

# Post-baccalaureate Program Handbook

## 2021-2022 Mathematics Department

### Brandeis University

The Brandeis Mathematics Graduate Program offers a non-degree Post-baccalaureate Program. Students leverage the Postbac program either to apply for graduate programs in math or other fields, or to build quantitative skills for their work.

Full-time students will register for at least 12 credits of courses every fall and spring semester. If you are considering to changing to part-time, please contact the Director of Graduate Study (Omer Offen) and your Academic Administrator (Emily Palmer) because this could impact your student loans and your student health insurance.

A minimum passing grade for a course to meet your program requirements is a B-.

The purpose of this handbook is to provide more program details than are included in the Math Bulletin. It is meant to complement various other sources which apply more broadly to all students at Brandeis University (e.g., the Brandeis University Bulletin, the Rights & Responsibilities Handbook, and information on Student Accessibility Support) or to students in the Graduate School of Arts and Sciences (e.g. the GSAS Student Handbook). Please make sure you read the Bulletin carefully:

- GSAS: <https://www.brandeis.edu/registrar/bulletin/provisional/gsas.html>
- Math: <https://www.brandeis.edu/registrar/bulletin/provisional/courses/subjects/4700.html>

This handbook will answer many, but probably not all, of your questions. Further questions about the graduate curriculum and requirements should be directed to the Director of Graduate Study (DGS), formerly known as the Graduate Advising Head (GAH): Omer Offen. Concerning non-academic matters such as office assignments and hourly work positions in the Department, see the Mathematics Department administrator, Catherine Broderick. For academic paperwork and information about different on campus resources, see the Grad Affairs Office Academic Administrator, Emily Palmer.

**\*\*Important Note Regarding COVID-19:** Due to the uncertain direction of COVID-19, please note that the contents in this handbook may be subject to change. If there are any changes, we will notify you as soon as possible by email. Please make sure you check your Brandeis email regularly, at least once a day.

For COVID-19 updates, please consult their website: [COVID-19 Response: What's Now, What's Next | Brandeis University](#). For any questions related to COVID-19 rules and testing, please contact: covid-19@brandeis.edu. If you are displaying COVID symptoms, please do NOT come to campus, but instead stay home and call the Health Center. Health Center Contact Information: brandeishealthcenter@brandeis.edu or 781-736-3677 (during regular hours) or 781-239-1948 (after-hours urgent consultation).

## 1. Postbac Program

The Postbac Program takes two semesters to complete the required six courses. Full-time Master's students will register for at least 12 credits of courses every fall and spring semester.

**1.1 Required Courses.** The two required courses are Math 15a Linear Algebra and Math 20a Multi-variable calculus. If a student has already taken these courses, they may choose to substitute these courses with other electives; please consult with the DGS, if this is the case.

**1.2 Elective Courses.** Students take four more elective math courses that are approved by the Director of Graduate Study.

**1.3 A typical program for students with bachelor's degrees in mathematics or science** who are preparing for graduate school should consist of classes to be chosen according to prior background. Particularly relevant classes for fall semester courses are:

- The foundational courses: MATH 15a (Applied Linear Algebra), MATH 20a (Multi-variable Calculus), and MATH 23b (Introduction to Proofs);
- And/or for students having already covered the foundational courses, elective classes such as 36a (Probability), 37a (Differential Equations), 39a (Introduction to Combinatorics).
- For the most advanced students, the 100-level courses such as 100a (Introduction to Algebra), and 110a (Introduction to Real analysis, Part A) are also interesting options.

Particularly relevant classes for spring semester courses are:

- Three electives such as the ones listed above or 36b (Mathematical Statistics), 35a (Advanced Calculus and Fourier Analysis), any 100-level course, any cross-listed course (at most one).
- Occasionally, some motivated Postbac students take one or two of the first year graduate classes offered at Brandeis.

