

Qualifying Exam

Within 2-3 semesters of beginning research, the Department expects students to take the University's Oral Qualifying Examination covering his or her research field and related areas. This exam is required for advancement to PhD candidacy, and signifies that the student is prepared and qualified to undertake research, not that the student has already completed a significant body of work towards the PhD. It is therefore expected to occur for most students in the 3rd year, and no later than the 4th year. A student is considered to have begun research when they first register for Physics 299 or fill out the department advising form showing that a research advisor has accepted the student for PhD work, at which time the research advisor becomes responsible for guidance and mentoring of the student. The examination is administered by a four-member committee (consisting of three Physics Department and one outside faculty member, including the research advisor) approved by the Graduate Division on behalf of the Graduate Council, and may be repeated once at the recommendation of the examining committee. The Department expects that all committees include at least one theorist and one experimentalist. For students with advisors from outside the department or who are not members of the Academic Senate (e.g., with appointments at LBNL or SSL), permission for a five-member committee may be requested from Grad Division to allow both the non-faculty and faculty advisor to be on the committee; in this case, approval of the proposed research by the Head Graduate Advisor and the Chair of the Department must also be obtained before the student takes their qualifying exam.

Rules and requirements associated with the Qualifying Exam are set by the Graduate Division on behalf of the Graduate Council. The committee membership and the conduct of the exam are therefore subject to Graduate Division approval. The exam is oral and lasts 2-3 hours. The Graduate Division specifies that the purpose of the Qualifying Exam is "to ascertain the breadth of the student's comprehension of fundamental facts and principles that apply to at least three subjects areas related to the major field of study and whether the student has the ability to think incisively and critically about the theoretical and the practical aspects of these areas." Grad Division also states that this oral qualifying exam serves a significant additional function. "Not only teaching, but the formal interaction with one's students and colleagues at colloquia, annual meetings of professional societies and the like, often require the ability to synthesize rapidly, organize clearly, and argue cogently in an oral setting.... It is consequently necessary for the University to ensure that a proper examination is given incorporating [these skills]."

The Qualifying Exam requires that the student, in consultation with his or her advisor, identify three topics which in the Physics Department are expected to be a proposed Thesis Topic, an Area of Research, and a General Area of Research. The General Area of Research is taken to be the sub-field within physics (e.g. astrophysics, biophysics, particle physics, condensed matter physics); the Area of Research to be a still broad but more narrowly defined field within the sub-field (e.g. magnetism, or QCD). For fields where these choices are not obvious, the student should suggest appropriately broad topics contiguous to their Thesis Topic. The choice of topics is subject to the approval of the Physics Department Head Graduate Adviser, per Graduate Council Requirements. Qualifying Exams in the Physics Department begin with a presentation from the student that is expected to last approximately, but no more than, 45 minutes, during and after which questions related to the presentation are typically asked. The presentation should focus on the student's research goals and necessary background material, including the proposed Thesis Topic and the Area of Research that encompasses the thesis topic, as well as a proposed schedule for finishing the PhD and goals/milestones in that schedule. After this presentation, following a short break if desired, members of the committee will further question the student both about the presentation itself and about the broader subject areas included in the General Area of Research, testing the student's "ability to think incisively and critically about the theoretical and the practical aspects of these areas". The Department expects these questions to be related to the student's research field, but to be broad in nature rather than narrowly related to the thesis itself. Ability to give a coherent and organized presentation and to answer questions on the three topics in an oral setting is also required for passing this exam. Note that adjustments may be made on the basis of campus policies for cases in which an otherwise able individual is prevented from meeting an oral requirement by a physical disability. 6/10