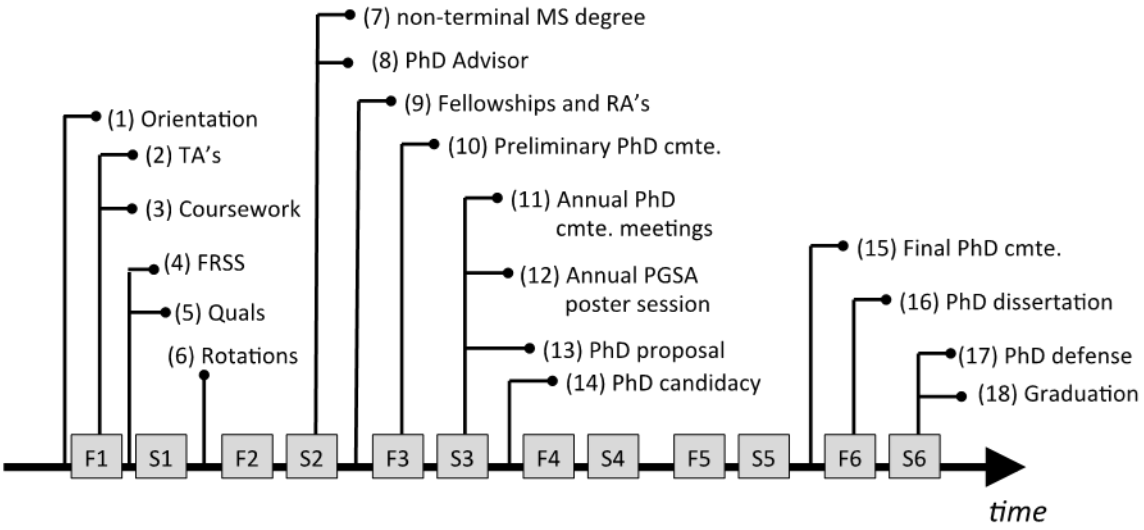
UMBC

Department of Physics

PHYS PhD program

2025 Graduate Guidebook

Introduction: This informal Graduate Guidebook supplements the official program requirements found in the Graduate Catalog, and the University policies governing assistantships found in the Graduate Assistant Handbook. The timeline below shows all of the major milestones, events, and deadlines for a typical 12-semester (6-year) PhD. Students taking shorter or longer than 6 years only need to adjust the timing of the events shown in the final year.



additional items:

- (19) PGSA & GSA
- (20) Full-time status & GRAD 601
- (21) PHYS 898 & PHYS 899
- (22) Offices

Section 1. Orientation

Overview: The 10-day Orientation Program for new graduate students takes place during the last two weeks of August each year. The program starts with the campus-wide Graduate School Orientation Day for new graduate students, followed by various Physics Department orientation activities and TA training sessions. Academic advising and registration for 1st-semester courses takes place during Orientation.

Four online training courses are also completed during the Orientation period:

1. The Graduate School's *Academic Integrity Tutorial*
2. UMBC's *Responsible Conduct of Research (RCR)* online training module
3. UMBC's *Preventing Sexual Harassment* online course
4. UMBC's *Laboratory Safety Training* online course

Section 2. TA's

Overview: Nearly all full-time 1st and 2nd-year graduate students in good standing are offered Teaching Assistantships (TAs) that provide a stipend, tuition coverage, and health benefits. These are 12-month appointments that include TA work in the Fall semester, the Spring semester, and one of the two summer-school sessions.

Misc. Notes:

- TA workload is typically ~20 hours per week.
- Current and future TA appointments are contingent upon performance, as well as making adequate progress in the PhD program.
- Due to undergrad course scheduling issues, your TA assignment (ie. which class/lab) is usually not finalized until a few days before the start of the semester.
- The University policies governing TAs (including vacation, health benefits, etc.) can be found in the Graduate Assistant Handbook.
- The 2025-2026 12-month TA stipend is $31,048.
- Although tuition is covered, you will usually need to pay for textbooks, as well as fees of roughly $1,830 per semester.