**1.4 A typical program for students with bachelor's degrees in another field** who wish to expand their quantitative skills might consist of:

- Fall term: MATH 15a (Applied Linear Algebra), MATH 20a (Multi-variable Calculus), MATH 36a (Probability)
- Spring term: MATH 36b (Mathematical Statistics) and two additional electives

Additional Suggested electives: MATH 23b (Introduction to Proofs), 28a (Introduction to Groups), 28b (Introduction to Rings and Fields), 35a (Advanced Calculus and Fourier Analysis), 37a (Differential Equations), 39a (Introduction to Combinatorics), Math 40 (Introduction to Applied Mathematics), MATH 121a (Mathematics for Natural Sciences), Math 123a (Principles of Mathematical Modeling and Applications to Biology), MATH 124a (Convex Optimization) and any cross-listed course (at most one)

## 2. Seminars

There are seminars and numerous other activities that graduate students benefit from, academically and otherwise. You are encouraged to take advantage of the opportunities available to you as a student in the department, at the university, and as part of the Boston area mathematical community. For a full listing of seminar times and dates, please visit the Math Department "Talks" webpage: <https://www.brandeis.edu/mathematics/talks.html>.

**2.1 Seminars.** The department has a variety of (usually) weekly seminars. Some are intended to be accessible to all graduate students, while others require more background. For example, the *Everytopic Seminar* is intended to expose graduate students and undergraduates to research topics in mathematics and occasionally related areas, such as physics and computer science.

*The Graduate Student Seminar*, organized by the Ph.D. graduate students, is one in which the students lecture to each other on topics of interest and eat pizza.

*The Joint Brandeis-Harvard-MIT-Northeastern Colloquium* is a weekly event that rotates among the four universities and meets at Brandeis 2 or 3 times a semester. The speakers are leading mathematicians from around the world, and the talks are often accessible to graduate students. The department takes the speaker to dinner afterwards and subsidizes dinners for graduate students.

*The New Directions Lecture Series*, also known as the *NOSY (for Not Only Second Year) Seminar*, is a series of lectures or mini-courses offered in the fall semester of each year. They are given by faculty members and are designed to introduce students to a current area of research in more depth than is possible in a single seminar lecture. Second-year Ph.D. students are especially encouraged to attend this seminar, as it offers them an opportunity to learn about the research interests of faculty members.

*The Math Biology Seminar* has the purpose of bringing together experimentalists and theorists. It is organized by the labs of Thomas Fai and Jonathan Touboul in the Department of Mathematics at Brandeis University, two interdisciplinary research groups applying mathematical models to biological sciences.

*The New England Dynamics and Number Theory Seminar* features research talks on ergodic theory, homogeneous dynamics, number theory, and their interactions.

*The Topology Seminar* tends to choose a theme for the semester and works as a learning seminar with participants taking turns giving talks. Outside speakers sometimes give talks as well.

*The Combinatorics Seminar* is an introductory seminar for combinatorics. The talk should be accessible to first year graduate students.

There are a number of informal learning seminars on topics of interest to students in a particular area. In the past academic year, this included working seminars on dynamics and number theory, modular and automorphic forms, and other topics.

The Undergraduate Math Club sometimes organizes interesting and accessible interdisciplinary lectures.

There are many other seminars in the Boston area that are regularly attended by Brandeis faculty and students—MIT's Combinatorics Seminar, Harvard's Number Theory Seminar, the Harvard-MIT Algebraic Geometry seminar, Harvard's Gauge Theory and Topology Seminar, the Boston College Geometry and Topology Seminar, and the Boston University Algebra Seminar, to name a few.

### 3. Professional Development

**3.1 Planning for Program Completion.** If you are going to apply to graduate programs, we recommend that you meet with the Director of Graduate Study early on in the semester to seek advice on your personal statement and letters of recommendation. In preparation for a job search, we highly recommend creating a Brandeis Handshake account (Brandeis's equivalent of LinkedIn: <https://brandeis.joinhandshake.com/login>) and making an appointment with the Brandeis GSAS Center for Career and Professional Development. The Center (<https://www.brandeis.edu/gsas/career/index.html>) provides one-on-one coaching on interviewing, networking, resumes and CVs. During the semester, you can read postings on Handshake and emails about career-related networking events, such as data science or computer science job fair.

