Introduction

PhD degree recipients in epidemiology are preparing to assume academic and/or public health careers in research and teaching. Students should be able to do the following upon completion of the PhD degree in epidemiology:

a) Demonstrate a high degree of mastery of epidemiologic research design and methods by successfully designing and carrying out original research to discover new knowledge in epidemiology and the biological or social sciences related to human health or making advances in methodologic theory or applications.

b) Demonstrate an in depth knowledge and understanding of theoretical concepts and practical applications of epidemiology and biostatistics, as well as the principles underlying the ethical conduct of human research.

c) Communicate and present epidemiologic research findings in their area of expertise to peers and fellow students in a lucid, understandable manner.

d) Demonstrate competence in a third area of public health or science appropriate to their research in addition to epidemiology and biostatistics (e.g. anthropology, virology, sociology, health policy, demography, etc.)

Academic Residence Requirement

Epidemiology doctoral students must register and enroll in at least 12 units per semester for a minimum of four semesters of academic residence at Berkeley.

Information regarding residency for tuition purposes can be found at http://registrar.berkeley.edu/Residency/legalinfo.html. Questions regarding residency should be directed to the Residence Affairs Unit at ores@berkeley.edu or (510) 642-5990.
Course Requirements

The amount of coursework necessary for each doctoral student in the Ph.D. program will vary depending on the student’s previous educational experience and background. However, the Graduate Group requires competence in the material covered by the following courses. (Note: Graduate Divisions requires that no more than one-third of units in an individual’s total curriculum while at UC, Berkeley be taken as Satisfactory/Unsatisfactory. PH 297 and 299 series courses are not counted in this calculation).

Required Courses during Years 1 and 2:

- PH250B (Fall) Epidemiologic Methods II (Letter-grade) – Year 1
- PH250C (Spring) Epidemiologic Theory (Letter-grade) - Year 1
- PH258B (Spring) Ethical Issues in Epidemiologic Research (S/U) – Year 1 or 2
- PH293 (Fall & Spring) Epidemiology Doctoral Seminar (Letter-grade)
  - Enroll for the appropriate section (noted on the course offerings at [http://epi.berkeley.edu](http://epi.berkeley.edu))
  - Required every-semester for years 1 & 2, and strongly recommended through the remaining years in the program (Letter-grade for years 1 & 2, then optional S/U).
- PH252D (Fall) Introduction to Causal Inference (Letter-grade) – Year 2
- PH298 (Spring) Group Study: Topics in Causal Inference (Letter-grade) – Year 2

Recommended Courses:

- PH142 (Fall) Intro to Probability and Statistics in Biology & Public Health (Letter-grade)
- PH145 (Spring) Statistical Analysis of Continuous Outcome Data (Letter-grade)
- PH241 (Spring) Statistical Analysis of Categorical Data (Letter-grade)
- PH245 (Fall) Introduction to Multivariate Statistics (Letter-grade)
- PH242C (Spring) Longitudinal Data Analysis (Letter-grade)
- PH248 (Fall) Statistical Computer Analysis Using R (Letter-grade)
- PH252 (Fall) Epidemiologic Analysis (Letter-grade)
- PH252A (Fall, even-years) Applied Sampling & Survey Design and Analysis (S/U)
- PH252C (Fall) Intervention Trial Design (S/U)
- PH296 (Fall/Spring) Special Study: Problems in Causal Inference (S/U)
- Students are expected to take additional courses in the 255-258 series. Students must take online training in human subject research and obtain prior human subjects approval for planned dissertation research.

In addition, students are expected to develop expertise in a “third” area, which is a content or methods area not included in the above required content. The selection of an area is at the discretion of the student but should be discussed with the student’s advisor as soon as possible,
since content in the “third” area is part of the qualification examination for advancement to candidacy.

**Teaching**

Every doctoral student in epidemiology is expected to serve for at least one semester as a Graduate Student Instructor (GSI) before taking the qualifying examination. Teaching fortifies theoretical knowledge gained in coursework, prepares students for academic careers, and provides service to the Division and the School of Public Health. GSIs are required to complete a 300-level semester-long teaching pedagogy seminar before or during their first teaching appointment at Berkeley. The Graduate Division also mandates that first time GSIs take the on-line course on GSI Professional Standards and Ethics Course and attend a Teaching Conference. For more information, please see [http://gsi.berkeley.edu/](http://gsi.berkeley.edu/)

**Ethics Training**

Knowledge of how to conduct ethical research is essential. In addition to a required course in research ethics in epidemiology, all doctoral students must complete the UC Berkeley Online Human Subjects Training prior to taking the qualifying examination (see below).

**Annual Review of Progress**

To ensure that students advance in a timely manner, an annual review form will be completed by the PhD student and his/her faculty advisor (Appendix B). This form will be included in the student’s permanent academic file. These forms will also be reviewed at an annual Epidemiology Faculty Group meeting.

