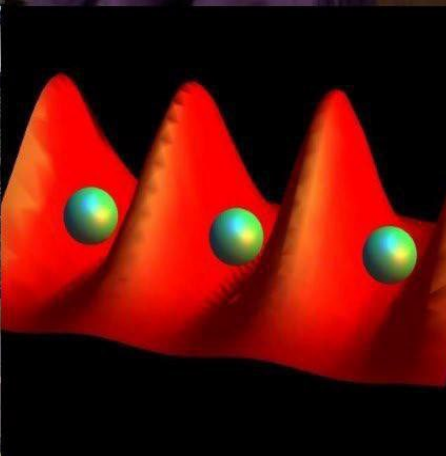
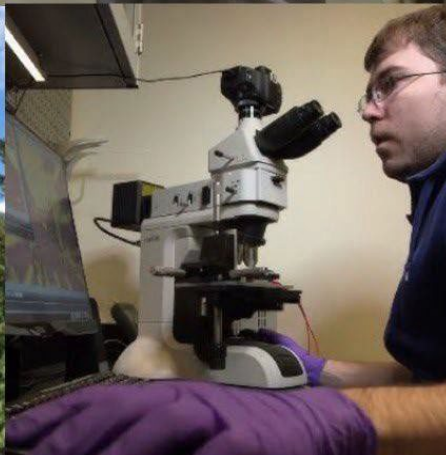
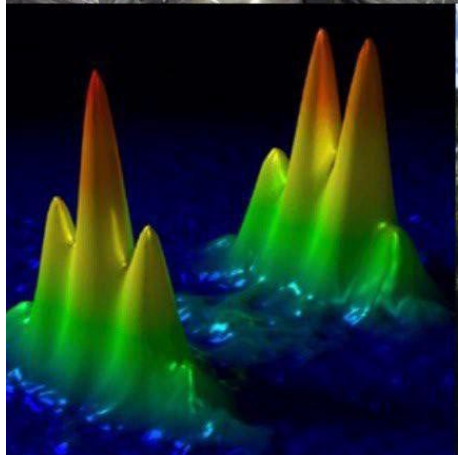


PhD in Physics & Astronomy



Northwestern University
Department of Physics & Astronomy
PhD Program Handbook
Academic Year 2025-2026



Welcome to the Department of Physics and Astronomy

We are delighted to have you join us here in the Department of Physics and Astronomy and are looking forward to helping you mature and grow as a scientist. We expect you to work hard, to master fundamental topics, to learn key research skills, and to help your colleagues improve in their own research. We hope that, along the way, you will have a fun and productive time and that your experience here will be a fulfilling one. We are ready to help you in any way possible.

We strive to maintain a positive, collaborative, and inclusive atmosphere in the Department of Physics and Astronomy that is welcoming to all. We expect that all members of our department will uphold these principles in their interactions with each other. The departmental website has additional information about our equity and inclusion initiatives, as well as resources for students seeking help or guidance. The department staff and faculty - including the Department Chair, the Director of Graduate Studies, and your mentors - and student leaders are always available to address questions and concerns.

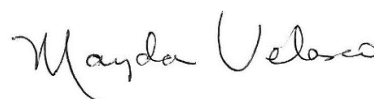
This document should provide answers to many of the questions that you will have throughout your time here. Feel free to let us know whether there is useful information that is either incorrect or missing!



Professor André de Gouvêa
Chair, Professor
Department of Physics and Astronomy
Northwestern University



Professor Yoram Lithwick
Director of Graduate Studies for Astronomy
Department of Physics & Astronomy
Northwestern University



Professor Mayda Velasco
Director of Graduate Studies for Physics
Department of Physics & Astronomy
Northwestern University

Program Overview

The goal of the Northwestern Physics PhD Program and the Astronomy PhD program is to provide opportunity, education, and mentoring to develop each PhD student into a productive scientist. This training has two general phases: education and scientific activity.

The first phase of the PhD is characterized by an emphasis on classroom education. In graduate classes, students learn physics fundamentals and develop more specialized knowledge. In fulfilling teaching duties, PhD students learn communication skills and how to effectively teach science. In the early stages of working with a research group, PhD students learn fundamentals of their chosen area.

The second phase of PhD training is characterized by an emphasis on scientific activity. During this phase, students become increasingly effective at working with their research groups to push knowledge forward in their area of study, at communicating their results to a broad audience through publications and oral presentations, and at becoming leaders of scientific thought within their area of expertise.

Officially, the transition from the education phase to the scientific activity phase is marked by passing the Prospectus (also known as the Candidacy Exam). In practice, the transition is gradual, with a timeline depending largely upon the student's level of undergraduate preparation and area of research. Some students contribute important work to their research groups as early as the summer before their first year, and others begin their period of scientific productivity as late as the summer after their second year. All students are expected to have begun working with a research advisor by the summer of their first year.

The Physics & Astronomy Graduate Handbook supplements The Graduate School's (TGS) policies and procedures. The following pages contain information about program-specific policies, procedures, and regulations. Students are subject to the regulations in effect at the time of matriculation. It is their responsibility as students to be aware of these and The Graduate School's regulations.