**3.2 Course Assistants and Graders (non-union positions).** Half course assistant (CA) and grader positions are generally reserved for Ph.D. students but may be available depending on demand. Students apply to the Dean's office for these paid positions, with the approval of the Director of Graduate Study (DGS). While many programs hire full course assistants through the Dean's Office, the Math Department usually hires half course assistants, which are half the time commitment and half the pay.

Grader positions are on average 7 hours of work per week with a rate of \$2500 per semester (2021-2022 rates). Graduate students graders are expected to grade homework for a class and may be asked to grade midterm exams as well. In large classes, they may also help the instructor in grading the final exam or proctoring the midterms or final; however, the primary proctor (a TA or instructor) should be responsible for answering content questions during the exam. The grader should also allocate one hour per week during which students can come to the grader's office and ask about their grades.

Half CA positions are on average 5 hours of work per week with a rate of \$1,600 per semester (rates for 2021-2022). CA responsibilities vary based on the needs of the instructor and the course, but can include things like: attending class; holding office hours and/or recitations and/or review sessions outside of class; helping grade quizzes and exams; helping to proctor quizzes and exams; answering questions online; helping to write quizzes, exams, worksheets, review material (e.g., contributing problems).

### 4. Other Program Information

**4.1 The ELP program.** The university's English Language Program (or ELP) program provides English language support. Any incoming GSAS student whose admission letter includes an English-language diagnostic exam requirement must take the ELP exam in order to determine if English language coursework is necessary during the first year of study. The diagnostic exam helps ELP accurately determine the level of English proficiency and whether a student will require language and communication support in order to be successful and have a positive overall experience at Brandeis. The exam takes place each August during GSAS Orientation and each January for midyear students. ELP will contact students with details prior to their program start date.

If you are asked to take an ELP class, then attendance and participation are required in order to maintain good academic standing, and a passing grade is a university requirement for graduation.

**4.2 Social events.** The department's friendly and informal atmosphere fosters interaction among faculty and students and enhances the environment for learning and research. A variety of social events contribute to this atmosphere. There is an afternoon tea in the department lounge two days each week when classes are in session. Two or three Thursdays each semester, the Joint Colloquium is held at Brandeis; it is preceded by a tea in the department and followed by dinner at a local restaurant. In addition, there are several annual events, usually including a fall barbecue and a holiday party.

## 5. Math Dept. Administrative Information

The Director of Graduate Study is responsible for overseeing the instruction and advising of graduate students in the mathematics department. This responsibility includes making recommendations to the university concerning admission, readmission, and the granting of graduate degrees. Another resource is the Academic Administrator in the Graduate Affairs Office, who assists the Director of Graduate Study with academic matters and tracking student progress. If the Director of Graduate Study is unavailable, or unable to address a particular concern, then the matter should be taken care of by the Department Chair.

**5.1 Program Advising.** All students should meet with the Director of Graduate Study at the beginning of each semester to discuss courses and plans for the semester and progress towards the degree. The Director of Graduate Study serves as the primary advisor for all postbac students.

**5.2 Program Evaluation.** The mathematics faculty meets at the end of each semester to evaluate the graduate students and a progress letter is sent to students in May (if the student is continuing into a second year in the program). If there are any concerns about student progress after the fall semester, this will be communicated to the student. Each faculty member who has taught the student reports on the student's performance. Minor problems are handled informally by the Director of Graduate Study. Major problems result in a letter to the student and a meeting with the Director of Graduate Study. These letters are usually quite serious and warn of the student's possible required withdrawal from the program if performance does not improve.

**5.3 Tuition Scholarships.** Most of our students when admitted to the program are eligible for merit-based or need-based financial aid from Brandeis in the form of reduced tuition. Students should contact GSAS regarding this and other financial aid opportunities, such as student loans. The main contact for financial aid questions in GSAS is Monique Howell: [mhowell@brandeis.edu](mailto:mhowell@brandeis.edu). More information can be found here: <https://www.brandeis.edu/gsas/financing/masters/index.html>

**5.4 Student Rights & Responsibilities.** The university's [Rights and Responsibilities Handbook](#) sets forth policies governing rules of conduct that apply to all Brandeis students. The Rights and Responsibilities Handbook also explains university policies.