**Qualifying Examination**

*Purpose:* The purpose of the Qualifying Examination is to assess the adequacy of a student’s preparation to conduct dissertation research in epidemiology. All epidemiology PhD students will be examined and be required to demonstrate competence in epidemiology, biostatistics, and a “third area” of the student’s choosing. The “third area” is typically chosen so as to be relevant to the student’s proposed dissertation research. While all epidemiology PhD students will have prepared a prospectus in the form of a detailed research proposal (see below)
that has been read by the faculty comprising the Qualifying Examination Committee, the Qualifying Examination is not intended to be solely a defense of that prospectus. The Qualifying Examination is intended to assess the breadth and depth of the student’s knowledge with regard to the history, theory, concepts, and “real world” application of epidemiology, biostatistics, and the specified “third area.”

**Procedures:** Prior to writing the dissertation, each Ph.D. student in epidemiology must pass a Qualifying Examination, which is required by the Graduate Division of all doctoral students at the University of California, Berkeley. For most epidemiology Ph.D. students, the Qualifying Examination should take place after three or four semesters of coursework, although some students may require either less or more preparation, depending on their level of preparation at the time of entering the Ph.D. program. It is the shared responsibility of the student and his/her faculty advisor to assure that the student is taking appropriate coursework in epidemiology, biostatistics, and the student’s chosen “third area” and that the student is adequately prepared to take the Qualifying Examination. The student’s faculty advisor must certify in a written memo to the head of the Graduate Group in Epidemiology that in his/her estimation the student is adequately prepared to take the Qualifying Examination. The memo should also provide a brief general description of the student’s proposed dissertation research; the student’s stated “third area;” and suggestions regarding UC Berkeley Academic Senate faculty who might be asked to serve as the “outside member” on the student’s Qualifying Examination committee. The memo should be accompanied by a copy of the student’s transcript(s) covering the semesters when the student was enrolled in relevant coursework.

Once a student’s faculty advisor has certified that the student is adequately prepared to take the Qualifying Examination, the student must prepare a formal application for the Qualifying Examination to Graduate Division. This application must be approved by the Head of the Graduate Group in Epidemiology and must be submitted to the Epidemiology Student Affairs Officer. Only the Student Affairs Officer can submit the application to the Graduate Division. The Graduate Division requires that this application be submitted a minimum of three weeks prior to the proposed date of the Qualifying Examination.

To be eligible to take the Qualifying Examination, the Graduate Division requires that the student:
1) Be registered for the semester in which the exam is taken or, if taken during the winter or summer break, be registered in either the preceding or the following semester.

2) Have completed at least one semester of academic residence.

3) Have at least a B average in all work undertaken in graduate standing.

4) Have no more than two courses graded “Incomplete”.

Students may not take the exam before being notified that admission to the exam has been approved in writing by the Graduate Division.

Included in the information on the application for the Qualifying Examination are the three areas in which the student is to be examined (epidemiology, biostatistics, and whatever “third area” the student selects) and the four faculty who will comprise the Qualifying Examination Committee. The composition of the Qualifying Examination Committee must meet the requirements of and be approved in writing by the Graduate Division. The student’s faculty advisor (who is presumed to be the faculty member who will become the chair of the student’s dissertation committee) cannot serve on the student’s Qualifying Examination Committee. A student’s Qualifying Examination Committee will consist of four faculty members as follows:

1. Chair: The Chair of the Qualifying Examination Committee must be either a ladder rank faculty (i.e. a member of the UC Berkeley Academic Senate) member of the Epidemiology Graduate Group or an adjunct faculty member of the Epidemiology Graduate Group who has been approved in writing by the Dean of the Graduate Division to serve as the chair of a Qualifying Examination Committee.

2. Member: A ladder rank faculty member (i.e. a member of the UC Berkeley Academic Senate) of the Epidemiology Graduate Group or an adjunct faculty member of the Epidemiology Graduate Group who has been approved in writing by the Dean of the Graduate Division to serve as a member of a Qualifying Examination Committee.

3. 2nd Member: A second ladder rank faculty member (i.e. a member of the UC Berkeley Academic Senate) of the Epidemiology Graduate Group or an adjunct faculty member of the Epidemiology Graduate Group who has been approved in writing by the Dean of the Graduate Division to serve as a member of a Qualifying Examination Committee. This member must also be a faculty member in the Division of Biostatistics.
4. *Outside Member:* A ladder rank faculty member of the UC Berkeley Academic Senate who is *not* a member of the Epidemiology Graduate Group

Lists of the members of the Graduate Groups in Epidemiology can be found in Appendix D, including information concerning which adjunct faculty members have standing permission to chair and/or serve on Qualifying Examination Committees. The chair and the second epidemiology faculty member of each Student’s Qualifying Examination Committee will be selected by the Head of the Graduate Group (or his designee) from among the eligible faculty by a process intended to assure that appropriate expertise is represented on each committee and that all eligible faculty participate in examinations periodically. The biostatistics faculty member and the “outside member” for each Qualifying Examination Committee will be selected in consultation with the respective student, taking into account the student’s prior coursework; his/her chosen “third area;” and the willingness and availability of suitable faculty to serve.

