

Physics Ph.D. Program Information, Policies, and Procedures

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This document contains current information, policies, and procedures for Physics Ph.D. students at the University of Washington.

Content

1. General Policies of the Graduate School
2. General Policies of the Physics Department
3. Graduate School Doctoral Degree Requirements
4. Physics Department Doctoral Degree Time Line
5. Physics Department Graduate Course Requirements
6. Master's Review
7. Research, General and Final Examinations
8. Satisfactory Progress
9. Financial Support
10. Advising and Mentoring
11. Terminal Master's Degree Options

1. General Policies of the Graduate School

The information in this section is a summary of the *Graduate School web page*, “*Instructions, Policies, and Procedures for Graduate Students*”, which contains a comprehensive listing of all Graduate School policies as well as additional information on the topics listed below. This summary reflects the requirements at the time of the latest update of this document. Be aware that this might change. The Graduate School policy is that:

“A student must satisfy the requirements for the degree that are in force at the time the degree is to be awarded”.

- Master's Degree Course Requirements

The Master's degree is the first step towards the doctoral degree. The course requirement for the Master's degree is 36 credits, 30 of which must be taken at the University of Washington. Course grades below 2.7 do not count towards the 36 credits total but are included by the Graduate School in the cumulative grade point average (GPA). At least 18 credits must be in courses numbered 500 and above. 18 credits must be numerically graded in 500 level courses or department approved 400-level courses. No more than 6 graduate level quarter credits can be transferred from other academic institutions to count towards

the 36 credits total. A minimum cumulative GPA of 3.0 is required for a graduate degree at the University.

- Doctoral Degree Course Requirements

The course requirement for the doctoral degree is 90 credits, 60 of which must be taken at the University of Washington. With the approval of the degree-granting unit, an appropriate Master's degree from an accredited institution may substitute for 30 credits. Numerical grades must be received in at least 18 quarter credits of course work taken at the UW prior to scheduling the General Examination. Only courses numbered 400, 500, 600, 700, and 800 can be applied to enrollment or course credit in the major field for advanced degrees. A minimum cumulative GPA of 3.0 is required for a graduate degree at the University.

- Full-Time Enrollment

Full-time quarterly enrollment for graduate students starts at **10 credits**. Students with a Teaching or Research Assistant position during the academic year (autumn, winter, and spring quarter) must enroll full-time.

- Summer Quarter Enrollment

Students are not required to enroll for Summer Quarter to maintain continuous enrollment; however, students who accept a Teaching or Research Assistant position for Summer Quarter should enroll for at least **2 credits** to maintain full-time student status for Summer Quarter. Enrolling for more than 2 credits as Research Assistant leads to higher tuition bills charged to the funding research grant.

Students who received financial aid before entering our graduate program should be aware that: "It is important to note that differing criteria and standards for full-time enrollment exist for eligibility in certain programs. Consult the Financial Aid Office for its requirements on satisfactory student progress". See the *UW Registration Policies WEB site*.

- Graduate Courses

Graduate courses are intended for and ordinarily restricted to students enrolled in the Graduate School and are given numbers from 500 through 800. Some courses at the 300 and 400 levels are open both to graduates and to upper-division undergraduates. Courses at the 300 level are not included in the calculation of grade-point average (GPA) and will not apply towards the minimum Graduate School requirement of 18 graded credits for the Master's or doctoral degree.

- Grading System for Graduate Students

Grades for graduate students are reported and entered as numbers, the possible values being 4.0, 3.9, 3.8, . . . and decreasing by one-tenth until 1.7 is reached. The Registrar records grades below 1.7 as 0.0 and no credit is earned. A minimum of 2.7 is required in each course that is counted towards a graduate degree. A minimum cumulative GPA of 3.0 is required for graduation. All course grades below 2.7 are also included in the cumulative GPA. Only core physics graduate courses are numerically graded. All other Physics graduate courses are CR/NC only. This means that it is quite difficult for your GPA to recover from a very low course grade.

- Course Withdrawal

It is the students own responsibility to withdraw from a course. You may withdraw via MyUW, or in person, or by mail at the Registration Office, 225 Schmitz Hall, Box 355850,

University of Washington, Seattle, Washington, 98195-5850. The *Office of the University Registrar* offers more information on withdrawal policies.

- Repeated Courses

Graduate students may repeat any course. Both the first and second grades will be included in the cumulative GPA. Subsequent grades will not be included, but will appear on the permanent record. The number of credits earned in the course will apply towards degree requirements only once.

- On-Leave Status and Continuous Enrollment

Graduate students are required to maintain graduate status during their program of study. Students who need to take one quarter or several quarters off can apply for On-Leave status. Failure to maintain either continuous enrollment or On-Leave status constitutes evidence for the Graduate School that the student has resigned from the Graduate Program. Returning from that status requires a formal petitioning for reinstatement to the University of Washington.

The Graduate School normally allows six years to complete a Master's degree and ten years for a doctoral degree. Periods spent On-Leave or out of status are included in this count.

