

# Proposal: Requirements for the PhD Program

The Graduate Affairs Committee discussed, unanimously approved, and proposes the following new rules:

- (1) All graduate students in the PhD program must form a committee by the end of their second summer / beginning of the third Fall semester and are expected to pass the prospectus by the end of the third Fall semester. This step should be independent of their coursework.
- (2) An important goal of the prospectus is the formation of the PhD committee. The student should demonstrate some basic knowledge in the field and the paper should simply outline a potential idea for the dissertation.
- (3) All students need to go through an annual evaluation with the first review at the end of their second year.
- (4) All students who plan to work with an advisor who is not a tenured or tenure-track Physics professor must choose a Physics co-advisor who is upon joining the research group.

## 12. MAJOR PROFESSOR AND SUPERVISORY COMMITTEE

### 12.1 Research Advisor

All students must choose a Research Advisor well in advance of the appointment deadline for the first (typically Summer) semester in which they will be enrolling in a research directed individual study course. A student who plans to work with a Research Advisor who is not a tenured or tenure-track Physics Professor must also at the same time choose a Research co-Advisor who is. In many cases, this Research Advisor will become the student's Major Professor, but no commitment is made by either student or professor until this agreement is formally made.

### 12.2 Major Professor

When a student has [decided on](#) an area of research and a member of the faculty with whom he or she [wishes to perform their Master's or Ph.D. research](#), the student together with the faculty member should arrange to have the faculty member officially appointed as his or her Major Professor. To serve as a Major Professor for a Master's degree student, a faculty member must have Master's Directive status. To serve as Major Professor for a Doctoral student, a faculty member must have Doctoral Directive status. The necessary forms that must be filled out and approved in order for a faculty member to be appointed as Major Professor for a particular student are available in the Graduate Studies Office. [All graduate students in the PhD program must have a Major Professor by the end of their second Summer or the beginning of their third Fall semester in the program, independent of their course work or whether they have passed the Written Proficiency Exam.](#)

[A student who plans to have faculty member appointed as their Major Professor who is not a tenured or tenure-track Physics Professor must at the same time have a co-Major Professor appointed who is is.](#)

Neither the commitment of a student to conduct research under the [supervision of](#) a given faculty member nor the commitment of a faculty member to serve as Major Professor for a particular student is a binding commitment. Should the arrangement at any time prove unsatisfactory to either of the involved parties, other arrangements should be made.

### 12.3 Mechanism for changing research groups

The mechanism for changing research groups will be the following: The student should discuss his or her situation and research interests [with the Graduate Affairs Committee Chair and/or the Chair](#), who will make suggestions about which professors to talk to in order to find a Major Professor who is able to provide support. In the unlikely event that this fails, the student will, subject to acceptable academic performance, be temporarily supported by a teaching assistantship.

### 12.4 Supervisory Committee

After a Major Professor has been appointed, the Major Professor together with the student should arrange to have a Supervisory Committee formed and officially appointed. The necessary forms

that need to be filled out and approved in order for a Supervisory Committee to be officially appointed are available in the Graduate Studies Office. All graduate students in the PhD program must form a committee by the end of their second Summer or the beginning of their third Fall semester in the program, independent of their course work or whether they have passed the Written Proficiency Exam.

Constraints on the formation of this committee are discussed below.

12.4.1 Master's Supervisory Committee. The Master's Supervisory Committee: (i) must have at least three members including the Major Professor; (ii) must have at least two members from the Physics department; (iii) may include one or more members from other departments in the College of Arts and Sciences; (iv) cannot include faculty who do not hold at least Master's directive status.

12.4.2 Ph.D. Supervisory Committee. The Ph.D. Supervisory Committee: (i) must have at least five members including the Major Professor; (ii) must include one theoretical and one experimental physics faculty member; (iii) must include a representative of the College of Arts and Sciences who is a tenured Professor from a department other than Physics; (iv) must have three members including the College representative who hold Doctoral directive status; (v) must include one member of the physics department outside of the student's research area. (vi) Must have at least three members from the Physics Department.

## X.1. The Written ~~PhD-Qualifying~~ **Ph.D. Proficiency Examination (PHY 8969)**

To continue in the Ph.D. program, students must pass the Ph.D. Proficiency Exam.

X.1.1 Content and level. The ~~Qualifying~~ **Proficiency Examination** tests a student's knowledge of general physics. It is based on material covered at the advanced undergraduate/beginning graduate level.

X.1.2 Format. The written exam will consist of 12 questions/problems distributed as follows: two ~~(2)~~ in Classical Mechanics, two ~~(2)~~ in Thermodynamics/Statistical Mechanics, three ~~(3)~~ in Electromagnetism, and three ~~(3)~~ in Quantum Mechanics. The remaining two questions/problems will be in an area of physics that is covered in a typical undergraduate program, such as Modern Physics, Optics, and/or Intermediate/Advanced Laboratory.