*Prospectus:* In preparation for the Qualifying Examination, each student must prepare a written prospectus, the structure and content of which are provided to students. The prospectus must take the form of a detailed proposal, described elsewhere, for an epidemiologic study. In most instances, the prospectus should be directly related to the student’s proposed dissertation research. The prospectus should be written for an audience with general knowledge of epidemiologic and biostatistical principles and methods, but knowledge that is highly specific to the proposed study, particularly knowledge relating to clinical, laboratory, environmental, genetic, or social/behavioral variables, scales, etc. should not be assumed. In preparing their prospectus, students are permitted to use any written materials that are available in the public domain as resources and to consult with their advisor or with other faculty members and fellow students. However, students may not have assistance in the actual writing of their prospectus, which must be entirely the original work of the student (This requirement does not preclude the student from receiving and making improvements in response to feedback from his/her advisor on a preliminary draft of the prospectus.). At the time the prospectus is submitted, the student’s faculty advisor must certify that he/she has read the prospectus; that he/she finds the prospectus of acceptable quality; and that to the best of his/her knowledge, the prospectus represents the original work of the student. Through his/her prospectus, the student is expected to demonstrate convincingly that he/she possesses the following skills
which are defined in a document provided to all students who are preparing for the QE: 1) conceptual; 2) problem solving; 3) critical/creative; 4) writing.

Following submission of the prospectus to the Epidemiology Student Affairs Officer, copies will be distributed to the members of the Qualifying Examination Committee at least three weeks before the scheduled date of the Qualifying Examination. Committee members will have read the prospectus before the Qualifying Examination. The committee members will not assign a grade to the prospectus but will decide if the prospectus indicates that the student is ready to stand for the oral qualifying examination. In the event that the prospectus is not considered acceptable, it will be returned to the student for revision; and the oral qualifying examination will be rescheduled once the revised prospectus is returned.

While the Qualifying Examination is not intended to be a defense of the prospectus (see below), the student’s ability to respond appropriately to questions or concerns about the prospectus will be considered in judging his/her performance on the Qualifying Examination. Committee members are expected to provide the student with specific written feedback (either in the form of a memo or in the form of an annotated copy of the prospectus with questions, comments, and concerns) at the end of or within one week following the Qualifying Examination.

Conduct and Content of the Qualifying Examination: Materials are provided to students that explain the structure of the examination and a listing of areas of theory, practice and subject matter that are the domain for the examination.

A student who fails the Qualifying Examination, as well as his/her faculty advisor, will be informed about the area(s) of deficiency that led to the failure. A student may re-take the Qualifying Examination once; any student who fails the Qualifying Examination a second time may not advance to candidacy or remain in the doctoral program.

Advancement to Candidacy:

Eligibility for Advancement to Candidacy

To be advanced to candidacy, doctoral students must:

1) Pass the Oral Qualifying Examination;
2) Have no more than two courses graded incomplete;
3) Have a minimum 3.0 grade-point average in all upper division and graduate courses taken in graduate standing.

Dissertation committees must be chaired by a UC Berkeley Academic Senate member. The dissertation committee for the Ph.D. consists of three faculty members, one of whom must be from outside the Group in Epidemiology and a UC Berkeley Academic Senate member.

Doctoral students are expected to meet with all members of the dissertation committee at least annually to review progress toward completion of the dissertation research. Students are encouraged strongly to have a schedule of regular meetings with the dissertation chair.

How students are advanced to candidacy

Once a student has passed the Oral Qualifying Examination, the student submits an “Application for Advancement to Candidacy” form (Appendix F) and a copy of the student’s CITI certification (see below) to the Division’s Student Affairs Officer, Roberta Myers (Room 113 Haviland Hall). The application form must be signed by the chair of the dissertation committee and accompanied by a check for $90 made payable to the UC Regents. Please note: The proposed members of the dissertation committee must be listed on this application form.

Human Subjects Training and Approvals

Doctoral students are responsible for obtaining any necessary approvals or exemptions from the UCB Committee for the Protection of Human Subjects for carrying out their dissertation research BEFORE they begin data collection or analysis of an extant data set, even if the study has received institutional review board approval elsewhere and/or previously collected data are being used.