Section 3. Coursework

Overview: Students take 3 courses per semester for the first 3 semesters, and then 1 - 3 advanced grad electives in the 4th semester. The standard course progression is shown below:

Fall 1	Spring 1	Fall 2	Spring 2
601 QM I	701 QM II	707 EM II	**Adv. Elective****
605 Math Phys.	602 Stat. Mech.	**Base Elective***	**Adv. Elective****
606 Class. Mech.	607 EM I	**Base Elective***	**Adv. Elective****
698 Seminar	*698 Seminar*	*698 Seminar*	*690 Prof. Skills*

*Students choose 2 of the 3 standard Base Electives: PHYS 604 Solid State Physics, PHYS 609 Modern Optics, PHYS 631 Astrophysics I. These 3 Base Electives are offered every Fall semester.

**Advanced Electives are offered based on faculty/student interest. Frequently offered Advanced Electives include PHYS 610 Quantum Electronics, PHYS 612 Quantum Information Processing, PHYS 614 Surface Physics, PHYS 615 Nanoscale Physics, PHYS 632 Astrophysics II, PHYS 640 Computational Physics, PHYS 710 Quantum Optics.

Course Requirements: A minimum of 52 credits consisting of the following:

- 7 required core courses: 601,602,605,606,607,701,707 (3 credits each)
- A minimum of 3 grad lecture course electives (3 credits each)
- 3 semesters of PHYS 698 Seminar (1 credit each)
- PHYS 690 Professional Skills (1 credit)
- A minimum of 2 semesters of PHYS 899 [see Section 21] (9 credits each)

Grade Requirements:

- Each of the 7 core courses must be passed with a grade of "B-" or higher.
- Overall GPA > 3.0 is always required.

Misc. Notes:

- Many students take grad electives in other departments (Chemistry, EE, Math, etc.). Students often continue to take relevant electives in year 3 and beyond.

Section 4. Faculty Research Seminar Series (FRSS)

Overview: The Faculty Research Seminar Series (FRSS) takes place in the first week of January each year. The audience is the 1st-year grad student cohort. 10 Faculty members give seminars about their research and/or PhD research opportunities in their groups. The goal is for 1st-year students to begin figuring out where they would like to do their PhD's.

Format: The FRSS lasts 5 days, with 2 talks per day (one at 10 am, one at 11 am). Most Faculty use Room 401, but some include lab tours, etc. The FRSS schedule of talks is announced in early December.

Section 5. Qualifying Exam

Overview: All students must pass the written PhD Qualifying Exam (ie. the "quals"). This is a comprehensive exam that covers the core of physics at the advanced undergraduate level. The exam is offered twice per year (in late January and late August). The first attempt at the exam is in January of the first year. It is in your best interest to pass the quals as quickly as possible. **If you don't show up for an Exam, it counts as an automatic failure.**

Structure and Content: The exam consists of 4 sections given over 4 days (one section per day). Each section lasts 3 hours and contains 4 problems. The 4 sections of the exam are:

Day 1: Classical Mechanics
Day 2: Thermodynamics and Statistical Mechanics
Day 3: Quantum Mechanics
Day 4: Electricity and Magnetism

Groups of about five faculty members compose the problems for each exam. The exam problems are reviewed by all faculty in each subgroup to ensure level appropriateness.

Passing and Failing: Each of the four sections is graded separately by two faculty members. In the event of a large discrepancy in the grades, the two graders meet to reconcile these differences. The results are presented, discussed, and approved by the whole faculty. There are fixed, predetermined passing levels for an **M.S. (45%)** and a **Ph.D. (60%)** pass, and the exam grades are not curved. In principle, everyone may pass/fail each exam section during the same period. To protect the integrity of the exam, each student is assigned a unique letter by the exam coordinator, and they use this letter to mark their exam papers. The identity of the students is revealed to the faculty only during the meeting where the exam results are validated. If a student fails one or more sections, then he/she is only required to repeat those sections. All students have three attempts to pass all sections of the exam.

