

Atmospheric Sciences Graduate Group
Ph.D. Qualifying Examination (QE)
Guidelines for Faculty and Students
September 2021

1 Motivation

“The primary purpose of the Qualifying Examination (QE) is to validate that the student is academically qualified to conceptualize a research topic, undertake scholarly research and successfully produce the dissertation required for a doctoral degree. The QE must evaluate the student’s command of the field, ensuring that the student has both breadth and depth of knowledge, and must not focus solely on the proposed dissertation research. In addition, the QE provides an opportunity for the committee to provide important guidance to the student regarding his or her chosen research topic.” (GC2005-02 rev. 09)

2 Guidelines

The QE process is governed by Graduate Council regulation 2005-02 and the ASGG graduate degree guidelines:

https://grad.ucdavis.edu/sites/default/files/upload/files/grad-council/gc2005-02_qualifying_examinations.pdf

<http://atm.ucdavis.edu/student-resources/degree-requirements/doctor-of-philosophy/>

3 Timing and Candidacy

The qualifying exam typically represents the final step prior to a student advancing to candidacy. Before advancing to candidacy, a student must have met all coursework requirements as laid out in the ASGG graduate degree guidelines (including breadth, depth, seminar, and formal presentation requirements). The QE may be scheduled during a quarter in which the student is taking the final 1 or 2 courses in his or her program of study. If that is the case, the Graduate Adviser must not sign the Advancement to Candidacy form until it can be verified that the student has passed the courses and thereby satisfied all program requirements. The student must have maintained a minimum GPA of 3.0 in all course work undertaken except those courses graded S or U.

4 The QE Committee

4.1. Committee Membership

The QE committee for each student:

- ...is first indicated on the Qualifying Examination Application form (form GS319). Changes to committee membership after constitution require submission and approval of a Reconstitution of Committee Membership Request (form GS332) prior to the exam.
- ...includes 5 members total.
- ...includes at least 3 members from ASGG, one of which is designated as the Chair.
- ...includes at least 1 member from outside of ASGG (either at UC Davis or elsewhere*).
- ...should represent broad expertise within the student's area of research.
- ...must meet the Graduate Council Policy on Service on Advanced Degree Committees (GC1998-01)**.
- ...may include the student's major professor. However, if the major professor is part of the committee they may not be the chair.
- ...includes at most 1 member that will be participating remotely***.
- If the student is pursuing a Designated Emphasis, the QE committee must contain one member who will examine for the Designated Emphasis. An additional signature from this member is required in the Qualifying Exam Application.

* If the QE committee includes a member from outside the university, an External Committee Membership Application (Form GS311) must be submitted by the student along with their Qualifying Exam Application (Form GS319). Committee members in this category are expected to serve on a one-time basis. Continuing service on advanced degree committees by external members requires an appropriate academic appointment (e.g. Adjunct Professor).

** In general, faculty that hold professorships (assistant, associate, full, emeritus, adjunct) are eligible. Postdoctoral scholar appointments or UC Davis nonacademic staff titles are not eligible to serve on the QE committee. More information can be found here:

https://grad.ucdavis.edu/sites/default/files/upload/files/grad-council/gc1998-01_policy_on_service_on_advanced_degree_cmt.pdf

*** Except under exceptional or extenuating circumstances. Generally, this requires prior approval from Graduate Studies. The remote participant must be indicated as such on the Qualifying Exam Application.

4.2 Responsibilities of the QE Committee Membership

The principal responsibility of the QE committee membership is to ensure their attendance at the designated time and place of the exam.

QE members have the shared responsibility to familiarize themselves with materials provided by the student prior to the exam and ensure that the student is examined in a fair, equitable, and reasonable manner.

Each committee member is responsible for making themselves available to meet with the student at least once before the scheduled examination. Frequency, duration, and number of meetings between an individual committee member and the student are decided by the QE member and the student. The purpose of the meetings is to communicate expectations for the student's performance for the QE, to offer the student relevant material and approaches for preparation, and to become familiar with the student's proposed research.