~~You~~ **Students** are allowed to bring a hand calculator and a book of math tables, but not the one that has a list of physics formulas (e.g. Maxwell's equations or the equations of fluid flow or thermodynamics, etc.) or physical constants (e.g. electron mass, acceleration of gravity, etc.). If such information ~~should be supplied~~ **is needed**, it will be included in the statement of the problem (and that is generally the case with numbers like the electron mass, Planck's constant, etc.).

X.1.3 Schedule. The ~~Qualifying~~ **Proficiency Examination** will be administered by the ~~PhD-Qualifying Committee~~ **Ph.D. Proficiency Committee** twice a year during the first week of the Fall and Spring semesters. The exam will be administered over two consecutive days (Thursday and Friday) with each session running for four hours (from 1:00 pm until 5:00 pm).

X.1.4. Evaluation Procedure. Each question on the exam is graded independently by two graders. If the two grades on a given answer differ substantially, the graders involved are required to resolve the ~~their~~ disagreement. Students will be permitted to see their corrected tests but not the grades assigned. After the exam has been graded, the results are reviewed first by the ~~Comprehensive Exam Committee~~ **Ph.D. Proficiency Committee** and then by the faculty as a whole at a special meeting ordinarily held within two weeks after the ~~conclusion~~ of the written exam. The performance of each student is discussed and a decision made as to whether the performance was adequate to allow the student to ~~proceed toward a Ph.D.~~ **continue in the Ph.D. program**.

X.1.5. Grades. Shortly after the faculty have reached a decision, each student who took the exam is notified whether or not ~~he or she~~ **they** passed the exam. No specific grades or rankings are provided.

X.1.6. Students ~~have~~ **are allowed** at most four ~~(4)~~ tries to pass the exam and must fulfill this requirement by the end of their second year ~~at the latest~~. **(with the possible exception outlined in Section X.1.7.)** If a student decides not to take an exam when it is offered, it is considered as failed attempt.

X.1.7. Students may elect to strengthen their upper-level undergraduate physics background by taking one or more of our cross-listed undergraduate courses. In this case, students still ~~get~~ **are allowed** four tries at the written ~~qualifier~~ **proficiency** exam, but these start after their first year at FSU, i.e. at the beginning of their second year. Students who find out after enrolling in our three 'core' graduate courses, **in either the Fall or Spring semester**, that they need to strengthen their undergraduate physics background must arrange to switch to one or more cross-listed undergraduate courses before the end of the ~~fourth~~ **third** week of classes, and will thereby switch to the delayed deadline for the written ~~qualifier~~ **proficiency** exam.

## 16. DOCTORAL PRELIMINARY EXAMINATION

To qualify for a Ph.D. degree, a student is required to take and pass at an acceptable level the Doctoral Preliminary Examination **by the end of the third Fall semester in the program**. The purpose of this examination is to determine whether or not a student has the preparation and potential needed for carrying out original research in physics at an advanced level.

The Doctoral Preliminary Examination is divided into ~~four~~ **three** parts: (i) ~~a written PhD Qualifying Examination (PHY 8969);~~ (ii) ~~(i)~~ the preparation of a tentative Prospectus; (iii) ~~(ii)~~ an oral examination; and (iv) ~~(iii)~~ the approval of the Prospectus. The time between successful completion of the first part and the last part typically ranges between six months and one year. Each of these parts is considered in detail below. You must register for PHY 8969 in the semester that you plan to take the written portion of your exam. This grade will remain an "I" for incomplete until the time that you pass the oral part of your exam. This course should be registered for once and only once.

We propose to remove the following Section 16.1 altogether here and make it a standalone section in the handbook with the title *The Written Ph.D. Proficiency Examination (PHY 8969)* (see above).

## ~~16.1. The Written PhD Qualifying~~ **Ph.D. Proficiency Examination (PHY 8969)**

~~16.1.1 Content and level. [...]~~

~~16.1.2 Format. [...]~~

~~16.1.3 Schedule. [...]~~

~~16.1.4. Evaluation Procedure. [...]~~

~~16.1.5. Grades. [...]~~

~~16.1.6. Number of attempts. [...]~~

~~16.1.7. Delayed track.~~

## ~~16.2.~~ **16.1. The Tentative Prospectus**

~~After passing the Written Preliminary Examination,~~ the **Students** should strive to obtain a comprehensive grasp of ~~his or her~~ **their** chosen field of research, and then should decide within this field the problem that ~~he or she~~ **they** would like to undertake for ~~his or her~~ **their** doctoral dissertation.

At least one week prior to the Oral Preliminary Exam, which is discussed in Subsection ~~17.3~~ **16.2.** below, the student must submit to each member of ~~his or her~~ **their** Supervisory Committee a tentative Prospectus, that is a proposal of a research topic suitable for a Ph.D. dissertation. Copies of past Prospecti are available in the Graduate Studies Office and may be consulted for guidance as to the form and content of the Prospectus. Since this tentative Prospectus will be subjected to critical questioning in the Oral Preliminary Examination discussed in the following section, it is important that considerable effort be devoted to making it as correct, clear, and convincing as possible. The Prospectus is recommended to be about five pages long.