Coursework Alternative (Exceptional Cases Only)
Students who meet both of the following criteria may discuss with the Graduate Program Director to use the Coursework Alternative **for one subject only:**

- Attempted a subject exam twice, and
- Obtained an MS pass on one of those attempts.

Failure to sit for an exam counts as a failed attempt.

Requirements for the Coursework Alternative:
Students must pass the corresponding undergraduate course with a grade of B or higher:

- PHYS 321 – Classical Mechanics
- PHYS 303 – Thermal Physics
- PHYS 424 – Quantum Mechanics
- PHYS 407 – Electricity & Magnetism

A course remedy may be attempted only once. No repeats are allowed.

A student who took one of the designated courses before their second attempt at the qual may not use this class to bypass the quals process. They must still attempt the corresponding written exam. If they choose to use the course alternative for this subject, then they will have to retake the class in their second year and obtain a B or better.

All students must satisfy the full quals requirement—either through exams, the coursework alternative, or a combination—by the end of their fourth semester. Failure to meet this requirement will result in dismissal from the PhD program.

Misc. Note:

- The Chair of the Qualifying Exam Committee maintains a Blackboard site with an archive of old quals. Contact the current Chair (Prof. Anza) for access to the site. The site name is "Physics Graduate Programs Archive" and you should be able to find it under "Organizations".

Section 6. Research Rotations

Overview: Students perform non-committal research rotations with potential PhD Advisors during Summer of the 1st year. The normal situation is 2 different rotations (1st half of the summer, and 2nd half of the summer). The goal is to see if these are areas in which you would like to do your PhD.

Misc. Notes:

- It is your responsibility to set up these rotations. The normal time to begin approaching professors is early Spring (after January quals results are announced). If you sit back, nothing will happen, and it is very unlikely that you will find a PhD Advisor.
- In rare cases, students may do 1 or 3 rotations during the 1st summer.
- Performing a rotation does not imply any guarantee that you will end up doing your PhD with that professor. These are fully non-committal rotations (on your end, and/or the professor's end).
- If your Summer rotations did not work out, you should continue to set up Fall "rotations" (and further) until you find a PhD Advisor.

Section 7. Non-terminal MS degree

Overview: All PHYS students pick up a non-terminal MS degree en route to the PhD. The normal time to do this is the Spring of the 2nd year.

Background: The requirements for a "non-thesis option" MS degree are: (1) passing a list of various classes, (2) passing the quals at the MS level, and (3) writing an MS Scholarly Paper. Students making good progress towards the PhD will, by default, meet all these requirements by the end of the second year.

Steps:

1. Apply for Graduation (via the Grad School website) **by February 15th [September 15th].**
2. Submit your MS Scholarly Paper to the GPD **by March 15th [October 15th]**. The MS Scholarly Paper should demonstrate solid technical writing skills and mastery of a chosen topic in physics. This paper is usually done as part of an elective class. If not, you should consult with the GPD to choose an appropriate topic. Although there are no formal length requirements, the MS Scholarly Paper is usually ~10 pages, with figures, references, theory, etc.
3. Submit the "*Certification of Completion of Master's degree Requirements*" form to the Graduate School by the last day of the semester.

Section 8. PhD Advisor

Overview: All students must find a PhD Advisor to supervise their PhD dissertation research. Choosing a PhD Advisor is one of the most important decisions in grad school.

Misc. Notes:

- The PhD Advisor must be a tenure-track faculty member of the Physics department.
- Although there is no formal deadline for finding a PhD Advisor, most students accomplish this by the end of the 4th semester, and often earlier. The only formal timing constraint is the deadline for forming the Preliminary PhD Committee [see Section 10], which requires a PhD Advisor.
- It is your responsibility to find a PhD Advisor. Although rare, a student who is in good academic standing, but is unable to find a PhD Advisor, will be unable to continue in the PhD program.

Section 9. Fellowships and RAs

Overview: Beginning in the 3rd year, almost all PhD students are supported by externally funded Fellowships and/or Research Assistantships (RAs). These typically include a stipend, tuition coverage, and health benefits. Exceptionally well-qualified students often move onto Fellowships or RAs before the 3rd year.

