more than 99 students. TAs have the right to refuse additional override enrollments after the enrollment cap has been reached.

## 10 Formal Requirements for Granting of Doctoral Degree

The formal requirements for the PhD degree include the following:

1. Successful completion of twenty-four units for letter grade beyond the Bachelor's degree.<sup>10</sup>
2. Every candidate for the PhD degree is required to serve as a Teaching Assistant for two semester-long courses (unless exemptions apply).
3. Every candidate must write a dissertation that contains results of original research and gives evidence of high scholarship. The quality is assessed by the PhD Thesis Committee, which consists of the Thesis Advisor and two Readers, at least one of whom must be a regular faculty member in the Division.
4. Candidates shall present a public expository talk on the content of their dissertation.
5. At the conclusion of the expository talk, there will be an oral final examination on the content and details of the dissertation.
6. The final examination is conducted by the PhD Thesis Committee and is open to the faculty and graduate students of the Division of Applied Mathematics.

<sup>10</sup> Courses APMA2980 are included. A maximum of eight semester graduate courses may be transferred for students with course credit from other universities; interested students should consult their Academic Advisor, Thesis Advisor, or Director of Graduate Studies about the suitability of transferring credits.

7. Students must file their theses by May 1 in order to obtain the degree in a given academic year.

## 11 Academic Standing

Being in good academic standing requires the following:

- Year 1: Completion of four courses per semester with satisfactory grades (all B's or better and no more B's than A's);
- Year 2: Completion of three courses per semester with satisfactory grades (all B's or better and no more B's than A's); completion of teaching requirement; identification of a Thesis Advisor who has explicitly agreed to supervise the student's thesis work by the end of Semester 1, Year 2; Passing the Prelim examination by the end of Year 2.
- Dissertation: Completion of the dissertation within 6 years.

Students who have a disability or other condition that might require accommodation or modification of any of these requirements or course procedures should contact the Director of Graduate Studies and should speak with the requisite course instructors for classes that are affected. Students in this category should also be registered with [Student and Employee Accessibility Services \(SEAS\)](#) and provide the Director of Graduate Studies with an academic accommodation letter from them. For more information, contact SEAS at (401) 863-9588 or [SEAS@brown.edu](mailto:SEAS@brown.edu).

During early January and late May, the Director of Graduate Studies will collect feedback on each graduate student to identify any issues which arose during the preceding semester. Graduate students are strongly encouraged to meet with their Academic or Thesis Advisor, and with the Director of Graduate Studies if they feel that they may fall out of good academic standing.

Students who fail to remain in good academic standing may be issued with an official warning communicated in writing together with a list of issues that need to be addressed in order to restore good academic standing.

**Financial support can be rescinded for students who are not in good academic standing or who fail to address the issues that led to the academic warning.**

## 12 Financial Support

All PhD students are accepted with a guarantee of financial support for 5 years, including summer support, health fee, health insurance, and tuition. In case of emergency or hardship, the Graduate School and the Office of Student Life each have a small pool of short-term loans available to help students.

## 13 Research Accounts and Start-Up Funds

A start-up fund of \$1750 will be credited to each incoming student in the fall, and can be

used for research related expenses such as textbooks, travel, and laptops (which remain University property upon departure and must be procured through the [Computer Purchase Policy, POL 07.05.01](#)).

**Purchases which do not abide by this policy will not be reimbursed.** It is strongly encouraged to speak to an office employee before purchasing a laptop. **Receipts dated before the start of the entering academic year will not be reimbursed.**

Proof of purchase is required for reimbursements and must be processed within 60 days of purchase according to Brown policy. Reimbursements typically take a week to be deposited into bank accounts.

Students who wish to purchase items from the Brown Bookstore should visit the main office where they will be issued an IPR allowing for direct billing to their start-up account.

For information regarding balance available, contact the staff in the main office in 182 George St.

## 14 Travel Support

Presenting papers at professional conferences is important to graduate students' academic careers and growth as professionals, and is relevant experience for careers both inside and outside of academia. The knowledge gained from attending a conference, when shared with peers at Brown, contributes to the scholarly development of the entire campus. If you wish to participate in a conference or travel to collaborate with others, please consult with your Academic or Thesis Advisor for funding opportunities.

The Graduate School provides several funding opportunities for both Graduate and PhD Students during Year 1-5:

- [Conference Travel Fund](#)
- [International Travel Fund](#)
- [Doctoral Research Travel Grant](#)
- [Joukowsky Summer Research Travel Award](#)

Students who are studying abroad or who will be abroad for an extended period of time as part of their studies are strongly encouraged to register the trip with the [Brown University Global Assistance Program](#). This program provides 24-hour worldwide medical, security, and travel assistance, including emergency evacuation. Please visit the website for more information and the access code to Brown's International SOS portal<sup>11</sup>.

## 15 Personal Webpage

If you are interested in setting up a personal website, please contact Stephanie Han, who can provide advice and suggestions. Once a website is set up, it can be linked to your name on our Division's people page.

## 16 Curriculum Vita Submission

<sup>11</sup> [www.brown.edu/campus-life/safety/resources/international-sos](http://www.brown.edu/campus-life/safety/resources/international-sos)



The Graduate School requires that once you are admitted, a CV should be submitted to the Graduate School every year for the benefits marking your research and academic achievements.

## **17 Office Space**

Every full-time PhD student is assigned a desk in a shared office for graduate students. If a student wishes to change their office location, please speak with Candida Hall in the main office. However, bear in mind that priority is based on seniority.