**5.4.1 Math Department Responsibilities.** Within Brandeis, the Mathematics Department forms a strong community that values research and learning and cultivates an atmosphere of respect and support for fellow students, faculty and staff. As a graduate student in the department, you are responsible for helping maintain that environment.

On a less lofty note, we have to remember to take care of the physical environment as well as the intellectual one, and keep the shared offices, lounge, and kitchen reasonably clean.

## 6. Resources for Graduate Students and How to Get Help.

If at any point during your graduate career, if you have questions/concerns or are hitting challenges, there are many people here on campus that are here to help and support you. Before we go into specifics of who to go to for help, please know that the majority of people on campus are “responsible reporters.” This means that they are obligated to share any information that has been disclosed to them regarding discrimination, harassment, or sexual misconduct with the Office of Equal Opportunity. If you are hoping to have a confidential conversation about one of these topics, you will find a list of confidential resources later in this section.

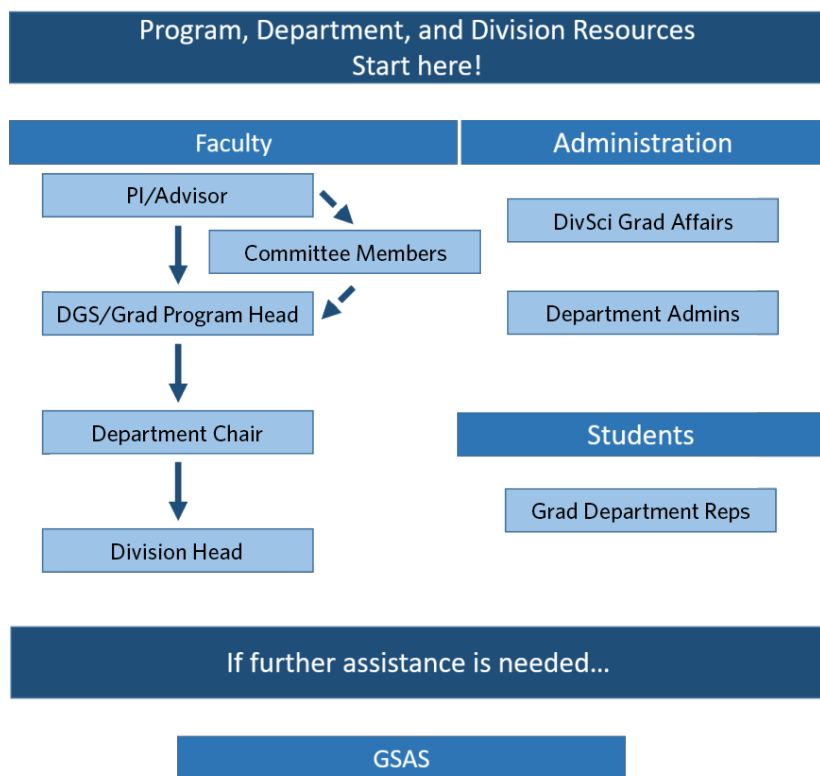
Most issues can be best handled by those closely associated with your graduate program or with Division of Science staff and faculty, so we encourage you to seek out assistance from within this group first. We recognize that sometimes there may be a particular person that you are more comfortable speaking with or that one faculty member may be holding multiple roles/positions, but we suggest that you reach out to for assistance in the following general order (see schematic at the bottom as well):

- **DGS (Director of Graduate Study):** This faculty member oversees your grad program as a whole and is here to support all students in the program. The DGS will be extremely knowledgeable in the program’s requirements and are also tuned in to the current GSAS and University policies. The specific faculty member who fills this role may change from year-to-year, so check with your program administrator or check your program website for the current DGS first. In academic year 2021-20222, your Director of Graduate Study/DGS is Omer Offen.
- **Your program’s Department Chair:** This faculty member oversees the department that your grad program falls under and is a step above your DGS/Director of Graduate Study. If you have concerns that aren’t necessarily specific to your grad program but are relevant to the department as a whole, the chair may have good insight. This may be a good person to talk to if concerns are shared with other populations in the department such as staff, postdocs, or undergraduates. The specific faculty member who fills this role may change from year-to-year, so check with your program administrator or check your program website for the current Chair. In academic year 2021-20222, your department chair is Olivier Bernardi.
- **The Head of the Division of Science:** This faculty member oversees the entire Division of Science and works to support all of the departments and graduate programs within the sciences. This would be a good person to have a conversation with if people from different graduate programs or departments have a shared concern or issue that they would like to raise. The head of the Division of Science has frequent meetings with individual program and department chairs, as well as with leaders across the University, so they will be knowledgeable of current Division and University practices. They are here to support and advocate for the entire science community. As with the DGS, the faculty member in this role can change from time-to-time. In academic year 2021-20222, the chair of the Division of Science is Bulbul Chakraborty.