Contents

Welcome to the Department of Physics and Astronomy	2
Program Overview	2
PhD Timeline	6
Calendars	7
Advising	8
Identifying an Advisor	8
Changing Advisors	8
Consequences of Not Having an Advisor.....	8
Candidacy/Prospectus Committee.....	8
Dissertation Committee.....	8
Courses: Physics PhD Program	9
Core Courses.....	9
Electives.....	9
Courses: Astronomy PhD Program	9
Core Courses	9
Physics Courses.....	9
Electives	9
Check-in Meetings.....	9
Other Courses.....	10
Physics 519- Responsible Conduct of Research	10
Physics 590	10
TGS 500.....	10
Physics or Astronomy 499.....	10
TGS 512.....	10
Core Course Competency.....	10
Placing out of Core Courses	11
Credit for Northwestern Courses taken by former Northwestern Students	11
Teaching Requirements.....	11
Candidacy Exam and Prospectus.....	12
Candidacy Exam Room Booking and Reporting.....	12
Prospectus Reporting	12
Degree Completion and Graduation	12
Writing the Dissertation	12
Dissertation Defense	12
Defense Deadlines	12
Degree Completion Forms	12
Submitting the Thesis Draft.....	13
Booking a Room	13
Successful Defense and Editing	13

Submission of the Dissertation to ProQuest	13
Grade Changes	13
Graduation	13
Obtaining a Master's Degree	13
Satisfactory Academic Progress	13
GPA Requirement	13
Academic Probation	14
Extending Academic Probation	14
Academic Progress Reports	14
Dismissal Process	14
Leaves of Absence	14
Submitting a Leave of Absence Request	15
Funding	15
First Year	15
Graduate Student Union – Change in Status	15
Second Year	15
Second Summer and Onward	15
Payday	16
Health Insurance	16
Student Activity Fee	16
Taxes (Domestic Students)	16
Conference Travel Grants	17
Questions about Finances	17
Tuition, Stipends, Fees	17
Expense Reports	17
Supplies	17
Additional Funding	17
International Students	17
Visa Regulations	17
English-language Skills	18
Course Registration	18
Taxes	18
International Office	18
Department Staff Members	18
Director of Graduate Studies	18
Academic Office (F165)	18
Business Office (F155)	18
Department Activities	19
Colloquia	19

Seminars 19
Heilborn Lectures..... 19
Graduate Student Council..... 19
 Mission 19
 Activities..... 19
Nondiscrimination Statement, Conflict Resolution, and Counseling 20
 Nondiscrimination Statement 20
 Conflicts Involving Discrimination and Harassment..... 21
 Sexual Harassment..... 21
 Conflicts Not Involving Discrimination, Harassment, or Sexual Harassment..... 21
 Counseling and Psychological Services 22

PhD Timeline

Quarters	Typical Funding	Registration	Milestones-to-be-Achieved	Forms to be Completed
Year One				
Q1. - Fall	University Fellowship	3-4 Units of coursework	All core courses completed by end of Q3.	
Q2. - Winter		3-4 Units of coursework	Some elective courses required.	
Q3. - Spring		3-4 Units of coursework	Q4: Core course grade check. If core GPA < 3.0, pass oral exam on physics fundamentals.	
Q4. - Summer		3-4 Units of Physics 590 or Astro 590	Physics 519 - Responsible Conduct of Research	
Year Two				
Q5. - Fall	Q5.-Q7. : TA	3-4 Units of coursework	Eleven courses must be completed by end of Q7.	
Q6. - Winter		3-4 Units of coursework		
Q7. - Spring	Q8. - RA	3-4 Units of coursework		
Q8. - Summer		3-4 Units of Physics 590 or Astro 590		
Year Three				
Q9. - Fall	RA	TGS 500 and/or coursework	Physics PhD: PhD Prospectus (and/or year 4)	If completed, PhD Prospectus form submitted by student via TGS Forms in GSTS .
Q10. - Winter		TGS 500 and/or coursework		
Q11. - Spring		TGS 500 and/or coursework	Astro PhD: Candidacy Exam	
Q12. - Summer		TGS 500 and/or coursework		

Quarters	Typical Funding	Registration	Milestones to be Achieved	Forms to be Completed
Year Four				
Q13. - Fall	RA	TGS 500 in addition to non-required coursework	Physics PhD PhD Prospectus	PhD Prospectus form submitted by student via TGS Form in GSTS .
Q14. - Winter				
Q15. - Spring				
Q16. - Summer				
Year Five and Onward				
Q17. - Fall	RA	TGS 500 in addition to non-required coursework	Degree deadline - students have 9 years from matriculation to complete the PhD degree. Only rarely under extenuating circumstances will students be granted permission to continue beyond 9 years.	Students who are completing their degree must complete: (1.) Application for Degree via TGS Forms in GSTS . (2.) PhD Final Exam form via TGS Forms in GSTS to be approved by the committee and program. (3.) Online submission of dissertation via UMI ProQuest.
Q18. - Winter				
Q19. - Spring				
Q20. - Summer				

*Students who do not complete degree requirements within nine years of initial registration in a doctoral program will not be considered in good academic standing, will be placed on probation, and will be subject to TGS 512 (advanced continuous registration).

Calendars

The most up-to-date Northwestern academic calendar can be found [here](#).

The Graduate School's calendar can be found [here](#).