If a conflict of interest leads a QE member to believe they cannot examine the student fairly they must excuse themselves from the committee. If the student's major professor is on the committee, they must divorce themselves from unconscious or conscious inclination towards ensuring a return on any investments in a student (of time and/or money).

4.3 Responsibilities of the QE Committee Chair

It is recommended that the Chair have prior experience serving on an ASGG qualifying exam committee. The Chair of the QE committee facilitates the examination process and ensures that the process is conducted in a professional manner, is fair and reasonable, both to the student and to the ASGG, and has applied the high academic standards for graduate education at the University of California are applied in the examination. The Chair is responsible for ensuring that committee members share in these responsibilities.

At the beginning of the QE the chair should review for the student and committee members the process to be followed and the expectations for the QE. The Chair shall not permit the QE to proceed if a member is not present or is not expected to be present during the entire scheduled examination.

At the conclusion of the QE and committee deliberation, the Chair delivers the committee's final decision to the student. The Chair is also responsible for producing the QE Report that indicates the final decision of the QE committee.

In the event of a “Not Pass” verdict on the first QE or “No Exam” on the first or second QE, the Chair is responsible for rescheduling the QE, in consultation with the student and the remainder of the committee. Rescheduling should occur as soon as the specified requirements, including coursework, can be satisfied or circumstances permit.

In the case of a split decision by the QE committee, the Chair directs the process by which material is prepared and sent to Graduate Studies, including submission of a written summary of the committee vote and decision, accompanied by letters supporting the majority and minority viewpoints, and any documentation offered by the student.

5 Preparation for the Qualifying Exam

In preparation for the QE the student is required to prepare a **dissertation prospectus** and an **oral presentation**.

The dissertation prospectus should be developed with minimal intervention from the major professor, as it is a test of the student’s ability to formulate an independent research plan. The major professor may want to provide advice on grammar or structure, but should be wary of providing pointed advice on the research plan itself. The dissertation prospectus is provided to the QE committee at least 10 working days prior to the date of the QE. More information on the prospectus, including the prospectus guidelines and an example prospectus, can be found on the ATM website:

<http://atm.ucdavis.edu/student-resources/degree-requirements/doctor-of-philosophy/>

The oral presentation is presented during the first half of the QE and covers the content of the dissertation prospectus. Typically, students are asked to prepare a 20 minute presentation with the expectation that interruptions and questions will increase the time required to 50-60 minutes.

6 Approximate Student Timeline

In order to ensure timely graduation, the QE should be completed before the end of the student’s third academic year, ideally sometime during the student’s second year.

After the first year of coursework:

- The PhD student completes the ASGG written preliminary exam, which covers material on atmospheric thermodynamics, dynamics, and radiative transfer, in addition to one advanced-level course of the student's choosing. Students following the 2019 ASGG Graduate Guidelines may waive preliminary exam questions if they achieve a grade of A- or higher in each subject.
- Upon successful completion of the preliminary exam, the student and their major professor discuss long-term research plans and decide upon a course of study that will enable timely completion of the student's degree. At this meeting the major professor and student should decide on an anticipated timeline for completion of the qualifying exam requirement.

Between six months and one year prior to QE date:

- The student forms their qualifying exam committee. The student should discuss membership with their major professor and come to a consensus on potential membership. The student should then reach out to potential members and ask if they are willing to serve on the QE committee, providing an approximate examination date and an overview of the research to be conducted.
- At this point the student should begin writing the dissertation prospectus on a topic of mutual agreement between themselves and their major professor. The student may wish to regularly inform the QE committee of progress on the development of the prospectus.

Between three months and six months prior to QE date:

- At this point the student should schedule a three-hour window for their QE when all committee members can attend. UC Davis presently only allows one QE committee member to attend remotely during the exam (except under exceptional circumstances). The student must ensure that this requirement is communicated clearly to all committee members.
- Once a date is selected, the student reserves an appropriate room through the departmental reservation system.