Students requesting On-Leave status must submit an online *Request for On-Leave Status* via *MyGrad*. For a given quarter students can submit the request during the quarter and as early as two weeks prior to the first day of instruction. Pre-registered students must officially withdraw via MyUW or in person at the Registration office prior to the first day of the quarter. Students who are/were registered at any time during the quarter are not eligible for On-Leave status. On-Leave status is granted on a quarterly basis and requires the graduate student is in good standing. Refer to *Graduate School Memorandum 9* for more details.

The Department needs to review/approve every On-Leave status request. On-Leave status is typically limited to a total of one year maximum.

- Language Competency Requirements and Examinations

Students from English-speaking countries admitted to the Graduate School are presumed to be competent in the English language. Students from non-English-speaking countries must demonstrate a satisfactory command of English for admission to the program and also for appointment as teaching assistants. These are treated as two separate issues, and two separate sets of rules apply:

- An **English language proficiency test score above 92 on the TOEFLiBT** exempts a student from Academic English Program (AEP) requirements for admission to the Graduate Program. For details see *Graduate School Memorandum No.8, "English Language Proficiency Requirements"*.

International students with a **Toefl score below 92** are strongly advised to improve their score between admission and the start of classes in September. Otherwise, required AEP courses need to be taken immediately starting in the Autumn quarter. Tuition for those courses is charged separately, is not covered by TA and RA appointments, and is the responsibility of the student.

- A **spoken English proficiency test score above 26 on the speaking portion of the TOEFLiBT**, or a score above 230 on the SPEAK test (administered by the University

of Washington) is **required for Teaching Assistant** duties. For details, see *Graduate School Memorandum No. 15, "Conditions of TA Appointment who are not Native Speakers of English"*.

- Low Scholarship/Unsatisfactory Progress

Admission to the Graduate School allows students to continue graduate study and research at the University of Washington only as long as they maintain satisfactory performance and progress towards completion of their graduate degree program.

Students whose cumulative or quarterly GPA falls below a 3.0 will be reviewed quarterly and be provided if needed with an explanation of performance expectations and a timetable for correction of deficiencies. Doctoral program students are to be reviewed by their doctoral supervisory committee after such a committee has been appointed, and before that by the graduate faculty members designated to oversee the individual student's progress.

2. General Policies of the Physics Department

The following additional general policies are specific to the Physics Department.

- Teaching

In recognition of the importance of teaching experience in the education of a physicist, the Physics Department requires such experience of all prospective candidates for the Doctoral degree. Most students serve as teaching assistants at some point in their graduate career to fulfill this teaching requirement. Students who want to apply for a waiver because of previous relevant teaching experiences should contact the graduate program coordinator.

- Student Conduct Code

Graduate students are required to behave in accordance with the Student Conduct Code for the University of Washington.

- Positive Work Environment

The Physics Department is committed to ensure that students experience a positive and productive work environment in their labs, offices, and classrooms. Graduate students are expected to avoid behavior that could be considered offensive or improper by fellow graduate students. Students are encouraged to consult with the graduate program adviser, the graduate program coordinator, or the department chair when issues arise. The same confidentiality policy applies for consultations as for complaints.

- Complaint Policy

The Physics Department is committed to ensuring that students have a positive graduate school experience. To this end, the department makes every effort to prevent and respond to problems. Refer to the current Physics Department Policy and Procedure for Reporting and Handling Graduate Student Complaints document for details.

3. Graduate School Doctoral Degree Requirements

The information in this section is a summary of the Graduate School doctoral degree requirements. The Graduate School *Doctoral Degree Requirements* WEB page has more detailed information.

It is the responsibility of the student to meet the following Graduate School minimum requirements to qualify for the doctoral degree. **A student must satisfy the requirements that are in force at the time the degree is to be awarded.**

- A minimum of 90 credits must be completed (a Master's degree from the UW or another institution may be used as a substitute for 30 credits of enrollment).
- A minimum of 60 credits must be completed at the University of Washington.
- At least 18 credits of UW course work at and above the 500 level must be completed prior to the General Examination.
- At least 18 numerically graded UW credits of 500 level courses, and approved 400 level courses, must be completed prior to the General Examination.
- At least 60 credits must be completed prior to scheduling the General Examination. A Master's degree from the UW or another institution may be used as a substitute for 30 of these 60 credits.
- A minimum of 27 dissertation credits (so-called Physics 800 credits) spread out over a period of at least three quarters must be completed. At least one of those three quarters must come after the student passes the General Exam. Except for summer quarters, students are limited to a maximum of 10 dissertation credits per quarter.
- A minimum cumulative GPA of 3.00 must be maintained.
- The General Examination must be successfully completed.
- A dissertation accepted by the Graduate School and the reading committee must be submitted.
- The Final Examination must be successfully completed.
- Registration as a full- or part-time graduate student at the University must be maintained, including for the quarter in which the examinations are completed AND the quarter the degree is conferred.
- All work for the doctoral degree must be completed within ten years.