Fellowships: These are the most prestigious form of grad student funding. You should continually apply for fellowships. Fellowships usually offer the greatest research flexibility and often pay the highest stipends.

Research Assistantships: RAs are typically associated with externally funded research grants held by the PhD Advisor. The normal level for 12-month RA stipends is roughly $32.6K for pre-candidacy RAs, and $35K for RAs in PhD candidacy.

TAs and RAs are Graduate Assistants (GA). Some useful information about the work and academic expectations from the UMBC GA Handbook:
"In addition to their GA duties, students engage in scholarly endeavors as part of their degree pursuit. These scholarly activities often require a commitment exceeding 20 hours per week. It's crucial to distinguish between the assistantship duties, which provide financial support, and the scholarly tasks necessary for earning the graduate degree. GAs are primarily students, and both they and their supervisors should ensure a balanced approach to academic and job responsibilities throughout the assistantship….. The duties of RAs vary depending on the nature of the research project and its funding source. RAs perform these duties under the direction and supervision of a faculty member. Their research assignments may or may not directly contribute to the thesis or dissertation required for their master's or doctoral degree. It's important to note that the scholarly activities essential for completing the thesis or dissertation are distinct from the RA responsibilities and should not be conflated with the assistantship duties."

Section 10. Preliminary PhD Committee

Overview: All students must form a Preliminary PhD Committee comprised of the PhD Advisor and two other faculty members of the Physics department. This 3-person committee is charged with determining if a student should advance into PhD candidacy [see Section 14] and will meet annually with the student to discuss progress [see Section 11].

The normal time for students to form the Preliminary PhD Committee is the beginning of the 3rd year.

Steps:

1. Work with your PhD Advisor to design your Preliminary PhD Committee. Note that at least two of your committee members must be tenure-track faculty.
2. Submit the "Preliminary PhD Committee" DocuSign form to the GPD by the last day of the 5th semester.

Please note that when the form is completed by all faculty and the GPD you will get a notification. If you haven't received the notification within a day or two, please follow the signature trail to find the person in line to sign next and remind them.

Misc. Note:

- If beneficial, the Preliminary PhD Committee can include additional faculty members of the Physics department.

Section 11. Annual PhD Committee Meetings

Overview: Beginning in the 3rd year of the program, all graduate students are required to meet with their Preliminary PhD Committee each Spring. It is your responsibility (not your PhD Advisor's) to organize and lead these meetings. The primary goal of these meetings is to ensure that you and your committee are in general agreement on your status and plans as you move toward the PhD.

Steps:

1. Schedule the meeting several weeks in advance. Getting 3 professors in the same place at the same time is notoriously difficult; allow plenty of time to find a suitable date.
2. Start the "Annual PhD Committee Meeting" DocuSign form **before the meeting** and send it to the members right after completion. Once all the signatures are obtained, you and the GPD will be notified by the system. You don't need to do anything else. A copy of the completed form will be placed in a secure folder for archiving. You don't need to hand a hard copy of the form to the GPD.
3. You need to have your meeting completed by **April 25th**.

Please note that when the form is completed by all faculty you will get a notification. If you haven't received the notification within a day or two, please follow the signature trail to find the person in line to sign next and remind them.

Misc. Notes:

- Students doing the PhD proposal [Section 13] during Spring of the 3rd year can usually roll this meeting into the oral PhD proposal. The completed form is still due by April 25th.

- Although there is no required format for these meetings, most students present 5 – 10 PowerPoint slides on progress and plans (including a review of your material on the "Annual PhD Committee Meeting" form, and an estimated timeline to PhD defense). Typical meetings last ~20 – 40 minutes.

Section 12. Annual PGSA Poster Session

Overview: The annual Physics Graduate Student Association (PGSA) Poster Session takes place on the first Monday before Spring Break in March. This is the flagship event of the annual "Visit Day" for prospective graduate students.

Misc. Notes:

- All Grad Students in 3rd year or higher are expected to present a poster.
- The poster does not have to be new; if convenient, feel free to use one from a recent conference or workshop, etc.