Six weeks prior to the QE date:

- The student submits their Qualifying Exam Application (GS319) to the ASGG Graduate Advisor or program chair for signature. If the committee includes an external member, the External Committee Membership Application (GS311) should be included with this submission.

- Once signed by the Graduate Advisor the student submits their Qualifying Exam Application (GS319) (and GS311) to the Graduate Student Coordinator for signature. The Graduate Student Coordinator will then submit directly to the Office of Graduate Studies. The completed Qualifying Exam Application must be received no later than four weeks prior to the QE date.
- If needed, the student may wish to meet with IT to discuss options for remote participation in the exam.

Two weeks prior to the QE date:

- The student submits their completed dissertation prospectus to the QE committee for review. In accordance with ASGG graduate student guidelines, the dissertation prospectus must be submitted at least 10 working days prior to the QE date.
- It is recommended that the student schedule meetings during this time window prior to the QE with individual committee members to discuss potential topics that may be covered during the exam.
- The student prepares an oral presentation on the contents of their dissertation prospectus.

One day prior to the QE:

- The student should verify that all equipment (projector, television, laptop, camera system, etc.) are operational and familiarize themselves with their operation. The student may also decide to conduct a test of the remote meeting system with remote participant(s).
- The student should send out a reminder to all QE members about the date, time, and location of the QE.

Day of the QE:

- The student should arrive at least one hour prior to the exam to avoid any potential technical issues, and to set up their presentation.

Following the QE:

- The student will meet with the Chair (and possibly with members of the QE committee) to discuss recommendations based on the outcome of the exam.

7 Timeline of the Qualifying Exam

Every student's qualifying exam is different. However, this section provides a rough overview of what to expect during a typical examination.

10 minutes prior to exam: The student and committee assemble in the designated location. Pleasantries are exchanged.

[0:00 to 0:10] First Committee Meeting: The student leaves the room for this time. The QE chair first reviews the student transcript and provides an overview of the student's evidence of scholarly activity to date. The committee decides on guidelines governing the presentation period of the examination. The student is invited back into the room.

[0:10 to 1:00] Oral Presentation and Discussion: The student begins their oral presentation (typically timed for 20 minutes without interruption). However, during the QE the presentation may be interrupted by committee members seeking clarification on the material of the presentation. However, committee members should refrain from examination-style questions until the examination period.

[1:00 to 1:10] Break and Second Committee Meeting: The student again leaves the room for the committee discussion. The committee may choose to share preliminary comments or concerns at this time. The chair and committee decide on the order of examination and time allotted to each member of the committee (typically 15 minutes per person).

[1:10 to 2:25] First Round of Questioning: Each committee member is given 15 minutes to examine the student. The goal of questioning is to satisfy the committee member that the student is capable of pursuing independent research aligned with the Motivation of the QE (section 1).

[2:25 to 2:45] Second Round of Questioning: Committee members are given a second opportunity to follow up on the questioning from the first round, often as follow-up to questions from other committee members.

[2:45 to 2:55] Third Committee Meeting: The student leaves the room one final time for committee discussion. The committee discusses the student performance during the exam in the context of their potential for scholarly success, and decides on their verdict (Pass, Not Pass, Fail). This discussion may include a list of requirements from the student, if it is decided that the student will receive a grade of "Not Pass."

[2:55 to 3:00] Student Informed of Outcome: The student is invited back into the room and informed by the chair of the outcome of the examination. The QE chair may decide to schedule

a meeting at a later date to discuss any requirements, concerns, or other items related to the exam.