## **18 Diversity and Inclusion**

The Division's policies on Diversity and Inclusion are described in the Division's Diversity and Inclusion Action Plan. The plan includes the provision of additional professional development and training opportunities for graduate students, and development of resources and sources of information to the community. The Division strives to increase the number of students from historically underrepresented groups. More information is available here: <https://www.brown.edu/about/administration/institutional-diversity/pathways>.

## **19 Grievance Procedure**

Students should usually bring concerns or grievances directly to the attention of their Academic or Thesis Advisor, or the instructor of the course if the issue is coursework related. If the outcome of this informal process is unsatisfactory, or if a student does not want to approach the advisor or instructor directly, they may bring the matter to the Director of Graduate Studies (Chi-Wang Shu) or the Department Chair (Bjorn Sandstede) who will work with the student and faculty member toward a resolution. Beyond this, the University provides formal grievance procedures, details of which can be found in the [Graduate School Student Handbook](#).

## **20 Academic and Student Conduct Codes**

Graduate students are expected to be aware of, and to conduct themselves in accordance with the principles of the Brown community as set forth in [Academic and Student Conduct Codes](#)

Students are also responsible for rules and regulations set forth in the University-wide version of the Academic and Student Conduct Codes, found on the above website. For issues of student conduct, the University-wide Code takes precedence. Ignorance of the Code is not accepted as a defense for violation of any of the rules and regulations specified in the Code. Procedures for identifying and treating violations of the Code are described in the above mentioned documents.

## **21 Sexual Harassment**

Graduate students in their roles as students, research assistants, teaching assistants, and teaching fellows are expected to refrain from behaviour that constitute sexual harassment as specified by [Brown University's Policy Statement on sexual harassment](#). This policy can be found on the Graduate School website. Graduate teaching assistants and fellows are especially advised against having an amorous relationship with a student who is enrolled in a course taught or staffed by the graduate student. Additional information on what constitutes sexual harassment and what a

student should do if they feel they are the victim of sexual harassment by another student or a faculty member can be found at the website of the [Brown Human Resources Department](#) and at the [Brown Health Services](#) website.

## **22 [Leaves of Absence](#)**

[Leaves of Absence](#) are granted for a variety of professional, educational, medical, psychological and personal reasons. They are granted for one semester or for one year, and may be extended to two years if necessary. The relevant procedures can be found in the [Graduate School Student Handbook](#).

## **23 Additional Resources**

### **23.1 [The Graduate School Handbook](#)**

The Grad School Handbook can be found on the Graduate School webpages and contains a wealth of information and additional resources beyond what is contained here.

### **23.2 [Diversity Initiatives](#)**

Provides assistance with recording a lived or chosen name change into University systems to support students (Graduate Center, 4th floor). See Graduate School home page.

### **23.3 [Student and Employee Accessibility Services \(SEAS\)](#)**

Coordinates and facilitates services for students with physical, psychological, and learning disabilities, and temporary injuries (20 Benevolent Street, 401-863-9588).

### **23.4 [Counseling and Psychological Services \(CAPS\)](#)**

Provides free confidential counseling (Page-Robinson Hall, Fifth Floor, Room 516, 401-863-3476). CAPS offers Saturday appointments for graduate students from 9 am to 4 pm during the academic year at Health Services, 13 Brown Street.

### **23.5 [Maria Suarez, Associate Dean of Student Support in the Graduate School](#)**

Dedicated to serving master's and PhD students (Horace Mann 110, [Maria\\_Suarez@Brown.edu](mailto:Maria_Suarez@Brown.edu) , 401-863-1802)

### **23.6 [Rose Whelan Society](#)**

The Rose Whelan Society provides informal support for women graduate students and postdocs in the applied mathematics and mathematics departments at Brown. To join, please contact [Anna\\_Grim@Brown.edu](mailto:Anna_Grim@Brown.edu).

### **23.7 [Association for Women in Mathematics](#)**

Brown University has a student chapter of AWM. For further information contact [Emily\\_Winn@Brown.edu](mailto:Emily_Winn@Brown.edu).

### **23.8 [Brown Executive Scholars Training Program](#)**

The informal roundtable discussions are held six times per semester at [ICERM](#) and cover issues ranging from job applications, the hiring process, paper writing, grant proposal writing to ethical conduct, and misconduct, in research. More information can be found at <http://icerm.brown.edu/pds>. We strongly recommend that fourth-year graduate students attend some or all of these sessions to start preparing for the life after the PhD. Participation in the two ethics sessions counts as replacement for Brown [BEARCORE](#) program. Brown also offers the [Executive Scholars Training \(BEST\) Program](#) which is designed to expose doctoral and Master's students to careers in high-education administration

### **23.9 [Sheridan Center](#)**

The Sheridan Center for Teaching and Learning provides many professional development workshops on teaching and other topics. It also provides various certificate programs for teaching assistants. For additional information, please go to the center's website at [http://www.brown.edu/Administration/Sheridan\\_Center/](http://www.brown.edu/Administration/Sheridan_Center/).

### **23.10 [CareerLab](#)**

The CareerLab provides individual confidential counseling sessions on job searches in industry (including feedback on resumes and CVs). Its website also provides a Doctoral Student Packet with useful and comprehensive information about all aspects of graduate- student life. See <http://brown.edu/campus-life/support/careerlab/>.

### **23.11 Useful links**

The following links might be useful:

- Graduate School Webpages: <http://www.brown.edu/academics/gradschool/>
- Brown A-Z: <http://brown.edu/a-to-z/>
- Banner (course registration): <https://selfservice.brown.edu>
- Calendar: <http://www.brown.edu/Administration/Registrar/calendar.html>
- For international students (OISSS): <http://brown.edu/Administration/OISSS/>
- Courses webpage: <https://coursetools.brown.edu>