## ~~16.3.~~ **16.2. The Oral Preliminary Exam**

~~Within one year of passing the Written Preliminary Exam the student must take the Oral Preliminary Exam. Students who pass the written portion of the Preliminary Exam during their first year of study should take the oral portion within one year.~~ The purpose of this **oral** examination is twofold: (i) to determine whether the student's knowledge of the broad area within which ~~he or she~~ **they** intend to specialize is sufficient to allow ~~him or her~~ **them** to pursue research in that area; and (ii) to examine the feasibility of the student's proposed research topic as presented in ~~his or her~~ **their** tentative Prospectus.

~~16.3.1.~~ **16.2.1. Format.** The oral examination will be conducted by the student's Supervisory Committee and will consist of (i) a presentation by the student of ~~his or her~~ **their** proposed research topic, as described in the tentative Prospectus, (ii) an examination of the student on the contents of the tentative Prospectus and (iii) an examination of the student on the broad area of Physics within which ~~he or she~~ **they** intend to specialize and which forms the background for all problems in this area, and not simply for ~~his or her~~ **their** chosen problem. The exact definition of a particular area

of specialization will be determined by the student's Supervisory Committee. ~~Any graduate faculty can attend this examination, otherwise it is closed.~~ This examination is open only to members of the graduate faculty.

~~16.3.2.~~ 16.2.2. Grade. At the conclusion of the oral exam the student will be asked to step out of the room and the Supervisory Committee will discuss and evaluate ~~his or her~~ their performance. The student will then be recalled and informed that ~~he or she~~ they (i) passed the exam, or (ii) passed the exam conditionally, or (iii) must retake the exam at some later date. The student will also be informed of any changes which must be made in the Prospectus before it can be considered as satisfactory.

~~16.3.3.~~ 16.2.3. Retake policy. If the Oral Preliminary Examination is not passed on the first attempt, the conditions under which it may be retaken will be determined by the student's Supervisory Committee. ~~There is no limit to the number of times the~~ The Committee may administer the exam ~~at most twice~~ to a given student. ~~However, the examination must have been passed and the prospectus submitted and approved within one calendar year from the time at which the student passed the written portion of the Preliminary Examination. An exception to this rule is made for a graduate student who passes the Written Preliminary Exam within twelve months of entering the graduate program at Florida State. Such a student will be required to take the oral exam for the first time within twelve months, rather than six months, of passing the written exam, and will be required to have passed the oral exam and submitted an approved prospectus within eighteen months, rather than twelve months, of passing the written exam.~~

~~16.3.4.~~ 16.2.4. Certification of results. When a student has successfully passed the Preliminary Oral Examination, the student's Major Professor should provide the Graduate Studies Office with a statement signed by all members of the student's Supervisory Committee attesting to this fact. This statement will be placed in the student's file. Forms for certifying the above result are available in the Graduate Studies Office.

## ~~16.4.~~ 16.3. The Prospectus

Within two weeks after passing the Oral Preliminary Examination the student must present for approval to each member of ~~his or her~~ their Supervisory Committee a final version of ~~his or her~~ their Prospectus. If any of the Committee members find corrections which are still needed, then the student should make the corrections and resubmit the Prospectus. When the Prospectus is approved by the Supervisory Committee, it should then be submitted to the ~~Chairman~~ of the Department for ~~his or her~~ approval. The student will not be considered to have passed ~~his or her~~ their Preliminary Exam until the Prospectus has been finally approved by the Supervisory Committee and the ~~Chairman~~ of the Department. When all members of the Supervisory Committee and the ~~Chairman~~ of the Department approve the Prospectus, the student should have them indicate their approval by signing the title sheet. A sample title sheet of a Prospectus with a place for signatures can be obtained from the Graduate Studies Office. The student should submit a signed copy to the Physics Graduate Office. ~~He or she~~ They should also give a final copy of the Prospectus to each committee member.

## 18. ANNUAL EVALUATION.

All graduate students need to have their progress reviewed annually. [The first such review needs to be completed in the Spring or Summer semesters of their second year in the program.](#) Those with last names that start with A through L will need to do so in the Spring semester, and those with last names that start with M through Z will need to do so in the Summer semester. Students and their Major Professors and Supervisory Committees will need to:

18.1 Prepare a document (about one page) outlining their accomplishments in research during the previous year.

18.2 Complete the annual review form, available in the Graduate Office, and attach to it the outline from (18.1).

18.3 Send a copy of the documents from 18.2 to all members of their Supervisory Committee at least two weeks in advance of presenting a short research seminar (about half an hour), such as the regularly scheduled seminar presented to their research groups.

18.4 Invite everyone on their committee to the research seminar, pointing out that this is being given in part to fulfill the annual review requirement of the Department and Graduate School; the student is responsible for making sure that at least three members of their committee can and do attend.

18.5 Gather the required signatures on the document to be transmitted to the Graduate School.

For students who have not yet passed the oral part of their qualifying exam ( the Prospectus Defense, to be passed before the end of their [third Fall semester](#) in the program), only the student's Graduate Affairs Committee faculty advisor [and Research Advisor](#) will be required to sign the form.