All students who plan to engage in human subjects research must first complete and pass the appropriate Collaborative IRB Training Initiative (CITI) web-based education program modules. They can then be certified to serve as a “lead investigator” or as “key personnel” on any UCB human subjects research project.

No protocol submitted to CPHS with a student listed on the application coversheet or added as an amendment will be approved, re-approved, or determined to be exempt without documentation of the student having completed and passed all CITI course modules and quizzes as required and
as appropriate to the type of research (biomedical or social-behavioral) to be conducted. Completing the training and passing the quiz modules associated with the CITI program will certify a UCB-affiliated individual as trained in human subjects research. This training will also fulfill NIH human subjects training requirements, and for individuals who qualify for Principal Investigator (PI) status, will certify eligibility to serve as the PI or key personnel on a human subjects research project funded by NIH. NIH-funded investigators are encouraged to complete the appropriate CITI training modules even if they have documentation of training elsewhere or through other programs. Certification from the initial CITI training program is valid for three years. Recertification through the CITI continuing education program is required every three years thereafter. The passing score for the Core Course Modules or the Continuing Education Course is 80%. The CITI program can be found at https://www.citiprogram.org/default.asp. Students are also encouraged to take the NIH course on human subjects research, which can be found at http://phrp.nihtraining.com/users/login.php.

After a student has completed and passed the appropriate modules for his/her research project, a message is automatically sent directly to the UCB Office for the Protection of Human Subjects (OPHS). Once the student finishes the course, a link will appear in his/her Learner’s Menu (main menu) called “Completion Report.” The student should print out and maintain a copy of the Completion Report. All students must submit a copy of their certification at the time of protocol submission to CPHS, and must attach a copy to their “Advancement to Candidacy” form. Any questions about human subjects training and approvals should be directed to the Office for the Protection of Human Subjects (OPHS), Power Building at 2150 Shattuck Avenue, Suite 313. Email: cphs@berkeley.edu.

Advancement to Candidacy Award

Students who have submitted their advancement to candidacy documents are eligible to receive a one-time stipend from the School of Public Health Grossman Fund (if available). The amount of the award depends upon the number of applicants in a given award period.

Doctoral Candidacy

Candidacy for the PhD degree is of limited duration. When a student is advanced to candidacy, the Graduate Division informs him or her of the number of semesters he or she is
eligible to be a candidate, based on time in candidacy, or “Normative Time.” Students who do not complete the PhD within that time, plus a two-year grace period, will have their candidacy lapsed by the Graduate Division.

**Lapsing of Candidacy**

Lapsing of candidacy is a probationary status, usually lasting two years, for students who have not completed the final requirements for their degree at an adequate rate. Usually, a student’s candidacy is lapsed by the Graduate Division two years after he or she exceeds the Normative Time in candidacy for the discipline, unless the department requests and the Graduate Division grants an extension. Departments can recommend that a student’s candidacy be lapsed earlier if the student is given a written warning six months before lapsing is to take effect. A student whose candidacy has been lapsed may not hold any academic appointment on campus, including that of Graduate Student Instructor or Graduate Student Researcher.

**Please note:** The Graduate Division usually will not accept Oral Qualifying Examinations more than five years old as representing current knowledge, unless the student provides other evidence of continuing scholarly activity besides research for the dissertation. This policy is based on the Graduate Council’s belief that the Oral Qualifying Examination and submission of the dissertation are not separate “hurdles,” but together form an integrated educational experience for the PhD candidate.

**Information on Writing and Submission of the Dissertation**


For specific instructions on filing the dissertation, go to [Instructions for Preparing and Filing Your Thesis or Dissertation](http://grad.berkeley.edu/policies/pdf/disguide.pdf)
The Dissertation Writer’s Room

An additional resource for students working on dissertations is the Dissertation Writer’s Room, a space dedicated to doctoral students advanced to candidacy, opened in Room 215 of the Doe Library on June 21, 2010. The room provides a dedicated space encouraging focus and concentration on your writing in the quiet company of fellow doctoral candidates from humanities and social science disciplines.

Located at the rear of Graduate Services (208 Doe), the Dissertation Writer’s Room hours are Monday through Thursday, 9 am to 9 p.m.; Friday, 9 a.m. to 5 p.m.; and Sunday, 1 to 9 p.m. You must sign up beforehand and show your UCB ID card when you enter 208 Doe, as the Doe Library’s Graduate Services is reserved for the exclusive use of UCB graduate students, faculty, and staff.

The Dissertation Writer's Room accommodates six students using the study tables and two using the reading chairs. As utilization increases, this will be expanded. Wireless Internet connections are available via AirBears.

Doe's Graduate Services section is a study space for all graduate students, housing around 25,000 volumes and a reserve library for graduate courses in the humanities and social sciences. The core collection comprises standard editions of core texts, works of major theorists, titles on master's exams reading lists, and other materials heavily used by graduate students in the humanities and social sciences. Graduate Services also houses the Modern Authors Collection (XMAC), comprising the works of major 20th century English, American, and Anglophone literary authors, and a small collection of English and foreign language dictionaries.