The University holiday schedule can be found [here](#).

[Plan It Purple](#) is Northwestern's calendar for all things educational, social and fun.

Advising

Identifying an Advisor

Selecting a research advisor is one of the most important choices a PhD student makes. Students should work with an advisor over the summer following their first year, and most students begin working with an advisor before that time. Research advisors provide financial support in the form of Research Assistantships beginning in the Summer Quarter of the second year.

Changing Advisors

Most students remain with a single advisor for their entire PhD study, but it is not uncommon for students to change advisors, particularly in their first or second year. A faculty member is not obliged to keep a student in his/her group; rather continued group membership is a matter of mutual agreement. Should a student need to change advisors, they should consult the Director of Graduate Studies (DGS).

Consequences of Not Having an Advisor

Students who have not found an advisor by Q7 risk losing financial support, and exclusion from the program. The department is committed to providing year-round financial support to all graduate students who are in good academic standing and are making satisfactory progress toward the PhD degree supervised by a faculty member in the department.

Failure to find an advisor's support by the beginning of the third year may constitute failure to make satisfactory progress and may lead to dismissal from the program.

Candidacy/Prospectus Committee

The candidacy/prospectus committee is selected at the time the Candidacy Exam is scheduled. The committee must be composed of at least three faculty members including the candidate's advisor, with at least one of the members having a budgetary appointment in the Department of Physics and Astronomy. Many groups prefer to have a committee of four or sometimes five members. Diverse committee composition is encouraged, ideally with one or more members specializing in general areas of research different from that of the candidate.

Dissertation Committee

Students identify their dissertation committees with the help of their advisor. The dissertation committee is typically the same committee as the Candidacy/Prospectus committee, and the guidelines for membership are the same as for the prospectus committee. The names of the committee members must be added to the relevant documents in [GSTS](#). This information helps the Department know whom to contact when it comes time for the prospectus and dissertation defense.

Any change in committee members must be approved by the advisor.

Courses: Physics PhD Program

There are 8 core courses and 5 elective courses required. Students must obtain a grade of C- or higher in each course for it to count toward their PhD. There is also an overall GPA requirement discussed [here](#). It is strongly recommended that students discuss course choices with their advisor and the DGS.

Core Courses

The Core course requirements as of Fall 2022 for the PhD program are as follows:

- One quarter of Classical Mechanics (Physics 411-0)
- One quarter of Methods of Theoretical Physics (Physics 411-1)
- Three quarters of Quantum Mechanics (Physics 412-1,2,3)
- Two quarters of Classical Electrodynamics (Physics 414-1,2)
- One quarter of Statistical Mechanics (Physics 416-0)

Students should contact the DGS if they believe they should be excused from any of the core requirements.

Electives

Students must complete five (5) elective courses as of Fall 2022. Three of these five electives must be completed by the end of the 7th quarter (Spring of the second year). Descriptions of these courses can be found [here](#). Courses outside the department may be allowed to fill the Elective requirements. The DGS should be consulted before registering for courses outside the department.

Courses: Astronomy PhD Program

Core Courses

A minimum of six (6) 400-level astronomy courses must be selected from the following:

Astro 314/414 Planetary Astrophysics
Astro 321/421 Observational Astrophysics
Astro 325/425 Stellar Astrophysics
Astro 329/429 Extragalactic Astrophysics and Cosmology
Astro 410 Astrophysical Radiative Processes and Transport
Astro 416 Astrophysical Fluid Dynamics
Astro 448 Interstellar Gas and Radiation Processes
Astro 449 Stellar Dynamics
Astro 451 High Energy Astrophysics

* Phys 445-1/445-2 General Relativity may be considered as core courses, after discussing with the DGS*

Physics Courses

A minimum of two (2) 400-level physics courses must be taken. All students must take Phys 411-0: Classical Mechanics during their first quarter at Northwestern, which ensures that Astronomy PhD students are well integrated with Physics PhD students when they start at Northwestern.

Students should contact the DGS if they believe they should be excused from any of the core requirements.

Electives

A minimum of four additional 400-level quantitative science or engineering courses must be taken (including in physics or astronomy).

Check-in Meetings:

After passing the PhD Prospectus Exam, students will meet with their committee once a year to check in.

Other Courses

Physics 519- Responsible Conduct of Research (required)

This course is required, although it does not count toward the Core Course requirements for the degree. It is a two-part course, with an online component followed by four hours of instructor-led training. The Department typically holds this course in the Winter or Spring quarter. More information on this course is provided [here](#).

Physics or Astronomy 590

This P/NP research course allows junior students to maintain full-time status in order to do research. This course is generally used in the first seven quarters of the PhD. It should also be taken by more senior students who have not yet completed nine Northwestern courses toward their degree. Students should register for enough units of this course to bring their number of units up to three.

TGS 500

This P/NP research course is for senior students who are supported by an RA, TA/GA or Fellowship. Supported students who are past their eighth quarter and who have completed more than nine courses toward their degree register for this course to maintain full-time status. This course carries zero units course credit.

Physics or Astronomy 499

This course allows students to work on a specific topic not covered by any lecture courses under the guidance of a faculty member of the Department of Physics and Astronomy. The student receives a letter grade (not P/NP) based on an evaluation conducted by the faculty member. This course carries the same credit as a lecture course. At most, half of the courses taken by a first-year student can be 499. This course is rarely used by students in this department.