In parallel to these program-level and Division-level faculty resources, there are non-faculty resources within the Division who you can go to for help. The following are good places to go to for help, you should go there first with administrative questions:

- **The Division of Science Graduate Affairs Office:** This office is the administrative home for most of the graduate programs within the Division of Science, including yours. The staff here work closely with grad students and with faculty to administratively oversee those graduate programs and student progress. The staff in this office know your program's faculty, are well-versed in your program's requirements and policies, and are up-to-date with the other sources of support on-campus. If you are unsure about whom to talk to first, the DivSci is often a good place to start as they can help you decide whom to approach and how to have that conversation.
- **Your Department Administration:** These staff work in your department's office and are here to help their entire department community. These staff may be a bit less familiar with your graduate program requirements, but they know your department's faculty and any non-grad-program details about your department well.
- **The DivSci Pre-Award Office:** If you are applying for grants or fellowships, please loop these staff in. They may be able to provide guidance and help you navigate the submission process.
- **Your program's Grad Department Representatives (GDRs):** These graduate students were elected to represent the student body. One of the roles of the GDR is to bring concerns from students as a whole to the program faculty or to GSAS, so if you have a concern that you are comfortable discussing with your GDR it's a good idea to let them know. They cannot bring these concerns to the faculty to advocate for all students if they don't know about them, and there may be other students with similar concerns. Your GDRs may hold a student "town hall" once a semester or year to bring up issues, and this is a good forum to discuss some topics that may be weighing on your mind.

Only if you have not made sufficient progress in those discussions, you could then escalate the conversation above the Division of Science by speaking with the [Graduate School of Arts and Sciences \(GSAS\)](#). GSAS oversees all graduate programs within the school of Arts & Sciences at Brandeis and is invested in the success of all graduate students in these programs. Depending on the topic that you have raised with faculty or administrative staff, they may have already contacted GSAS for advice/assistance on how to help or to handle the next steps. If you'd like to reach out to GSAS for help, we recommend that you connect with Kate Slater, Assistant Dean of Student Affairs.



Outside of the general hierarchy of places to go to for help there are various other entities on campus here to support students. These resources on campus are dedicated to supporting graduate students:

- **Graduate Student Affairs (now called Office of Student Affairs)** This office is a home and source of support for all graduate students at Brandeis, including those studying at the Heller School, the Rabb School, or the International Business School. Graduate Student Affairs provides students with information and events about graduate life at Brandeis and community resources. If you'd like to reach out to this group, we recommend that you contact Jessica Basile, Assistant Dean of Graduate Student Affairs or Steve Weglinski, Assistant Director of Graduate Student Affairs.
- **The Graduate Student Association (GSA)**: Supported by Graduate Student Affairs, the GSA is an independent student body that represents all graduate students and provides a platform for graduate students to raise issues and concerns and build community. If you have a concern about an issue affecting graduate students that extends past your program, department, and the Division of Science, the GSA is a good group to talk to. To connect with them, visit their website to see the current year's grad student executive committee.

There are some offices on campus that specialize in specific topics and who will almost always be the best resource for those topics:

- **The Office of Research Administration (ORA)**: ORA, which reports to the [Vice Provost for Research](#), can help with issues related to research integrity and compliance. If you want to discuss the possibility of research misconduct, you may wish to report things there directly.
- **The International Students and Scholars Office (ISSO)**: ISSO supports all of Brandeis' international students and scholars. This office determines visa eligibility



and prepares and issues visa documents. If you ever have any questions about your Visa or any of the associated regulations (e.g. travel, CPT, OPT), you should reach out to your ISSO advisor. They can advise students on rights and responsibilities and provide guidance regarding issues that may impact your legal status. Their website also has a collection of useful information for international students.