- The following doctoral degree requirements may impact progress:

- If a student enters the UW with a Master's degree or equivalent from elsewhere, he or she must satisfy the requirement of taking 18 graded credits in 500 level courses, or approved 400 level courses at the University of Washington before the General Examination is scheduled.
- A candidate must register for a **minimum of 27 credits of Physics 800 over a period of at least 3 quarters** in which at least one quarter comes after the student passes the General Examination. Scheduling the General Examination too close to the Final Examination may lead to a deficiency in Physics 800 credits.
- The Final Examination may be scheduled if: (a) a student passed a General Examination in a previous quarter; and (b) a reading committee is officially established with the Graduate School; and (c) the reading committee has read an entire draft of the dissertation; and (d) the entire supervisory committee has agreed that the student is prepared and has approved the student to schedule a Final Examination. At least four members of a supervisory committee must be present at the examination, i.e., the Chair and the Graduate School

Representative must both be present, as well as at least two additional Graduate Faculty members.

4. Physics Department Doctoral Degree Timeline

The Physics Department closely monitors that our Graduate students make satisfactory progress towards the degree. Details of this can vary between research areas and individuals, but can not deviate much from the following example time line.

- Pass the first year required Basic Core Courses: Phys 513-514 (E&M, Autumn & Winter), Phys 517-518 (Quantum, Autumn & Winter), Phys 524 (Stat Mech, Autumn), Phys 505 (Classical Mechanics, Spring), and Phys 528 (Introduction to Research, Autumn).
- Pass the Master's Review (MR). Many students pass the MR as early as the end of the Spring quarter of their first year by having passed all four so-called Master's Review Exams (MRE). They cover 4 topics: Electro-Magnetism (EM), Quantum Mechanics (QM), Statistical Mechanics (SM), and Classical Mechanics (CM).

Those MRE's are integrated with the final exams of the following 4 Graduate Courses: Ph524 (SM, Autumn), Ph518 (QM, Winter), Ph514 (E&M, Winter), and Ph505 (CM, Spring). The QM and E&M MRE's cover all material of the Fall and Winter quarters of these two core Physics Course sequences.

A second common pathway to passing the MR, by as early as the start of the second year, is to pass 3 of the 4 MRE's and having documented established research.

The Master's Review must be passed before the start of the third year.

- Students who pass the MR are eligible for their Master's degree provided that Graduate School course credit and grade point average requirements have been satisfied. You must apply for this *Non-Thesis Master's Degree* yourself on the Graduate School Master's Degree Request web page in a quarter you are enrolled.
- Pass the first year required Advanced Required Core Courses:
Phys 525 (Stat Mech, Winter), Phys 515 (E&M, Spring), and Phys 519 (Quantum, Spring).
- Search actively for a research home and faculty research adviser. This starts in the Fall of the first year with signing-up for the required course Phys 528, followed by the requirement to sign-up for one credit Physics 600 in the winter quarter with a research group of your choice, and proceeds with more credits of Physics 600 in the first year Spring and Summer quarters. Switching research groups during the first two years is not uncommon. Postponing more than one of the required first year Spring graduate courses for more Phys 600 independent research credits can be an option but needs to be approved by both your first year faculty adviser and the graduate program coordinator.
- Find a Research adviser and become fully established in a research group before the end of the 2nd year at the latest. This switch between highly structured classroom oriented undergraduate study and unstructured research oriented self study tends to be the most difficult task of your graduate career.
- Complete all required courses before the General Exam (See list below).

- Establish a Supervisory Committee within one year after finding your definite research adviser. The make-up of this committee requires approval of your research adviser and also of the graduate program coordinator.
- Take the General Examination in the third or fourth year in our program.
- Register for Physics 800 (Doctoral Thesis Research) instead of Physics 600 in the quarters immediately before/following passing the general examination.
- Establish a Reading Committee well in advance of planning the Final Examination.
- Submit your PhD thesis draft to the Reading Committee several weeks before the Final Examination.
- Take the Final Examination in the 5th or 6th year.
- Submit the PhD thesis (and the reading committee signatures form) to the Graduate school after your Final Exam typically before the end of the same quarter.

This timeline for competing the PhD applies to **students entering the program with a typical undergraduate preparation**, i.e., with 300 level undergraduate courses in Quantum Mechanics, Electricity and Magnetism, Classical Mechanics, Statistical Mechanics, Mathematical Physics, and a senior-level survey course. Significant deviations from this time line need to be approved by the Graduate Program coordinator. Two common scenarios for this are:

- **Entering Ph.D. Students with insufficient undergraduate course work preparation** typically require more time. It is crucial to identify this early. (Do not feel bad about this. It does not reflect on your abilities nor future success in our PhD program.) Discuss this with your first year faculty adviser, during orientation, and certainly again within the first few weeks of the first Autumn quarter.