TGS 512

This option allows students to maintain full-time status in the event they lose funding. It can also be used by advanced students who need to temporarily step away from any research or teaching responsibilities. Students registered for this course can continue to use university facilities. When registered for TGS 512 students are able to purchase the Northwestern Student Health Insurance plan but are not eligible to receive the health insurance subsidy. Students taking this course cannot be registered for any other TGS course and cannot receive a stipend.

Core Course Competency

Physics PhD: The seven core courses must be completed by the end of Q3. Students receiving a GPA less than a 3.0 in their core courses will be required to take a special oral exam. This exam will emphasize subjects where the student obtained weak grades and will assess whether the student has sufficient grasp of core physics knowledge to complete a strong Ph.D. The exam will be administered near the end of Q4 by a committee chosen by the Director of Graduate Studies and the Department Chair. The committee reports the student's performance to the Department faculty early in Q5, and the faculty together determine whether the student passed the exam. Students failing the exam will be deemed to be in poor academic standing and will leave the program at the end of Q5.

Astronomy PhD: Students may take up to 2 years to finish their course requirements. Students who do not maintain a B (3.0) average in their core first-year courses will be required to sit for an oral qualifying examination administered by the faculty who teach first-year courses.

Placing out of Core Courses

Requests for placement out of core courses will be directed to a committee composed of the professors teaching the core courses for the corresponding academic year. The committee will provide their evaluations at the beginning of each quarter.

Student Requirements

To demonstrate proficiency in the relevant subject matter, students must submit documentation about the previously completed course, including:

- A detailed course description and methodology (e.g., syllabus)
- Textbook and/or reference materials used by the instructor
- Samples of homework, exams, and/or projects
- The final grade earned

Additional Examination

If a student fails to provide sufficient documentation or if the committee deems the submitted material inadequate, a written or oral examination may be required. The student may choose the exam format.

Committee members will administer and evaluate the exam, with additional faculty involved if deemed necessary by the committee or the DGS.

Appeal Process

Students may appeal the committee's decision to the DGS, whose decision will be final.

Credit for Northwestern Courses Taken by Former Northwestern Students

Graduate-level courses taken at Northwestern before starting the PhD program do not automatically count toward the degree.

General Information

To be in good academic standing, The Graduate School (TGS) requires a minimum GPA of 3.0, and the department mandates a 3.0 average in core courses. Otherwise, students must pass an oral qualifier exam to continue in the program.

Requirement

To receive credit for a previously taken graduate course at Northwestern, students must have earned at least a B (3.0).

Process

Transcripts will be evaluated upon entry into the PhD program, and students will be notified of any courses that must be retaken. Questions should be directed to the Director of Graduate Studies (DGS).

Teaching Requirements

Students typically serve as Teaching Assistants (TA) for three quarters (Fall, Winter and Spring) in their second year. In most cases, TAing provides the source of funding during such quarters. It also provides a chance to work with undergraduate students and helps build speaking and teaching skills. TGS requires all PhD students to teach for at least one quarter before graduating.

The TA position has an English-language requirement for students whose native language is not English.

International students who have not received a degree from an English-speaking institution, must pass either the VERSANT test or the SPEAK test to be eligible for a Teaching Assistantship. Please see the [International Students](#) section below.

For more information on Teaching Assistantships, please see TGS' [Teaching Assistantships information page](#).

Candidacy Exam and Prospectus

The Candidacy Exam consists of an oral presentation by the student demonstrating mastery of concepts in his/her research field. The presentation is often organized around any research progress to date. The Candidacy Exam is administered by the student's Candidacy/Prospectus committee and must be passed by the end of the 3rd year. If the Candidacy Exam is not completed by this point, TGS will place the student on Academic Probation.

The Prospectus is a written proposal describing the student's proposed PhD research. The Prospectus length varies from one paragraph to several pages, depending on the requirements of the student's research group. The Prospectus must be completed and approved by the end of the 4th year. If the Prospectus is not completed by this point, TGS will place the student on Academic Probation.

Candidacy Exam Room Booking and Reporting

Contact the Graduate Program Assistant to book a room for the Prospectus, they will also ensure that the paperwork has been submitted successfully.

Prospectus Reporting

Students must access GSTS (<https://gsts.northwestern.edu>) and complete the PhD Prospectus form. (Main Menu > TGS Forms > Create New Form > PhD Prospectus)

Degree Completion and Graduation

TGS requires PhD students complete all degree requirements before the end of the 9th year of study. If a student's studies are interrupted, the PhD clock is paused accordingly.

Writing the Dissertation

The dissertation is an original, scientific document ranging in length. It may not be simply a summary of what others have done but rather must center on truly original scientific results. In most cases, the results have been or will be submitted for publication in a scientific journal.

Dissertation Defense

The defense presents the culminating opportunity for a candidate to present his/her work to his/her committee and to persuade the committee that a PhD has been earned. It is also the final opportunity for the committee to test the candidate's grasp of fundamentals and his/her ability to defend the quality of the work.

Thesis defenses typically include a closed-door session in which the committee examines aspects of the work in rigorous detail. Beyond the inclusion of a closed-door session of some duration, formats vary from group to group, with some groups having a public component and other groups having none.