Section 13. PhD Proposal

Overview: The PhD proposal consists of two parts: (1) a written proposal, and (2) an oral proposal. The normal time to do the PhD proposal is in the Spring semester of the 3rd year. The PhD proposal is usually the final step in advancing to PhD candidacy [see Section 14].

Steps:

1. Schedule the oral PhD proposal 3 - 4 weeks in advance. Getting 3 professors in the same place at the same time is notoriously difficult; allow plenty of time to find a suitable date. Reserve room 401 for a 1.5-hour slot (oral proposals typically consist of a 30 - 45-minute presentation, followed by questions from the general audience, and then further questioning by the PhD committee).
2. Exactly **two weeks before** the oral PhD proposal, send your title and abstract to Jen Salmi so she can advertise it on the Department website.
3. At least **one week before** the oral PhD proposal, hand out your written PhD proposal to all committee members.
4. To help make the proposal writing a smooth learning experience, the department has formal guidelines on the proposal length. The current guidelines are 25-35 pages including figures and excluding references (*PhD Proposal Template and Guidelines*).
3. On the day of the proposal presentation please initiate the "Proposal Outcome Form" DocuSign form. This form is intended to provide feedback to you about the quality of the written document and the oral presentation.

Please note that when the form is completed by all faculty and the GPD you will get a notification. If you haven't received the notification within a day or two, please follow the signature trail to find the person in line to sign next and remind them.

Misc. Notes:

- The "PhD Proposal Archive" has moved to electronic form. You can find it on the same Blackboard site that is used to archive past Qual Exams. The site name is "Physics Graduate Programs Archive" and you should be able to find it under "Organizations".
- After your oral PhD proposal, e-mail the final version of your written PhD proposal to the GPD for inclusion in the Archive.
- If necessary, the PhD proposal can be done as late as the Summer of the 3rd year. The key timing constraint is that all students must be admitted to PhD candidacy by the start of the 4th year [see Section 14].

Section 14. PhD Candidacy

Overview: After completing coursework, the PhD qualifying exam, and the PhD proposal, students are eligible to be considered for PhD candidacy. All students must be admitted into PhD candidacy by the start of the 4th year in the program. Failure to do so will result in dismissal from the program.

Background: Based on the recommendation of the Preliminary PhD Committee, the full faculty will vote on whether you should be admitted into PhD candidacy. In formulating its recommendation, the Preliminary PhD Committee will consider all relevant information concerning your potential for performing research at the doctoral level. This includes (but is not limited to) your overall graduate record and your PhD proposal.

Steps:

1. Complete all required coursework (except PHYS 899), complete the PhD qualifying exam, and complete your PhD proposal.
2. As soon as these 3 things are completed, ask your PhD Advisor to bring up your case for faculty vote. This vote will usually take place at the first faculty meeting after your PhD proposal. Faculty meetings are held on the first Friday of each month during the Fall and Spring semesters, and during the final weeks of January and August.
3. If the faculty votes in favor of you advancing to PhD candidacy, promptly initiate and fill the "Application for Admission to Candidacy for the Degree of Doctor of Philosophy" DocuSign form to the Graduate School. The Graduate School will usually approve your application within 1 week.

4. After approval by the Graduate School, you are officially a PhD candidate and can register for PHYS 899. PhD candidates are required to enroll in PHYS 899 each semester until graduation.

Misc. Notes:

- There are several benefits to advancing to PhD candidacy as early as possible. Perhaps the most tangible is the potential for a higher RA stipend [see Section 9].
- The Graduate School hosts a campus-wide "PhD Candidates Ceremony and Luncheon" in the Fall each year. All new PhD candidates from the preceding year are honored. Be sure to invite your PhD Advisor, as you both walk the stage during the ceremony.

Section 15. Final PhD Committee

Overview: All students must form a Final Doctoral Dissertation Examination Committee in accordance with Graduate School policies. This 5-person "Final PhD Committee" is typically comprised of the 3-person Preliminary PhD Committee and 2 additional members. The normal time for students to form the Final PhD Committee is 6 - 8 months before the anticipated PhD defense date.