In addition to the study spaces in Graduate Services, study carrels in the Gardner (main) Stacks can be reserved by graduate students. Graduate students may apply at the Doe Circulation Desk for these carrels, and books from the Gardner Stacks may be charged out and kept in the carrels.
Presentation of Dissertation Research

Doctoral students are expected to present their research plans and progress/results in the epidemiology doctoral seminar PH 293 beginning in the first semester of year one and subsequently each semester until the completion of the second year. There is no requirement for a formal thesis defense. However, students are encouraged to present their work during the semester in which they plan to file the dissertation. Two venues are available: PH293 and the Epidemiology Research Seminar Series.

Annual Review of Doctoral Students

The Graduate Council requires that all doctoral students who have advanced to candidacy meet annually with at least two members of their dissertation committee. This annual review is part of the Graduate Council’s efforts to improve the doctoral completion rate and to shorten the time it takes to obtain a doctoral degree.

Withdrawal

Students who choose not to register for a given semester must formally withdraw in order to remain in good standing. Withdrawing from the University must be approved by the graduate advisor chair and the Graduate Division. Students are entitled to two semesters of formal withdrawal which do not count in the accrued time to degree.

How to Withdraw from the University

These are two forms that need to be submitted (to the Division’s Student Affairs Officer, Roberta Myers in 113 Haviland Hall) to withdraw from the University and then to be re-admitted:

1) “Notice of Withdrawal” petition (Appendix G)
2) “Application for Readmission” (Appendix H)
3) “Legal Residence Petition” (Appendix I)

Regulations Regarding Use of the Filing Fee

The Filing Fee enables eligible doctoral students to pay one-half the University Registration fee ($284) in lieu of full registration fees during the semester in which they file their dissertations required for the degree. The Filing Fee is not a form of, or equivalent to, registration. Students
may apply for the Filing Fee when all the requirements for the degree have been completed, except for the final reading and filing of the dissertation. *Filing Fee status is approved only once per degree for eligible students.* If students do not complete final degree requirements during their eligibility period, the fee is forfeited and students must pay regular registration fees during the semester in which they subsequently complete those requirements.

**Limitations of Filing Fee Status**

To use the Filing Fee in Fall, you must have been registered in the previous Spring or Summer (3 units minimum in summer). To use the Filing Fee in Spring, you must have been registered in the previous Fall. Students may not concurrently hold a GSI or GSR appointment and be on Filing Fee.

Students on Filing Fee status may purchase the Student Health Insurance Plan (SHIP) through one of two plans. The “Bay Area Plan” provides primary care services at the University Health Services (UHS), plus major medical coverage; the “Out of Area Plan” covers major medical care only for hospitalization, emergency, and urgent care services. For more information about enrolling in either plan, contact the Student Health Insurance Office at the UHS (2222 Bancroft Way or phone 510 642-5700) or at their website: [http://www.uhs.berkeley.edu](http://www.uhs.berkeley.edu)

*International students are required to have health insurance, whether or not they are registered or on Withdrawal or Filing Fee status. They should contact the Student Health Insurance Office for more information at (510) 642-5700.*

**Filing Fee Status and International Students**

Filing Fee status satisfies the registration requirement for international students. They should contact the International Office at (510) 642-2818 well before the beginning of the semester during which they will use the Filing Fee in order to avoid visa problems with the U.S. Immigration Service.

**How Students Apply for Filing Fee Status**

Application for use of the Filing Fee (Appendix J): Students should apply for Filing Fee status at least two weeks before the beginning of the semester in which they plan to complete their
degree requirements. The application should be submitted to the Epidemiology Student Affairs Officer, Roberta Myers in 113 Haviland Hall.

Filing the Dissertation

Doctoral degrees are awarded in December and May. Academic senate regulations state that in order to receive a degree in any given term, all work for the degree must be completed by the last day of the term. *This is a firm deadline.*

The 2010-2011 filing deadlines for each degree period are:

- December 17 for a December degree
- May 13 for a May degree.
The Qualifying Examination for Ph.D. Students in Epidemiology

Timing and Certification of Adequacy of Preparation
Prior to writing the dissertation, each PhD student in epidemiology must pass a Qualifying Examination, which is required by the Graduate Division of all doctoral students at the University of California, Berkeley. For most epidemiology PhD students, the Qualifying Examination should take place after three or four semesters of coursework, although some students may require either less or more preparation, depending on their level of preparation at the time of entering the PhD program. It is the shared responsibility of the student and his/her faculty advisor to assure that the student is taking appropriate coursework in epidemiology, biostatistics, and the student’s chosen “third area” and that the student is adequately prepared to take the Qualifying Examination. The student’s faculty advisor must certify in a written memo to the head of the Graduate Group in Epidemiology that in his/her estimation the student is adequately prepared to take the Qualifying Examination. The memo should also provide a brief general description of the student’s proposed dissertation research; the student’s stated “third area;” and suggestions regarding UC Berkeley Academic Senate faculty who might be asked to serve as the biostatistics faculty member and as the “outside member” (Appendix E) on the student’s Qualifying Examination committee. The memo should be accompanied by a copy of the student’s transcript(s) covering the semesters when the student was enrolled in relevant coursework.