Defense Deadlines

In order to provide sufficient time for thesis revision after the thesis defense, the defense date must be chosen to be at least 10 days in advance of any [TGS deadlines](#), job start date deadline, etc.

Students should contact their committee well in advance of the desired defense date in order to agree upon a specific date and arrange a schedule for submission of thesis material. Aligning schedules can sometimes be difficult, so it is recommended that the schedule be set at least three months in advance.

Degree Completion Forms

First, log in to [GSTS](#) and fill out the Application for a Degree form.

(Main Menu > TGS Forms > Navigate to Application for a Degree Form)

Next, complete the PhD Final Exam Form, also in [GSTS](#). (Main Menu > TGS Forms > TGS PhD Final Exam Form) The Graduate Program Assistant prints a copy of this once it is completed, the form is provided to the Advisor on the day of the Defense. This form must be signed by all Committee members. (The Committee members must also enter their approvals electronically in GSTS).

Submitting the Thesis Draft

A complete copy of the thesis must be submitted to the committee no less than 7 days before the scheduled defense date (and therefore at least 14 days before TGS or other external deadlines). At the time the schedule is originally established, committee members can notify the candidate that they will require more than 7 days, for example, in order to accommodate travel constraints or particularly intensive review styles.

The submitted draft must be a polished and complete version that could credibly stand as a final thesis as submitted.

Booking a Room

Please contact the Academic Office (F165) or Graduate Program Assistant to book a room.

Successful Defense and Editing

Assuming the Defense is successful, the student must finish all the edits requested by the committee. The advisor must approve the final version of the thesis before the Graduate Program Assistant enters in the completion of the degree. The student will receive an email from TGS stating that the degree form has been approved.

Submission of the Dissertation to ProQuest

The student **must** complete all required editing before the final submission of the Final Exam Form takes place. It is advised that all editing is completed as quickly as possible.

Once the editing is complete and the Advisor has approved the thesis, the student submits his/her Dissertation via the [ProQuest website](#). The Dissertation must conform to TGS formatting standards found [here](#). Formatting is reviewed by a Student Services representative who will inform the student if it is acceptable or if changes are needed.

Grade Changes

Any Y or K grades must be changed before a degree may be conferred.

Graduation

Hooding and Commencement take place once a year in mid-June. Students are invited to the ceremonies in June, without regard to the quarter of completion, as there are no other ceremonies throughout the year.

Usually, the advisor will do the hooding; however, another faculty member may be asked.

Obtaining a Master's Degree

Students who have completed all of the necessary courses with a cumulative GPA of at least 3.0 may request to receive a Master's degree. Most students who choose to leave the PhD program execute this option. Some students remaining in the PhD program also execute this option.

Satisfactory Academic Progress

GPA Requirement

The Department follows The Graduate School's minimum GPA requirement of a 3.0 for a student to be considered in good academic standing. There is also a grade requirement on each individual course for it to count for the PhD.

Academic Probation

Should a student's GPA fall below 3.0, he/she will be placed on Academic Probation and given two quarters to raise his/her GPA above the minimum. Students who are placed on [TGS Academic Probation](#) and who are unable to attain remediation during the probationary period will be dismissed from the program.

Failure to find a Research Group by the end of the 7th quarter is also grounds for being placed on Academic Probation.

Extending Academic Probation

The TGS policy regarding petitions for extensions of Academic Probation is straightforward. The student must submit a [petition](#). The following criteria must be met:

- The specific length of the extension including the exact date by which the requirement will be met: the extension time frame should be realistic.
- A detailed rationale for the extension.
- A detailed timeline for meeting the new deadline including the work that remains to be completed and the specific timeline, with proposed deadlines by which that work will be completed within the extension period.
- A detailed letter of support for the extension from the Director of Graduate Study.
- A detailed letter of support for the extension from the student's academic/research advisor.

Academic Progress Reports

Each student's academic progress must be reported annually by the student's program to the student and to TGS. Each quarter, grades will be checked for substandard performance. Students must ensure that they are maintaining their grades and finishing their work in a timely manner. If they are having trouble doing so, they must work with their advisor and the DGS to resolve issues preventing inadequate performance.

Students can find their Academic Progress Reports in [GSTS](#). This is also where students are expected to tell the Department about their progress. Advisors also report on progress in GSTS, and students can find his/her thoughts there. It is vital that students report this, as this gives a good idea of where they are and how they will get to the next step.

Dismissal Process

The DGS and the Chair have the responsibility to decide whether a student is to be dismissed. Their decision is final.

Leaves of Absence

Leaves of absence must be approved by your advisor, the DGS and TGS. Leaves of absence are permitted in the following circumstances.

- [Medical Leave of Absence](#): For students who must temporarily interrupt progress toward degree due to a physical or mental health condition.
- [Family Leave of Absence](#): For students who must temporarily interrupt progress toward degree to care for a child or other family member, or to extend absence following a parental accommodation. This is separate from and may be taken in addition to a [Parental Leave of Absence](#).
- [Parental Leave of Absence](#): For students who become new parents (whether by childbirth or adoption).
- [General Leave of Absence](#): For students who elect to temporarily interrupt their progress toward degree for a non- medical/non-family care reason.