This can lead to deferring one or more of the first year required courses and corresponding Master's Review Exams. It can also involve taking junior or senior level physics courses before taking the first year graduate-level courses. These actions need to be discussed with your first year faculty adviser and then be approved by the Graduate Program Coordinator. You must not delay finding a research group and adviser. The final Master's Review decision still takes place at the start of the 3rd year and research is an important component in this decision.

- **Entering Ph.D. students with advanced standing**, with for example, a Master's degree in Physics or transferring from another university after completing one or more years in a Physics Ph.D. program, often graduate in their 3rd or 4th year in our program. Certain required classes can be waived (but typically not the corresponding Master's Review Exams) and credit might be transferred. These need to be discussed with your first year faculty adviser and then be approved by the Graduate Program Coordinator.

5. Physics Department Graduate Course Requirements

The Physics Department requires all students to take a set of **core courses** and also to satisfy a **breadth course requirement**. The latter includes at least two elective courses offered by the Physics Department in areas outside your thesis research.

All students **must complete ALL** required courses before taking their general **examination**, including the breadth course requirement.

Canonical First Year Course Sequence:

Course (credits)	Title
Autumn Quarter	
Phys 513 (3)	Electromagnetism
Phys 517 (4)	Quantum Mechanics
Phys 524 (4)	Statistical Mechanics
Phys 528 (1)	Introduction to Research
Phys 501 (1)	Tutorials in Teaching Physics (For students holding a TA)
Winter Quarter	
Phys 514 (4)	Electromagnetism
Phys 518 (4)	Quantum Mechanics
Phys 525 (3)	Statistical Mechanics
Phys 600 (1)	Independent Study
Phys 502 (1)	Tutorials in Teaching Physics (For students holding a TA)
Spring Quarter	select 3 from first 4:
Phys 505 (3)	Classical Mechanics
Phys 515 (4)	Electromagnetism
Phys 519 (4)	Quantum Mechanics
Phys 600 (1)	Independent Study
Phys 503 (1)	Tutorials in Teaching Physics (For students holding a TA)

- Core Graduate Courses

The following **Basic Core Courses** are linked to the Master's Review,

Basic Required Core Courses

Course	Title
Phys 505	Classical Mechanics
Phys 513-514	Electromagnetism
Phys 517-518	Quantum Mechanics
Phys 524	Statistical Mechanics

The following **Basic Core Course** gives an overview of the type of research pursued in our Department and helps finding a research group.

Basic Required Core Course

Course	Title
Phys 528	Introduction to Research

The following **Advanced Core Courses** are also taken during the first year.

Advanced Required Core Courses

Course	Title
Phys 525	Statistical Mechanics
Phys 515	Electromagnetism and Relativity
Phys 519	Quantum Mechanics

- Physics 600, Independent Study/Research

The department requires that all first year students begin the process of exploring research opportunities within the department or with adjunct faculty in other departments as soon as possible, in particular starting the winter quarter of the first year after being exposed to a selection of research options in the Physics 528 course during the autumn quarter.

Students must register therefore for at least one credit of Physics 600 in both the winter and spring quarter, e.g., to attend weekly research group meetings (with no obligation from either side to continue the relationship beyond that quarter).

Some students can benefit from pursuing more research during their first year. They can contemplate deferring one or more of the *Advanced Required Core Courses* to the second year and replace them with Physics 600 independent research credits during the first year. Such deferrals can impact passing the Master's Review negatively. To avoid that, any such

actions require formal and documented approval by both your Academic Adviser and the Graduate Program Coordinator.

Such course deferrals only apply to the *Advanced Required Core Courses*. Deferral to the second year of *Basic Required Core classes* and their corresponding Master's Review exams for the purpose of pursuing more research is not allowed. In special circumstances you can formally petition and meet with the Graduate Program Coordinator for approval.

During their first Summer quarter, students are expected to continue their research and/or investigating potential research groups by registering for Physics 600.

Documentation of Phys 600 type research is an integral part of the Master's Review. Therefore, a brief report by both the student and the faculty member is expected (if applicable) in the first Annual Report. The graduate program coordinator is likely to request additional brief reports when needed for the Master's Review Committee meetings.

Typically, students increase their quarterly number of Phys 600 credits steadily during their second and third year. Students holding full or partial research assistantships must register for at least 2 credits of Phys 600 with the faculty member supervising their research.

Do not register for more than 2 Phys 600 credits while you hold a full RA during the Summer because that increases the tuition bill charged to the research grant.

Research Area Specific Breadth Courses

Course	Title
Phys 506	Numerical Methods
Phys 507	Group Theory
Phys 511	Topics in Current Physics
Phys 550	Atomic Physics
Phys 554	Nuclear Astro physics
Phys 555	Cosmology, Particle Astrophysics
Phys 557	High Energy Physics
Phys 560	Nuclear Theory
Phys 564	General Relativity
Phys 567	Condensed Matter Physics
Phys 570	Quantum Field Theory

- Breadth Course Requirement

All students are required to pass at least two courses in Physics areas different from their own PhD research to satisfy the Departmental so-called **Breadth Course Requirement**. Those courses are typically taken during the second or third year. These can be any advanced Physics Graduate course outside your own research area.