Steps:

1. Work with your PhD Advisor to design your Final PhD Committee according to the rules found on the "Nomination of Members for the Final Doctoral Dissertation Examination Committee" DocuSign form. Note that you will need an "outside member" (eg. someone from outside of the Physics department) and two people to serve as "readers".
2. Be sure that all nominated members agree to serve on your committee! Some people may refuse, while others may agree to be committee members but not serve as a "reader".
3. Submit the "Nomination of Members for the Final Doctoral Dissertation Examination Committee" form to the Graduate School **at least 6 months before the anticipated defense date.**

Section 16. PhD Dissertation

Overview: All students must write a PhD dissertation per Graduate School policies. The dissertation must be handed out to the Final PhD Committee members **at least 4 weeks before** the PhD defense [see Section 17].

Misc. Notes:

- The bulk of the PhD dissertation should usually be written before the start of the "final semester". The final semester timeline [see Section 18] necessitates that the dissertation be handed out to the Final PhD Committee early in the final semester.
- The Graduate School has strict formatting requirements for the dissertation (margins, pagination, etc.). LaTeX style files and Microsoft Word templates can be downloaded from the Grad School website.

Section 17. PhD Defense

Overview: All students must defend their PhD dissertation before their Final PhD Committee. This is an oral presentation and examination that is open to the public.

Defense date: Although the PhD defense can take place at any time during the year, most students schedule it relative to a May (or December) graduation. When scheduling your defense date, note that the timeline for the final semester [see Section 18] is fairly restrictive:

- **To graduate in May you need to defend by April 23rd at the latest.**
- **To graduate in December, you need to defend by November 23rd at the latest.**

Steps:

1. Schedule your PhD defense date for at least **4 - 6 weeks in advance**. Finding a date that works for all 5 members of your Final PhD Committee can be very difficult. Reserve room 401 for a 2.5-hour slot (PhD defenses typically consist of a 40 - 60-minute presentation, followed by questions from the general audience, and then further questioning and deliberation by the Final PhD committee).
2. At least **4 weeks before** your PhD defense, hand out your PhD dissertation to all members of your Final PhD Committee.
3. At least **4 weeks before** your PhD defense, send your title/abstract and date/time to Jen Salmi so she can advertise it on the Department's website.
4. At least **2 weeks before** your PhD defense, submit the "Certification of Readiness to Defend the Doctoral Dissertation" DocuSign form to the Graduate School. Note that this form requires signatures from your 2 "readers".
5. At least **2 weeks before** your PhD defense, submit the "Announcement of PhD Defense" form to the Graduate School.

Please note that when the form is completed by all faculty and the GPD you will get a notification. If you haven't received the notification within a day or two, please follow the signature trail to find the person in line to sign next and remind them.

Misc. Notes:

- The Grad School will appoint one member of your Final PhD Committee to serve as the "Dean's Representative" and will issue him/her the official "*Report of the Examining Committee*" form. The Dean's Rep is responsible for ensuring proper protocol for the defense.
- After deliberation, the Final PhD Committee must vote on 1 of 3 possible outcomes on the "*Report of the Examining Committee*" form:
    - "Passed the examination and the dissertation is accepted with only minor changes if any". In this case, the PhD Advisor typically certifies the minor revisions.
    - "Passed the examination but the dissertation, requiring significant, non-trivial revision is accepted provisionally". In this case, the Committee develops a timeline and plan for who will certify the revisions. A maximum 60-day deadline is typical.
    - "Failed the examination". If there is to be a re-examination, it must occur within 1 year. Only two attempts are allowed.

Section 18. Graduation

Overview: The PhD degree is awarded after successfully defending the PhD dissertation and submitting the final version of the PhD dissertation to the Graduate School. The PhD degree can be officially conferred (awarded) at the graduate commencement ceremonies in May or December. The degree can also be conferred in August, with students typically coming back to UMBC to participate in the subsequent December commencement ceremony.