Purpose of the Qualifying Examination
The purpose of the Qualifying Examination is to assess the adequacy of a student’s preparation to conduct dissertation research in epidemiology. All epidemiology PhD students will be examined and be required to demonstrate competence in epidemiology, biostatistics, and a “third area” of the student’s choosing. The “third area” is typically chosen so as to be relevant to the student’s proposed dissertation research. While all epidemiology PhD students will have prepared a prospectus in the form of a detailed research proposal (see below) that has been read by the faculty comprising the Qualifying Examination Committee, the Qualifying Examination is not intended to be solely a defense of that prospectus. The Qualifying Examination is intended to assess the breadth and depth of the student’s knowledge with regard to the history, theory, concepts, and “real world” application of epidemiology, biostatistics, and the specified “third area.”
Application for the Qualifying Examination and Composition of the Qualifying Examination Committee

Once a student’s faculty advisor has certified that the student is adequately prepared to take the Qualifying Examination, the student must prepare a formal application for the Qualifying Examination to Graduate Division (Appendix C). This application must be approved by the Head of the Graduate Group in Epidemiology (Professor Ira Tager, 105 Haviland Hall) and must be submitted to the Epidemiology Student Affairs Officer (Roberta Myers, Room 113 Haviland Hall) for submission to the Graduate Division. Only the Student Affairs Officer can submit the application to the Graduate Division. The Graduate Division requires that this application be submitted a minimum of three weeks prior to the proposed date of the Qualifying Examination.

In order to be eligible to take the Qualifying Examination, the Graduate Division requires that the student:

5) Be registered for the semester in which the exam is taken or, if taken during the winter or summer break, be registered in either the preceding or the following semester.
6) Have completed at least one semester of academic residence.
7) Have at least a B average in all work undertaken in graduate standing.
8) Have no more than two courses graded “Incomplete”.

Students may not take the exam before being notified that admission to the exam has been approved in writing by the Graduate Division.

Included in the information on the application for the Qualifying Examination are the three areas in which the student is to be examined (epidemiology, biostatistics, and whatever “third area” the student selects) and the four faculty who will comprise the Qualifying Examination Committee. The composition of the Qualifying Examination Committee must meet the requirements of and be approved in writing by the Graduate Division. The student’s faculty advisor (who is presumed to be the faculty member who will become the chair of the student’s dissertation committee) cannot serve on the student’s Qualifying Examination
Committee. A student’s Qualifying Examination Committee will consist of four faculty members as follows:

1. **Chair:** The Chair of the Qualifying Examination Committee must be either a ladder rank faculty (i.e. a member of the UC Berkeley Academic Senate) member of the Epidemiology Graduate Group or an adjunct faculty member of the Epidemiology Graduate Group who has been approved in writing by the Dean of the Graduate Division to serve as the chair of a Qualifying Examination Committee.

2. **Member:** A ladder rank faculty member (i.e. a member of the UC Berkeley Academic Senate) of the Epidemiology Graduate Group or an adjunct faculty member of the Epidemiology Graduate Group who has been approved in writing by the Dean of the Graduate Division to serve as a member of a Qualifying Examination Committee.

3. **2nd Member:** A second ladder rank faculty member (i.e. a member of the UC Berkeley Academic Senate) of the Epidemiology Graduate Group or an adjunct faculty member of the Epidemiology Graduate Group who has been approved in writing by the Dean of the Graduate Division to serve as a member of a Qualifying Examination Committee. This member must also be a faculty member of the Division of Biostatistics.

4. **Outside Member:** A ladder rank faculty member of the UC Berkeley Academic Senate who is not a member of the Epidemiology Graduate Group.