Please see TGS' [Leaves of Absence](#) policy page for further details and requirements.

Submitting a Leave of Absence Request

Family, Parental and General leave of absence requests are submitted via [GSTS](#). (GSTS > TGS Forms > Petition for Absence)

The process for a student to request a medical leave of absence is outlined on the [Dean of Students, Medical Leave of Absence website](#).

Funding

First Year

In the first Fall, Winter, Spring and Summer quarters, students are typically supported by a University Fellowship (UF) provided by the Department. This fellowship is detailed in the Department's offer letter. Fellows receive a monthly stipend, health insurance, and a full tuition scholarship. Fellows are not normally assigned any departmental duties; however, it is expected that University Fellows will take advantage of the time provided by the fellowship to become involved in research and to attend seminars, colloquia, and other departmental activities.

Graduate Student Union – Change in Status

If a student believes their job has changed, they can notify the department with the information listed below. The department will review their status and make a determination regarding whether they are performing bargaining unit eligible work. The student's notification must be received by the 15th of the month for the change to be effective the following month.

- Student name
- Quarter (month and year) when job change occurred
- Name of the faculty with whom they are conducting research
- Title and brief description of the research project they are carrying out
- Email above information to the Senior Program Coordinator (erin.sazy@northwestern.edu)

This notification is for the department's awareness. Upon receiving the notification, the department will review the student's status and make a determination regarding whether they are performing bargaining unit eligible work. The notification does not mean they are in the unit. If the student becomes a member of the bargaining unit, they will receive an appointment letter consistent with the Collective Bargaining Agreement.

Second Year

During Fall, Winter, and Spring quarters of their second year, students are usually supported as Graduate/Teaching Assistants during the academic year. Graduate/Teaching Assistants normally spend 10-15 hours per week teaching undergraduate laboratories, leading discussion sections, grading, and tutoring. A small number of summer Graduate/Teaching Assistant positions are also available.

Every quarter, the Sr. Program Coordinator issues a call for students who need or would like to serve as Teaching Assistants. Students should respond promptly to this call (if they want a position) after consulting with their advisor. While second-year students have priority for Teaching Assistant positions, it is common for students past their second year to serve as Teaching Assistants.

Second Summer and Onward

From the second summer on, students are supported through one of the following: a Research Assistantship or a Graduate/Teaching Assistant position.

Fellows, RAs, and GA/TAs vary, depending on the student's admissions offer and research group. If a student is granted financial support, he/she is immediately sent a letter specifying the details and amount of the award. There is a minimum stipend offered through TGS. The business office is the best place to check on this stipend.

Payday

Payday is the last working day of every month. [Information on direct deposit.](#)

Health Insurance

All Northwestern students are required to maintain health insurance coverage. PhD students in the program are eligible for a 100% subsidy of the health insurance cost if they enroll in the Northwestern student health insurance plan (NU-SHIP). Students will still be responsible for any copayments or deductibles. The Graduate School will apply the subsidy once students are registered fulltime (other than TGS 512 – Continuous Registration). The credit will appear on the student's account. [Information on the Health Insurance Plan.](#)

Student Activity Fee

This fee covers special services, including discounted CTA rides, gym membership and programs for students, among other things. It is required for all full-time enrolled Graduate School students, except for those enrolled in TGS 512, 513, 514, 506, 507 or 508.

Students who are off-campus for research or studies may submit a waiver form. More information about the Activity Fee and how to request a waiver can be found [here](#).

Taxes (Domestic Students)

Students on fellowships should report the fellowship stipend to the IRS after the students make deductions for books/supplies (save receipts) and required fees.

The University will not withhold Federal or Illinois taxes from the fellowship stipend unless a request to the Payroll Office to withhold a specific dollar amount each month is made (i.e. \$25/month) on the appropriate W-4 form and will not withhold taxes on the fellowship even if the student has filed the Federal or Illinois W-4 forms claiming any exemptions.

Teaching, Graduate Assistants and Research Assistants will need to complete the W-4 Federal and Illinois withholding forms because the University is required to withhold taxes from stipend checks.

The IRS treats assistantships differently than fellowships--students are not permitted to deduct books/supplies and required fees from the amount that is reported to the IRS. The student's entire earnings as a teaching/graduate assistant or research assistant will be reported to the IRS.

If a student registers for classes past the deadline given by TGS, Social Security contributions may be taken out. Please make sure registration is complete. The Graduate Program Assistant will send emails to ensure registration occurs.

TGS' [Information on Taxes](#) is a very helpful site.

Conference Travel Grants

There are several sources of funding available. TGS provides Conference Travel Grants with a maximum value of \$600.

Students are eligible for two (2) grants total over the course of the program. They may only apply after they have completed three (3) quarters of the program. Applications must be submitted no later than 30 days prior to the beginning of travel.

To apply for the grants and to check additional rules on eligibility, please see [TGS Travel Grants](#).

If travel expenses surpass the above-listed amount, the remainder can be paid for with research funds or advisors' discretionary funds with approval. Consult the advisor's financial assistant or research administrator to check whether or not funding is available.

Before traveling, please consult the person in charge of finances for the Advisor's group. He/she will be able to provide more options for pre-paying flights and/or conference registrations.