They need to be Physics courses. The Breadth course requirement represents “breadth within Physics”. You are encouraged to take courses offered in other Departments on campus, but those do not count towards this requirement. Consult with the graduate program coordinator on which courses you propose to take towards the breadth requirement. Your choice needs formal approval by the graduate program coordinator at the time you set-up your Supervisory Committee.

The advanced courses listed above are taught in a non-specialized manner ensuring accessibility to all graduate students. Some of them are offered every other year.

- Advanced PhD research specific courses

In addition to satisfying the core and breadth course requirement, **all students are expected to take all appropriate advanced courses and seminars related to their own research area.** This is done in consultation with your research adviser.

These courses include seminars and journal clubs dedicated to special topics organized by the specific research group, and also special topics courses that are offered regularly. Students are invited to request and suggest specific special course topics.

All graduate students are expected to attend the weekly departmental colloquium and also the seminars in their fields of specialization. They are also expected to seek broad knowledge in areas of physics outside their direct research. Students are encouraged to explore related fields such as mathematics, engineering, biological sciences, or other natural sciences.

6. Master’s Review

The Master’s Review Committee (MRC) reviews the progress of first year graduate students at the end of the Spring quarter of the first year. The MRC decides whether students can continue towards a PhD or not. This review, if needed, continues throughout the second year. A final decision must be made before the start of the third year at the latest and will be based on an evaluation of the comprehensive record of the student.

The Master’s Review includes the performance in the 4 Master’s Review Exams (MRE). These MRE exams are integrated with the final exams of the four corresponding first year graduate courses: Phys 524 (in the autumn), Phys 514 and Phys 518 (in winter), Phys 505 (in spring). The exams are written and graded by the course instructors and the exam committee. These final exams test the doctoral candidate’s competency across a broad spectrum of core subjects.

Students who pass all four MRE’s automatically pass the Master’s Review. A significant fraction of the first year graduate students therefore pass the Master Review automatically as early as the start of their first year Summer Quarter.

Students who pass three of the four final exams can pass the Master’s Review as early as the Fall of their second year based on a strong comprehensive record (typically strong research and strong class grades).

Students can retake specific exams during their second year. A special second year preparatory graduate course is being offered in the Winter quarter for second year students who need to retake exams.

The Master's Review Committee evaluates the students performance in a comprehensive manner. Research potential/achievements, MRE performance and course grades play a central role while all other relevant aspects are considered too.

Students who do not pass the Master's Review before the start of their third year are required to leave our PhD Graduate program. They are typically allowed to earn a thesis-based terminal Master's degree, provided their research warrants this and that their grade point average is above 3.0 or close enough to this Graduate School requirement that it can be raised to a 3.0 within one quarter.

Students who pass the Master's Review receive their Master's degree provided that Graduate School course credit and grade point average requirements have been satisfied. This will not happen by itself however. **You must apply for this so-called "non-thesis Master's Degree" yourself on the Graduate School Master's Degree Request web page.**

7. Research, Advisers, General and Final Examinations

- Finding a Research Group

Every student is expected to find a research adviser before the end of the second year, preferably much sooner, and commence independent Ph.D. research under his or her supervision. A student informs the graduate program coordinator when she/he has established a research home.

Your **first-year faculty adviser** remains your main faculty consultation resource until you find your **research adviser**. After your first year, you select also a **faculty mentor**, a person different from your research adviser, who can assist and advise you with issues not immediately related to your specific research.

The graduate program coordinator is always available for advice. This becomes important in particular if you find yourself still unsure about your research direction during the second year or when you need to switch research groups then or even later.

- Research advisers beyond the Physics Department

Physics graduate students typically have regular Physics faculty members or adjunct faculty as their research advisers, but you can start research also with any faculty member on campus in any department. It is strongly advised to consult and inform the PGC and GPA of this immediately. The following special rules apply. The student needs to identify, in consultation with the GPC, his/her Faculty Mentor immediately upon starting research with this non-Physics faculty member. The Faculty Mentor must be a regular Physics faculty member who is already knowledgeable or willing to become so about the type of research the student wants to pursue. The Faculty Mentor discusses the proposed research with both the student and the outside Faculty member at the start of the project, and reports to the GPC. The Faculty Mentor stays in touch with both the student and the adviser and reports to the GPC on a quarterly bases about student progress as well as the prospects of this research leading to a Physics PhD.

- Composition of the Doctoral Supervisory Committee

Every student is expected to establish a doctoral supervisory committee within one year of finding the research adviser and when the research is well on its way.

The doctoral supervisory committee guides and assists a student in working towards a doctoral degree and is expected to evaluate the student's performance throughout the program. The roles and responsibilities of voting members, chair, graduate school representative (GSR) and student are specified in the *Graduate School document "Doctoral Supervisory Committee Roles and Responsibilities"*.