Lists of the members of the Graduate Groups in Epidemiology can be found in Appendix D, including information concerning which adjunct faculty members have standing permission to chair and/or serve on Qualifying Examination Committees. The chair and the second epidemiology faculty member of each Student’s Qualifying Examination Committee will be selected by the Head of the Graduate Group (or his designee) from among the eligible faculty by a process intended to assure that appropriate expertise is represented on each committee and that all eligible faculty participate in examinations periodically. The biostatistics faculty member and the “outside member” for each Qualifying Examination Committee will be selected in consultation with the respective student, taking into account the student’s prior coursework; his/her chosen “third area;” and the willingness and availability of suitable faculty to serve.
Prospectus

In preparation for the Qualifying Examination, each student must prepare a written prospectus. The prospectus must take the form of a detailed proposal for an epidemiologic study. In most instances, the prospectus will be directly related to the student’s proposed dissertation research, although it is not a requirement that it be so. The prospectus should be written for an audience with general knowledge of epidemiologic and biostatistical principles and methods, but knowledge that is highly specific to the proposed study, particularly knowledge relating to clinical, laboratory, environmental, genetic, or social/behavioral variables, scales, etc. should not be assumed. In preparing their prospectus, students are permitted to use any written materials that are available in the public domain as resources and to consult with their advisor or with other faculty members and fellow students. However, students may not have assistance in the actual writing of their prospectus, which must be entirely the original work of the student (This requirement does not preclude the student from receiving and making improvements in response to feedback from his or her advisor on a preliminary draft of the prospectus.). At the time the prospectus is submitted, the student’s faculty advisor must certify that he/she has read the prospectus; that he/she finds the prospectus of acceptable quality; and that to the best of his/her knowledge, the prospectus represents the original work of the student. Through his/her prospectus, the student is expected to demonstrate convincingly that he/she possesses the following skills:

Conceptual: This refers to the student’s ability to review a body of extant literature relevant to the research problem and to provide a coherent synthesis from which a research question and design can be formulated. The specific elements of this skill will be evaluated on the ability to: a) review the literature and its ramifications; b) develop a theoretical framework that is useful for the identification of the relevant research question(s); and c) select one such research question to be expanded upon and to provide a rationale for the choice.

Problem Solving: This refers to the student’s ability to develop the following for the selected research question: a) a proposal for an appropriate study that meets established ethical standards for human research; follows criteria for valid study design; and balances issues of theoretical optimization with those of feasibility; b) sufficient detail to permit a judgment on its methodologic
adequacy; and c) a detailed plan for the appropriate analysis and interpretation of the resulting data.

Critical/Creative: This involves a discussion of hypothetical outcomes of the proposed study design, their likely interpretation, and their significance. Interpretation includes limitations of the proposed design and the relationship of the expected findings to the extant body of knowledge in the chosen research area (e.g., issues left unresolved, future research that follows from the proposed work).

Writing Skills: This refers to the ability to communicate epidemiologic, biostatistical, and other relevant concepts clearly and cogently. The use of proper, grammatically correct English will be expected.

Format: The format of the prospectus should be similar, but not identical, to a typical NIH style grant application:

A. Table of Contents: 1 page maximum
B. Abstract: 2 pages maximum
C. Background (literature review): 8 pages maximum
D. Statement of Research Question, Specific Aims (hypotheses) and Rationale: 2 pages maximum
E. Research Plan (including the study design and a detailed plan of analysis, with the rationale for each): 12 pages maximum
F. Human Subjects Concerns: 3 pages maximum
G. Discussion, Significance, Future Steps: 6 pages maximum
H. Selected References: no more than 3 single-spaced pages (with 1 space between each reference) maximum
I. Appendix (Optional: tabular or graphic material only): 15 pages maximum

Students are not expected to submit a budget, but should demonstrate an awareness of the resources that would be needed for the proposed study in the discussion of the design feasibility. Page limitations are based on typed, double-spaced text (except sections H and I.) Font size must be 12 (e.g. Times New Roman 12). The prospectus must not exceed the page or font limitations. The prospectus must be typed. The organization of each individual section of the prospectus is left
to the student’s discretion. The submission of tabular and graphical materials in appendices is encouraged, but not required.

Selected Comments on Specific Sections of the Prospectus

Abstract: Students are expected to be able to provide a succinct overview of the research question, the rationale for the study, and generally comment on the design and expected results and implications.

Background: This section should provide a literature review that synthesizes and critiques the current knowledge base for the topic. The section should set the framework for the rationale that appears in the next section.

Statement of the Research Question: This section should provide a clear statement of the research questions and hypotheses. The section should include a rationale that explicitly links the proposed research to the review contained in the previous section. When appropriate, a directed acyclic graph should be included.

Design and Analysis Plan: Students may or may not identify an actual study population or data resource (if the study is a secondary analysis of an extant data resource). If the student does not identify an actual study population, he or she should identify and justify the characteristics of a desirable and feasible study population (or data resource) in the context of the design that is being proposed. The size of the study population being proposed should be fully justified, using power curves or other appropriate supporting materials.

The selection of an overall study design should be justified in light of the specifics of the research and in terms of other options that might be theoretically possible but not necessarily feasible or desirable. Details concerning data collection and management in the context of the study design should be included.