Questions about Finances

Tuition, Stipends, Fees

Any questions about tuition, stipends and fees are handled by the Department Financial Coordinator (F151).

Expense Reports

The Department Financial Coordinator will assist with expense reports for travel, materials, and other expenses incurred.

Supplies

Lab supplies are ordered by the Program Assistant (F155).

Office supplies are stored in the Academic Office (F165).

Additional Funding

Students receiving financial aid from Northwestern must notify their home department (via email) of other sources of support, such as an external award, traineeship, teaching assistantship, research assistantship, School of Professional Studies teaching, teaching at other institutions, or other fellowships. In cases where alternative funding is available, the financial award may be adjusted at the home school's discretion, more information can be found [here](#).

More information about all types of fellowships and grants can be found [here](#).

International Students

The Department has many students hailing from countries all over the world. The [International Office](#) is available by appointment for advising services and support programs. The Graduate Program Assistant is also available to offer support.

Visa Regulations

International students who are not permanent residents are given an F-1 or J-1 Student Visa. This visa gives the right to study here in the United States but does not confer working rights, so students may not hold a job aside from their appointment as a PhD student.

The University helps the student apply for the visa and submits the Form I-20 papers. Bring your Form I-20 papers upon arrival in the United States. Students may arrive up to 30 days before the start date listed on the Form I-20.

English-language Skills

International students are expected to have taken the TOEFL test or a suitable alternative. If the score on the speaking portion of the TOEFL was lower than a 26, students must take the VERSANT speaking test in order to be cleared to be a Teaching Assistant. Should a student fail that test, he/she is asked to take a different test called the SPEAK test.

Students may also enroll in [English Language Programs](#). Please email elp@northwestern.edu for more information.

Course Registration

International students on an F-1/J-1 visa **must** be registered for a minimum of three credits (or TGS 500/512).

International students who are not registered for other courses are required to register for TGS 512 in order to maintain their F1/J-1 status, usually during the summer or during any leave taken. A minimum cumulative GPA of 3.0 is required to qualify for TGS 512.

Taxes

[Taxes: Office of International Student and Scholar Services](#)

International Office

[Office of International Student and Scholar Services](#)

Department Staff Members

Director of Graduate Studies

Director of Graduate Studies

Academic Office (F165)

Department Chair

Director of Academic & Research Operations

Senior Program Coordinator

Graduate Program Assistant- your main point of contact

Undergraduate Program Assistant

Program Assistant

Business Office (F155)

Business Administrator

Financial Coordinators

Program Assistant

Please check the Department [website](#) for the most current staff information.

Questions about the Department can be directed to the [Graduate Program Assistant](#).

Department Activities

Students are expected to attend all colloquia and all seminars in their research area. These events serve to broaden students' knowledge in a range of fields, demonstrate effective scientific communication, and aid in networking within and outside the department.

Each week a bulletin listing the time and place of each event will be sent to the graduate listserv.

Colloquia

On Fridays, an invited speaker of renown gives an hour-long colloquium usually at 4pm in L211. After the presentation and the question-and-answer session, snacks and refreshments are served in F160.

Seminars

Regular and special seminars are offered in various sub-fields of physics and astronomy. These are announced each week in the departmental email bulletin.

Heilborn Lectures

The Department of Physics and Astronomy is grateful to George Heilborn (1935-2015), a graduate of Northwestern's physics program, and his family, for their generous support of the Heilborn Lectures at Northwestern University. We have benefited greatly from this program over the years. George Heilborn created the Heilborn endowment in memory of his parents, Walter and Christine Heilborn, in 2000 in order to strengthen the Physics and Astronomy program at Northwestern for the benefit of faculty, students, and other departments in the Chicago area.

This is an annual event where there are several talks, lectures and chances to meet the speaker. Past speakers include Nobel Laureates, Professors, Physicists and Astronomers from the top laboratories in the world.

Link: [Past Heilborn Lectures](#)

Graduate Student Council

Mission

The goal of the Physics & Astronomy Graduate Student Council (PAGSC) is to address important issues pertaining to Physics & Astronomy graduate students at Northwestern University. The Council provides a structure to organize student efforts, to receive input from the student body, and to work with the Physics & Astronomy department. The council works closely with the Graduate Program Assistant.

Activities

The main activity organized by the Council is the Grad Student Coffee Hour. Other activities include quarterly town-hall meetings, barbecues, game nights, pizza nights and other ad hoc events and gatherings.

Please contact the President of the Council for more information: PAGSC_President@u.northwestern.edu.

Nondiscrimination Statement, Conflict Resolution, and Counseling

The Department and TGS are committed to maintaining an environment that fosters student education and training and have established the following guidelines for dealing with any type of conflict that might arise.

Nondiscrimination Statement

Northwestern University prohibits discrimination on the basis of actual or perceived race, color, religion, creed, national origin, ethnicity, caste, sex, pregnancy, sexual orientation, gender identity, gender expression, parental status, marital status, age, disability, citizenship status, veteran status, genetic information, reproductive health decision making, height, weight, or any other class of individuals protected from discrimination under federal, state, or local law, regulation, or ordinance or any other classification protected by law in the matters of admissions, employment, housing or services or in the educational programs or activities it operates, as required by Title IX of the Education Amendments of 1972; Title III of the Americans with Disabilities Act of 1990, as amended in 2008; Section 504 of the Rehabilitation Act of 1973; Title VI and VII of the Civil Rights Act of 1964; the Age Discrimination Act of 1975; the Age Discrimination in Employment Act of 1967; and any other federal, state, or local laws, regulations, or ordinances that prohibit discrimination, harassment, and/or retaliation.