- **Student Accessibility Support**: If you are a student with a disability and in need of academic or non-academic accommodations, this office can support you and help you navigate this process. The definition of a person with a disability is broad, and may students who do not think of themselves as students with disabilities may qualify for support under the law. Even if are you not sure if you will quality, you are encouraged to reach out to SAS.

As mentioned at the start of this section, there are some topics that responsible reporters on campus cannot keep confidential, and those are issues of discrimination, harassment, or sexual misconduct. The office on campus that addresses these issues is the **Office of Equal Opportunity (OEO)**. OEO provides information regarding support resources, information about taking action (internal resolution processes and criminal action), inquiries and investigations into concerns, processes to address grievances, and training for the Brandeis community. Please visit their website for contact information and steps (and an online form) to file a report. You are welcome to contact a resource listed above for support or advice about these topics, but they will be obligated to share the issue with OEO.

If you would like to have a *confidential* conversation with someone on campus, the following are our on-campus confidential resources:

- **The Brandeis Counseling Center (BCC)**: The BCC provides counseling for students in times of stress, and encourages them to ask for help with their most immediate concerns. Counseling is available to all students regardless of whether they have the Brandeis student health insurance plan or not. If you are struggling and need someone to talk to, we encourage you to reach out to the BCC.
- **The Prevention, Advocacy, and Resource Center (PARC)**: PARC provides education, empowerment and support related to sexual assault, sexual harassment, dating/domestic violence and stalking. This group is a confidential, student-centered resource serving all members of the Brandeis community who have been impacted by violence.
- **The University Ombuds**: This office is a confidential, independent, impartial, and informal resource for all members of the Brandeis community. They provide a safe space to talk confidentially and off-the-record about difficult situations and offer conflict resolution support.
- **The Chaplains in The Center for Spiritual Life**: The Brandeis chaplains offer counseling, support, and community to students of all faiths. They oversee on-campus worship and student religious life while also offering community support in times of joy and crisis.

## Appendix A: Contact Information

- Department Chair: Olivier Bernardi (bernardi@)
- Director of Graduate Study: Omer Offen (offen@)
- Graduate Committee: Mark Adler (adler@), Thomas Fai (tfai@), Olivier Bernardi, Omer Offen
- Elementary Mathematics Coordinator: Rebecca Torrey (rtorrey@)
- Math Department Administrator: Catherine Broderick (cbroderi@)
- Academic Administrator: Emily Palmer (emilydpalmer@) / (scigradoffice@)
- Grad Student Representatives: Shujian Chen (shujianchen@), Rebecca Rohrlich ([rebeccarohrlich@brandeis.edu](mailto:rebeccarohrlich@brandeis.edu)), Alex Semendinger (alexsemendinger@brandeis.edu)

### Important Offices:

- Math Department: Goldsmith 218, 781-736-3050
- Division of Science Graduate Affairs Office: Ros-Kos Connector Room 3-RK02, 781-736-2369 (Emily)/ 781-736-2352 (main line), [scigradoffice@brandeis.edu](mailto:scigradoffice@brandeis.edu)
- [Graduate School](#): Bernstein Marcus Administration Building (in the basement), 781-736-3410, [gradschool@brandeis.edu](mailto:gradschool@brandeis.edu). Your primary contacts there will be: Kate Slater, Assistant Dean of Graduate Student Affairs ([kateslater@brandeis.edu](mailto:kateslater@brandeis.edu)) and Monique Howell (she manages the finances for Master's students) ([mhowell@brandeis.edu](mailto:mhowell@brandeis.edu))
- [Registrar](#): Kutz 121, 781-736-2010, [registrar@brandeis.edu](mailto:registrar@brandeis.edu)
- [ISSO](#): Kutz 215, 781-736-3480, [isso@brandeis.edu](mailto:isso@brandeis.edu)
- [GSAS's Center for Career and Professional Development](#): Your primary contact there will be Assistant Director Marika McCann ([marika@brandeis.edu](mailto:marika@brandeis.edu)).