The *Graduate School Memorandum No.13, "Supervisory Committee for Graduate Students"* contains details regarding the composition of a doctoral supervisory committee. The Physics Department has adopted its own policy regarding the standard composition of the committee:

The standard composition of a Physics supervisory committee includes at least:

- The Committee Chair, typically your research adviser.
- Another faculty member in the same research field.
- A theorist from the same flavor as your own experimental research, or an experimentalist of the same flavor when you are a theorist.
- A faculty member from another area of physics (can be a theorist or experimentalist).
- One member, other than your Research Adviser, should be designated as your Faculty Mentor. This can be one of the members listed above or an additional member of the committee.
- The GSR (Graduate School Representative), who cannot have a faculty appointment in the Physics Department. It is your responsibility to find a GSR for your committee. The process of finding a GSR can take a few hours or a few weeks. This often depends on contacts that your Committee Chair or other committee members have with faculty from other departments.

It is common practice to add more members to your committee than mentioned in the above list. At least three committee members should be regular Physics department faculty (i.e., not adjuncts or affiliates).

In case your research adviser is from a different Department at the UW, and does not hold Adjunct status in our department, then your faculty mentor must be a regular Physics Faculty member, and will be the one who acts as official Chair of your Supervisory Committee.

Your faculty adviser and your mentor form the core of your doctoral supervisory committee. The Department encourages you to select your mentor well before you set-up your doctoral supervisory committee. Make sure this faculty member agrees to be your mentor.

- Doctoral committee for students with non-regular physics PhD advisers:

The chair of the Physics Doctoral Committee can be a non-Physics faculty member of the UW who holds a graduate faculty appointment. The student must form her/his Doctoral Committee well before the General Exam. The student's Faculty Mentor must be a regular physics faculty member and must be a member of the Doctoral Committee. The Doctoral

Committee must include at least 3 regular physics faculty members and they must be present at the General and Final Exams.

- Steps in Establishing a Doctoral Supervisory Committee

You discuss with your research adviser and mentor which other faculty should be on your doctoral supervisory committee. You ask all these faculty members in person whether they are willing to serve on your committee.

After gaining consent from the faculty members to serve on your committee, you complete the online Supervisory Committee Form on the Physics Department WEB site and submit it electronically to the graduate program coordinator. The graduate program coordinator (1) checks that all required courses have been taken, (2) approves the committee, and (3) informs the graduate program adviser, who creates the committee at MyGrad (the Graduate School administrative system). Once this has been processed, the student, the committee members, and the graduate program assistant receive an email from the Graduate School confirming the doctoral supervisory committee has been officially established. The Graduate School suggests your committee to be created at least four months before the General Examination be scheduled.

- Report on Progress

The doctoral supervisory committee is responsible for monitoring student progress. Every member of the supervisory committee is responsible for the progress of the student and for the quality of the degree being sought. The graduate program coordinator checks on the progress at least once a year, in the Spring, at the time of the **Annual Activities Report**.

The Physics Department expects students enrolled for fewer than five years to meet annually with their research adviser, mentor, and a quorum (at least two voting members) of their doctoral supervisory committee. The GSR is not expected to attend the meeting. Students are not required to submit a report, but are strongly recommended to combine this requirement for an annual meeting with their Annual Activities Report.

Students enrolled for five or more years are **required** to meet annually with their research adviser, mentor, and a quorum (at least two voting members) of their doctoral supervisory committee. The GSR is not expected to attend the meeting. Students are required to submit a report signed by those committee members to the department chair and the graduate program coordinator. A failure to meet annually represents unsatisfactory progress.

The General Examination counts as an annual meeting of the doctoral supervisory committee.

- Special reporting requirements for students with non-physics PhD advisers:

The student must meet quarterly with the Faculty Mentor. The student must meet annually with the full Doctoral Committee. The three regular Physics Faculty members on the committee must report in the Student Annual Report on the progress of the research and how it fits within Physics. The Reading Committee must include 2 regular physics faculty members and they must report to the GPC in the "Draft of Thesis Report" not only on the status of the draft but also comment on and concur that in their opinion the thesis represents Physics Research.

- The General Examination

The usual form of a General Examination in the Physics Department is a public presentation of research already completed and research proposed, followed by a closed examination with only members of the graduate faculty. A student should schedule the General Examination at the earliest time agreeable with the Supervisory Committee.

- Sequence of steps to set-up the General Examination

1. The student arranges with the members of the supervisory committee, the date, time, and location of the exam (often room C520 in the Physics Tower).
2. The student reserves the room (and visual equipment such as a projector) him/herself with the Physics Main office.
3. The student applies for the General Examination on the MyGrad WEB site. The Graduate School must receive requests to schedule exams 3 weeks beforehand.
4. Hold the exam. You are strongly advised to send reminders to all members of your committee the day before, and also immediately beforehand, including details of the location.