Final semester timeline: For May [December] graduation, the final version of the PhD dissertation (ie. after the PhD defense and any subsequent minor revisions) must be submitted to the Graduate School by **April 30th [November 30th].** To allow at least 1 week for minor revisions after the defense (a typical scenario), this means you need to complete your PhD defense by **April 23rd [November 23rd]** at the latest. Working backwards from these dates, this means you need to hand out your PhD dissertation to your Final PhD Committee by **March 23rd [October 23rd]** at the latest.

Steps:

1. Before the start of the final semester, refer to the "Graduation" page of the Grad School website for the most current information about commencement participation, renting academic regalia, etc.

2. Apply for Graduation (via the Grad School website) **by February 15th [September 15th].**
3. Submit your final PhD dissertation and associated paperwork to the Graduate School by **April 30th [November 30th]**.
4. Contact Jen Salmi for instructions on binding your PhD dissertation.
5. Before graduation day, submit the Graduate School's "*PhD Exit Survey*" form.
6. On graduation day, celebrate your achievements! Congratulations…it is official, you are now "Dr. [insert your name here for motivation]"!
7. After graduation, coordinate the return of your keys with Colleen Russell.

Misc. Notes:

- Renting academic regalia is very costly. Be prepared!
- Ensure that your PhD Advisor will attend the graduation ceremony. You will both walk the stage during the "PhD hooding" part of the ceremony.

Section 19. PGSA and GSA

PGSA: The Physics Graduate Student Association was established to improve communication and camaraderie between grad students. The PGSA is comprised of all PHYS and ATPH grad students. Key aspects of PGSA include:

- The annual PGSA Welcome Mixer at Orientation in August.
- The annual PGSA Poster Session on Visit Day in March [see Section 12].
- Happy hours, social excursions, etc.

GSA: The Graduate Student Association is a campus-wide organization. One of GSA's primary goals is supporting graduate student research. Key aspects of GSA include:

- Graduate Experiences, Achievements, and Research Symposium (GEARS) that takes place each Spring semester. This is an excellent opportunity to practice giving a conference talk or poster.
- Travel grants for Graduate Students to attend workshops and conferences!
- The GSA Writing Advisor, who can help with all writing (including research papers, PhD proposals, and PhD dissertations).
- Numerous workshops, events, and seminars are designed to help with your intellectual, professional, and social development.

Section 20. Full-time status & GRAD 601

Overview: All students on TAs and/or RAs must be registered as full-time students. To be considered full-time, you must be registered for at least 9 credits each Fall and Spring semester. There are no formal registration requirements during the summer session.

Misc. Notes:

- If needed, TAs and RAs have the option to register for the "graduate assistant course" GRAD 601 for any Fall or Spring semester. GRAD 601 is not a real course; it simply provides 5 credits towards full-time status (the basic idea is that your TA or RA is an academic activity).
- GRAD 603 is the Summer version of GRAD 601. It provides 2 credits during the Summer session. GRAD 603 can be relevant for some students on Fellowships, and/or those seeking to be FICA exempt during the Summer session.
- There is no tuition or fees associated with GRAD 601 and GRAD 603.

Section 21. PHYS 898 & PHYS 899

PHYS 898 Pre-Candidacy Doctoral Research: PHYS 898 is a variable-credit course (3 – 9 credits) that is billed (tuition and fees) at a 1/3 rate. This course is taken by students who are doing dissertation research but have not yet advanced into PhD candidacy. You should enroll in the number of credits corresponding to your research effort.

PHYS 899 Doctoral Research: PHYS 899 is fixed at 9 credits per semester but is only billed (tuition and fees) at a rate of 2 credits. Once admitted to PhD candidacy, you must register for PHYS 899 every semester. At least two semesters of PHYS 899 are needed for graduation, although most students far exceed this requirement.

Section 22. Offices

Overview: The Physics grad student community is now housed within our newly designated Grad Empire (Rooms 224/225/226). Room 224 serves as the *1st Year Grad Student Office*, while Room 226 is the *Upper-Level Grad Student Office*. Room 225 functions as the *Grad Collaboratory*, which now serves as the central hub of graduate student life—bringing together all graduate students, including those with personal desks in 224/226 and those with workspaces elsewhere in the building.