The University has designated the Associate Vice President for Civil Rights and Title IX Compliance to coordinate the University's compliance with federal and state civil rights laws regarding protected characteristics, including Title IX and those other laws and regulations references above:

Emily Babb

Associate Vice President for Civil Rights and Title IX Compliance | Title IX Coordinator

Office of Civil Rights and Title IX Compliance

1800 Sherman Ave., Suite 4500

Evanston, IL 60201

(847) 467-6165

OCR@northwestern.edu

Tiffany Little

Senior Director. Civil Rights and Title IX Compliance | Deputy Title IX Coordinator

Office of Civil Rights and Title IX Compliance

1800 Sherman Ave., Suite 4500

Evanston, IL 60201

(847) 467-6165

OCR@northwestern.edu

The University complies with all federal and state laws that protect individuals with disabilities from discrimination based on their disability or perceived disability status. As such, reasonable accommodations and auxiliary aids and services are available to individuals with disabilities when such modifications and services are necessary to access the institution's programs and services. The University's ADA/504 Coordinator is:

Laura Conway

Director, ADA Compliance | ADA Coordinator

Office of Civil Rights and Title IX Compliance

1800 Sherman Ave., Suite 4500

Evanston, IL 60201

(847) 467-6165

Accommodations@northwestern.edu

Sam Milgrom

Deputy ADA Coordinator

Office of Civil Rights and Title IX Compliance

1800 Sherman Ave., Suite 4500

Evanston, IL 60201

(847) 467-6165

Accommodations@northwestern.edu

Inquiries about Title IX or the University's prohibitions against discrimination, harassment, and retaliation can be directed to the Associate Vice President for Civil Rights and Title IX Compliance, the ADA/504 Coordinator (for disability-related questions) or to the U.S. Department of Education Office for Civil Rights at the contact information listed below:

Complaints and inquiries regarding discrimination, harassment, and retaliation involving federal laws may be directed to:

U.S. Department of Education
Office for Civil Rights
John C. Kluczynski Federal Building
230 S. Dearborn St., 37th Floor
Chicago, IL 60604
(312) 730-1560
OCR.Chicago@ed.gov

U.S. Equal Employment Opportunity Commissions
John C. Kluczynski Federal Building
230 S. Dearborn St., Suite 1866
Chicago, IL 60604
(312) 872-9777

Any person who believes that the University as a federal contractor has violated nondiscrimination or equal opportunity obligations may contact the Office of Federal Contract Compliance Programs (OFCCP) at

OFCCP
U.S. Department of Labor
200 Constitution Ave. NW
Washington, D.C. 20210
www.dol.gov
(800) 397-6251

Conflicts Involving Discrimination and Harassment

Harassment, whether verbal, physical, or visual, that is based on race, color, religion, national origin, sex, sexual orientation, gender identity, gender expression, parental status, marital status, age, disability, citizenship, or veteran status is a form of discrimination. Discrimination and harassment complaints should be referred to the [Office of Civil Rights and Title IX Compliance](#) Information regarding Sexual Harassment is found below.

Sexual Harassment

It is the policy of Northwestern University that no member of the Northwestern community- students, faculty, administrators, staff, vendors, contractors, or third parties - may sexually harass any other member of the community. For information or assistance regarding a sexual harassment complaint, please visit the [Sexual Misconduct Response and Prevention website](#).

Conflicts Not Involving Discrimination, Harassment, or Sexual Harassment

When a conflict arises, whether with a student's advisor, a fellow student, or someone else in the University, TGS recommends that students first talk to their DGS. One function of the DGS is to address student concerns and grievances and to be available when students are experiencing academic difficulty. If a student is unsure who his or her DGS is, please contact the department office (847-491-3685) or TGS (847-491-5279).

If the DGS has a conflict of interest, the Chair of the student's department is the next resource. In the case that a student cannot or does not want to speak with anyone in the program or department, the next resource is TGS. In TGS, the Associate Dean for Graduate Programs, César Braga-Pinto (c-braga-pinto@northwestern.edu), handles student conflict issues and works directly with the academic school Associate Deans and faculty, as needed. DGSs, department chairs, TGS staff, and TGS Deans can treat students' concerns confidentially unless the concerns involve sexual harassment, discrimination, or a safety issue, in which case they are obligated to report the issue to the appropriate University office.

Counseling and Psychological Services

Counseling and Psychological Services (CAPS) CAPS serves as the primary mental health service at Northwestern University with offices on both the Evanston and Chicago campuses. CAPS provides a set of core services, including clinical services, educational workshops, and consultation with faculty, staff, and parents.

Evanston Campus – Searle Hall – 2nd Floor

633 Emerson St., Evanston, IL 60208

Phone: 847-491-2151

Hours: M/T/TH/F: 8:30am-5:00pm; W: 11:00am-5:00pm

More information on [Counseling and Psychological Services](#) (CAPS).