- Research credits after passing the General Examination

Students need to **register for Physics 800 instead of Physics 600**. A minimum of 27 dissertation credits (Physics 800) over a period of at least three quarters must be completed in which at least one quarter comes after the student passes the General Examination. With the exception of summer, students are limited to a maximum of 10 dissertation credits (Physics 800) per quarter. This implies that the Final Examination can not take place until 3 quarters after the General Exam, unless pre-planned with taking 800 credits before the General Exam.

- Reading Committee

The reading committee consists traditionally in the Physics Department of **three members of the doctoral supervisory committee**. The research adviser acts as reading committee chairperson. The Graduate School Representative cannot be a member of the reading committee.

- Establishing a Reading Committee

After gaining the consent of the faculty to serve on the reading committee, the student completes the online Departmental Reading Committee Form and submits it electronically to the graduate program coordinator, who approves the committee, informs the graduate adviser, who sets-up the Reading Committee in MyGrad (the Graduate School administrative system). Once this has been processed, the student, the committee members, and the graduate program assistant receive an email from the Graduate School confirming the reading committee has been officially established.

- The Final Examination and the PhD thesis

The Final Examination is an oral presentation and defense of a student's dissertation. In the Physics Department, the format is similar to that of the General Examination.

The PhD thesis must be almost completed and this draft must be accessible during the Final Exam. The dissertation must be in a state that ensures it can be submitted within the time frame required by the Graduate School.

- Sequence of steps in setting-up the Final examination

1. The student prepares a draft of the PhD thesis in consultation with the Research Adviser.
2. The student arranging with the members of the supervisory committee, the date, time, and location of the Final Examination (often room C520 in the Physics Tower).
3. The student reserves the room (and visual equipment such as a projector) him/herself with the Physics Main office.
4. The student submits the final draft of the PhD thesis to all reading committee members.
5. The student applies for the Final Examination on the Graduate MyGrad WEB site.
6. The reading committee must inform the graduate program coordinator about the current status of the thesis by means of a completed Departmental Thesis Draft Report Form, or by individual e-mails from every member of the reading committee. The graduate program coordinator approves the Final Examination Request only when the dissertation can be expected to be submitted within the time frame required by the Graduate School.
7. Hold the Final exam. You are strongly advised to send reminders to all members of your committee the day before and also immediately beforehand, including details of the location.
8. The completed dissertation must be submitted to the Graduate School by the last day of the quarter to have the degree conferred in the same quarter as the Final Examination.

You must be enrolled both at the time of your Final Examination and at the time you submit the thesis.

Dissertation submission is done electronically. Be aware that this requires also electronic submission of handwritten signatures on the Graduate School Reading Committee Form.

8. Satisfactory Progress

- Graduate School Rules

The Graduate School requires that students complete all work for the doctoral degree within ten years of admission to the Graduate School. This includes quarters spent On-Leave (or out of Graduate Student Status) as well as time for a Master's degree from the University of Washington, or a Master's degree from another institution (if used to substitute for credits of enrollment).

The Graduate School requires a minimum grade point average (GPA) of 3.0 for Master's and PhD degrees. The Department tracks low scholarship and cumulative grade point averages quarterly. It is very difficult to recover from, e.g., a 0.0 grade, given the relative small pool of numerically graded graduate courses.

It is the responsibility of the student, department (chair, graduate program coordinator, academic adviser, and graduate program assistant) and the supervisory committee to make sure that a student is making satisfactory academic progress.

- Physics Department Guidelines on Satisfactory Progress

The above typical Ph.D. Timeline and the Program Sequence sections serve as guide to determine whether you are making satisfactory progress. Students must be making satisfactory progress to continue their Teaching and/or Research Assistantships.

In summary:

1. The Master's Review must be passed prior to the start of the third year.
2. All students are expected to have found a research home and a doctoral adviser before their third year in our graduate program
3. All students are expected to meet regularly, at least quarterly, with their faculty advisors.
4. All students are expected to be enrolled in Physics 600/800, starting in the Winter of their first year.
5. The Doctoral Supervisory Committee needs to be established before the end of the fourth year at the latest.
6. The General Examination is expected to take place during the third or fourth year.
7. Students and their advisers are expected to aim for not more than 6 years between entry into the Physics Graduate Program and completion of the Ph.D. In recent years the median time is close to 6 years.

Moreover, all students are required to complete an Annual Activities Report, every spring quarter. This report includes comments from their faculty adviser or research adviser, as well as a proposed time schedule for finishing the degree. These reports help students to maintain satisfactory progress and encourage adviser-student contact. The graduate program coordinator reviews the reports and meets with students and/or their advisers when progress appears slow.

- Low Scholarship/Unsatisfactory Progress

Formal action may be taken at the Graduate School sanctioned levels in the absence of satisfactory progress, and after all informal approaches have been unsuccessful.