8 Assessment of Student Performance by the Committee

- A committee member should refrain from making conclusions as to the ultimate outcome of the QE until the final phase of the process when the QE committee deliberates the final decision.
- The QE should attempt to assess the student's performance with respect to his/her ability for independent and critical analysis; ability to apply principles and knowledge in the subject area; knowledge of current and contemporary issues in the student's proposed research area; general knowledge of science; ability to integrate information and to reason based on examples or situations not necessarily related to his/her proposed research; and ability to hypothesize, extrapolate, and synthesize ideas.
- The QE committee members may feel free in the course of the examination to address issues of mastery of core course material.
- Assessment of student performance should consider the student's ability to defend methods and concepts, justify analyses, and critically assess the strengths and weaknesses of his/her proposed research, and to be able to provide appropriate reasoning behind the research.
- The student should be able to demonstrate an appropriate depth and breadth of knowledge in the area of his/her research.
- Assessment of student performance should not be based on such factors as the nature or perceived scientific merit of the proposed research, future career goals, academic affiliations, faculty mentorship, or funding potential of the proposed research.

9 Outcomes of the Exam

As discussed in section 6, there are four possible outcomes of the QE (Pass, Not Pass, Fail, No Exam). The specific outcome is reported to the Office of Graduate Studies by the QE Committee Chair:

- **Pass:** A student receiving a grade of Pass has satisfied the program's QE requirement. No additional requirements may be specified in conjunction with this decision, although the committee may still provide recommendations or guidance to the student directly. A student that passes the QE and decides to switch to the MS exam track can waive the examination requirement of the MS exam plan.

- **Not Pass:** If a grade of Not Pass is received, the QE chair will specify verbally and in their report whether the student is required to retake all or part of the examination, list any additional requirements, and state the exact timeline for completion of requirements to achieve a Pass. A student may only receive a grade of Not Pass once. If a second QE is required in conjunction with the committee's verdict, the outcome of the second QE must be either Pass or Fail.
- **Fail:** A decision of Fail may be delivered for many reasons. Such a decision means the student is no longer able to satisfy the QE requirement for their degree, and so will be recommended for disqualification from the program to the Dean of Graduate Studies. Often students in this situation are recommended to switch to the MS track and exit with a MS degree. Other requirements (coursework, sufficient demonstration of subject proficiency, etc.) related to the MS plan still apply.
- **No Exam:** This outcome may occur if a committee member is absent or if some other unforeseen issue prevents the examination from taking place. In this case the QE Chair and student shall reschedule the exam at the next opportunity.

The Chair must file Qualifying Examination reports with the Office of Graduate Studies within 72 hours of the completion of the exam.

9.1 Split Decision

Although split decisions are uncommon, if the QE committee is not able to reach a unanimous decision, the Chair will follow procedures for handling a split committee vote as documented by the Graduate Council Policy on Doctoral Qualifying Examinations (GC2005-02):

https://academicsenate.ucdavis.edu/sites/g/files/dgvnsk3876/files/inline-files/gc2005-02_rev1_1.pdf

Namely, the Chair will:

- Inform the student that the committee is divided.
- Submit to Graduate Studies, with a copy to the student's file, a written summary of the committee vote and decision, accompanied by letters supporting the majority and minority viewpoints, and any documentation offered by the student. The letters from committee members should address the student's performance in the individual areas of the examination, as well as performance overall.
- The Administrative Committee of Graduate Council will render the final decision.

9.2 Disqualification and Appeal

Graduate Studies guidelines on disqualification and appeal can be found in GS2005-01 (rev. 02):
https://academicsenate.ucdavis.edu/sites/g/files/dgvnsk3876/files/inline-files/gc2005-02_rev11.pdf

10 Additional Resources

- [Qualifying Examination Application \(GS319\)](#)
- [Grad Studies Qualifying Examination Resource Page](#)
- [Acing your Qualifying Exam](#)
- [UC Davis Qualifying Examination Regulations](#)

Acknowledgements

Special thanks to Biomedical Engineering Graduate Group (*BMEGG*) for assembling this content as relevant to their own graduate group:

<https://bmeegg.ucdavis.edu/qualifying-examination>