Analysis Plan: A detailed data analysis plan must be presented in the context of the research proposal. Issues such as the specification of the primary outcome, primary
exposure(s) and important covariates should be addressed. Choice of effect measures and the methods to obtain them should be justified, as should the choice of analytic approaches.

The statistical analysis plan should include the simplest set of tools necessary to estimate and provide inference for the relevant parameters suggested by the study’s aims. This plan typically should include: 1) the data structure implied by the design of the study (e.g., right-censored outcome with time-independent covariates); 2) the parameter(s) of interest (e.g., the unadjusted and adjusted associations of a particular binary risk factor with a continuous outcome – such as the association of outcome and risk factor within strata of potential confounders; 3) types of graphs that could be used to display data that are relevant to the estimation of those parameters (e.g., scatter plot of outcome vs. risk factor if the outcome is continuous); 4) the method used to estimate the parameters (e.g., simple linear regression, Cox regression, etc.); and 5) the method used to derive statistical inference for those estimates (e.g., simple Wald statistic, bootstrapping, robust SE’s from GEE, etc.).

Additional material, such as types of diagnostic plots or tests, model fitting procedures, etc., should be included when relevant. Examples of actual models (e.g., $Y=b_0+b_1X+b_2Z+e$) with reference to the parameter of interest (e.g., $b_1$) are encouraged.

**Human Subjects Concerns**: This section should address all relevant ethical concerns arising from the inclusion of human subjects in the proposed research.

**Discussion, Significance, Future Steps**: This section provides an opportunity to discuss the strengths and limitations of the study design in the context of the overall research. Students are expected to provide a range of interpretations that would or would not be possible from the study that is proposed. The implications of the expected outcomes for future research in this area should be addressed.

A hard copy and an electronic copy of the prospectus must be submitted to the Epidemiology Student Affairs Officer (Roberta Myers, 113 Haviland Hall) at least four weeks before the Qualifying Examination is scheduled to take place.
Following submission of the prospectus to the Epidemiology Student Affairs Officer, copies will be distributed to the members of the Qualifying Examination Committee at least three weeks before the scheduled date of the Qualifying Examination. Committee members will have read the prospectus before the Qualifying Examination. The committee members will not assign a grade to the prospectus. While the Qualifying Examination is not intended to be a defense of the prospectus (see below), the student’s ability to respond appropriately to questions or concerns about the prospectus will be considered in judging his/her performance on the Qualifying Examination. The two epidemiology faculty committee members are expected to provide the student with specific written feedback (either in the form of a memo or in the form of an annotated copy of the prospectus with questions, comments, and concerns) at the end of or within one week following the Qualifying Examination.

**Conduct and Content of the Qualifying Examination**

The Qualifying Examination must be scheduled to last three hours, although it may be concluded in less time. The Graduate Division requires that all Qualifying Examination Committee members be in attendance throughout the examination. If for whatever reason a committee member becomes unavailable to attend, the examination must be rescheduled or the committee formally reconstituted by the Dean of the Graduate Division. The chair of the Qualifying Examination Committee is responsible for overseeing the examination process.

At the beginning of the examination, the committee typically holds a brief meeting (without the student present) to discuss the student’s accomplishments to date and the “ground rules” for the examination. The student has the option to stipulate the order in which committee members will ask questions and whether or not he/she objects to the other committee members interjecting follow up questions during another committee member’s questioning. The student also has the option to give a brief (≤ 10 minutes) presentation concerning his/her research or other topics before the questioning begins.

At the conclusion of the examination, the student is asked to leave the room while the Qualifying Examination Committee discusses the student’s performance. The student is then invited back into the room and informed by the chair whether or not he/she has passed the
examination. Students who pass the Qualifying Examination should complete the paperwork to advance to candidacy as expeditiously as possible. A student who fails the Qualifying Examination, as well as his/her faculty advisor, will be informed about the area(s) of deficiency that led to the failure. A student may re-take the Qualifying Examination once; any student who fails the Qualifying Examination a second time may not advance to candidacy or remain in the doctoral program.
Appendices

A. Key Concepts in Areas of Epidemiology and Biostatistics (19 pages)

B. Annual Review of Progress (2 page form)

C. Application for the Qualifying Examination (1 page form)

D. Graduate Group Faculty in Epidemiology and Biostatistics (1 page)

E. Outside Members in the School of Public Health (1 page)

F. Application for Advancement to Candidacy Form (2 page form)

G. Notice of Withdrawal Petition (1 page form)

H. Application for Readmission (2 pages; 1 page form w/ directions on 2nd page)

I. Legal Residence Petition (2 page form)

J. Application for Use of the Filing Fee (2 pages; 1 page form w/ directions on 2nd page)

NOTE: Following this page are the complete texts of the appendices. Some of the appendices consist of multiple pages. The above hyperlinks lead to the first page of each appendix.