The lowest level of formal action is "Warn". This has no long-term consequences yet, and is not reported officially to the Graduate School.

The second formal level is "Probation". This is reported to the Graduate school and usually comes with a schedule for completion of various requirements.

The third level is "Final Probation". This is also reported to the Graduate school. This can come only after "Probation," and leads to termination of enrollment if the requirements are not met by the end of the quarter. If a student is placed on "Probation", a definite timetable for remedying the situation is required. Only "Final Probation" can lead directly to termination from the program.

9. Financial Support

Most full-time graduate students in Physics are supported as teaching assistant (TA) and/or research assistant (RA). There are also a number of scholarships, fellowships, and awards that provide financial support. All TAs and RAs are classified as “Academic Student Employees” (ASE). These positions provide a stipend, a tuition waiver, and health insurance benefits.

- Teaching and Research Assistants

TAs are employed by the University to assist faculty in their teaching activities. TA assignments include: teaching the undergraduate labs, grade homework and exams, design learning exercises, and meet with students during office hours. Students are required to enroll in a training course for Teaching Assistants in Physics during their first year as TA. Students from non-English-speaking countries must pass the English Speak language requirements.

RAs are employed by the Department to assist faculty with specified research projects, and are funded through the research grants held by members of the faculty. RAs are generally expected to be full-time students and to be working on individually specified research.

First-year students are often provided full TA support during their first academic year as part of their admission offer. Some entering students received RA support or a special fellowship.

The Department aims to provide financial support for all students making satisfactory progress and has been successful in this for many years, but financial support cannot be guaranteed because this is based on research grants and state funds.

Support beyond the second year is typically in the form of an RA or an RA/TA combination. It is the responsibility of the student to find a research adviser and research (RA) support.

A student beyond the 2nd year who is not actively involved in research with an identified faculty advisor, is deemed to be making unsatisfactory progress and is likely to lose TA support.

The number of TA positions is much more limited during the summer quarter than during the academic year. Therefore it is important for all students to seek Summer RA opportunities. This applies also to first-year students.

Students accepting TA or RA positions at the University are required to register as full-time graduate students (a minimum of 10 credits in the academic year, and a minimum of 2 credits in the summer quarter) and serve 20 hours per week.

- Academic Student Employees (ASE)

All TAs and RAs at the university are classified as “Academic Student Employees” (ASE). Such positions are governed by a contract between the UW and the International Union, United Automobile, Aerospace and Agricultural Implement Workers of America (UAW), AFL-CIO and its Local Union 4121 (UAW). The UW/UAW contract can be reviewed at the UW Labor Relations Web site. An union representative will contact you with information about membership and fees.

- Salaries and Promotions

Students entering the Physics PhD program are paid at the “Assistant” level (Teaching Assistant or Research Assistant).

Students receive a promotion to “Associate I” level (Predoctoral Teaching Associate I or Predoctoral Research Associate I) starting at the first pay period after passing the Master’s Review.

Students receive a promotion to “Associate II” level (Predoctoral Teaching Associate II or Predoctoral Research Associate II) starting at the first pay period after passing the General Examination.

Summer quarter courses run one month shorter than during the academic year. Summer TA employment is therefore also one month shorter. For this reason the salary for students serving as TA during summer quarter is increased accordingly.

10. Advising and Mentoring Program

- Academic Faculty Advisors

Every first-year student is assigned to an academic faculty adviser, with whom he or she meets regularly to discuss courses, general progress, and to review the Department and University requirements. During the Spring quarter every student completes with her/his faculty adviser the first Annual Activities Report. The academic adviser also provides advice on how to make contact with research groups.

The faculty member maintains this role until the student is well established with a research adviser. The entire doctoral supervisory committee takes up this mentoring role for advance students, particularly the research adviser and the research mentor.

- Peer Mentoring Program

The department has an evolving peer mentoring program. First-year students are paired with student mentors, typically second-year or a more advanced student, who have volunteered to do this. These peer mentors are in regular contact with the first-year students throughout the year and aim to ease the transition to graduate school by sharing their experiences and provide support and advice. There is usually one social “tea” each quarter to which all peer mentors and mentees are invited. In addition, mentors meet individually with their mentees once or twice each quarter during the first year. Details can be found on the Departmental Advising and Mentoring Program web site.

11. Master’s Degree Options

There are two options to obtain a Master’s Degree in the Physics graduate program.

The first option is to pass the Master’s Review. All students passing this are eligible to receive their Master’s degree provided that the Graduate School course credit and grade point average requirements have been satisfied. Students must explicitly apply for the non-thesis Master’s degree on the Graduate School Master’s Degree Request web page. This does not happen automatically.

The second option, without passing the Master's Review, is to complete a Master's level thesis with a Physics Faculty member, which will be reviewed by your faculty adviser and the graduate program coordinator. Your work must be found to be of sufficient quality AND you must satisfy the Graduate School course credit and grade point average requirements. In that case the Physics Department will grant a terminal thesis-based Master's Degree.