

GRADUATE PROGRAM

PUBLIC HEALTH SCIENCES

HANDBOOK FOR FACULTY AND STUDENTS

PENNSYLVANIA STATE UNIVERSITY

COLLEGE OF MEDICINE

HERSHEY, PENNSYLVANIA

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I. INTRODUCTION

This handbook serves as an aid to faculty and graduate students in the Graduate Program in Public Health Sciences (PHS). Information and degree requirements for the Pennsylvania State University Graduate Program in PHS and timeline for completing the program are provided. Additional University requirements can be found in *The Pennsylvania State University Graduate Programs Bulletin* (www.psu.edu/bulletins/whitebook). Both students and faculty are encouraged to consult the bulletin for additional information.

A. Degree Program

The Graduate Program in PHS at the Penn State University College of Medicine confers the Master of Science (M.S.) degree. The objective of the program is to educate and train students to demonstrate excellence in scholarship and scientific understanding in the disciplines of biostatistics, epidemiology and health services research. The PHS Master of Science degree can lead to careers in a wide variety of fields and settings, including academic health centers; the health insurance industry; health services networks; local, state, and federal government agencies; and the pharmaceutical industry.

B. Goals of Graduate Education in PHS

The mission of the Department of Public Health Sciences at the Pennsylvania State University College of Medicine is to advance health science through the (1) design, conduct, and analysis of population-based biomedical research, (2) support of basic science and clinical research, and (3) education of future generations of health professionals. The mission of the Graduate Program in PHS is to fulfill the third arm of the departmental mission. The graduate program is directed toward students who plan to pursue a Master of Science (M.S.) degree. Completion of the degree indicates that the student will have (1) mastered knowledge that is unique to the disciplines of biostatistics, epidemiology and health services research, (2) mastered knowledge in the disciplines of biostatistics, epidemiology and health services research that is necessary to perform in a professional, academic, or corporate setting, (3) demonstrated ability to read, write, and evaluate scientific literature, and (4) demonstrated a work ethic that supports scholarship and promotes the highest standards of academic integrity.

C. Tracks

There are four tracks in the M.S. Program: biostatistics, epidemiology, health services research and clinical research. The first three are directed towards graduate students wishing to focus their education in a particular discipline. The clinical research track is directed towards physicians, nurses or other health care professionals wishing to pursue or further a career in clinical research. Prospective students are asked to indicate an interest in one of these tracks in order to complete the application for admission into the graduate program. However, students are not required to stay in that track.

II. ADVISORS & MENTORS

A. Faculty Advisors

Each student in the PHS Program is assigned a provisional advisor upon admission to the program according to the track that the student self-indicated on the application form. The role of the provisional advisor is as a point of contact for the student as regards course selection and to help the student with any academic questions or concerns that might arise. Both the student and the advisor are invited to consult with the Graduate Program Director about any issues related to the student's graduate education experience. Students are also encouraged to talk with their course instructors about areas of research interest.

When the student has identified an area of interest for his/her capstone experience, a research advisor will be identified to replace the provisional advisor as the primary point of contact and to provide academic guidance for the student in regards to completion of the required capstone experience. The provisional advisor may become the research advisor if so desired. The research advisor must be identified prior to the student filing the intent to graduate at the beginning of the final semester, but a student who plans to graduate in the Spring semester of the second year is strongly encouraged to have a research advisor in place by the end of the summer prior to the start of the second year.

Students and advisors are required to meet in person at least once every six months. Students and advisors may meet or communicate informally by email at any time. Each formal meeting must be documented using the PHS graduate student tracking form and both the student and advisor must approve the written summary of the meeting by signature.

The program is designed to be completed in 2 years beginning in the fall semester and concluding at the end of the spring semester of the second year. The typical course sequence is outlined below. Milestones for identifying an area of interest, finding the research advisor and completing the capstone experience can be roughly determined by working backwards from the expected date of graduation.

Students planning to graduate in the spring must electronically file their intent to graduate with the Graduate School during January. The written component of the capstone experience must be approved by the research advisor and the final project presentation made by early April (see section III.C. for more information about the capstone experience and project presentations). In order to meet this goal, the student will have outlined his/her capstone experience project by the middle of the fall semester of the second year and will have made the project proposal presentation by the end of the fall semester. This means that the research advisor must be identified no later than the end of September of the second year if the student is to graduate the following spring.

The timeline for students entering the PHS Program with 6 or less credits already completed and desiring to complete the degree in two years should move no slower than as follows:

First year:

- Meet with the provisional advisor early in the fall semester to become oriented to the program and establish expectations for coursework during the first year
- Meet with the provisional advisor early in the spring semester to review academic performance during the fall semester and discuss emerging areas of research interest
- Meet with the provisional advisor at the end of the spring semester to review academic performance during the first year and discuss developing areas of research interest.
 - If the student has not yet determined a general area of research interest by the end of the spring semester, then the student and advisor should develop a strategy for identifying an area of research interest during the summer prior to the fall semester of the second year. Either the advisor or the student may wish to invite the Program Director to facilitate the process. The provisional advisor is not expected to come up with a research topic for the student.
 - If the student has determined a specific research topic, then the advisor and student should work together to identify the research advisor as soon as possible so that the student can begin to develop the research project during the summer.
 - If the student has determined a general area of interest, but not a specific topic, then the provisional advisor should facilitate the student meeting with other PHS faculty members having similar research interests.

Second year:

- Meet with the provisional advisor, or ideally with the research advisor if he/she has been identified, prior to the beginning of the fall semester to choose elective courses for the second year (there are no elective courses during the first year).
- Meet with the research advisor no later than the end of September to establish a timeline for mapping out the research project with the goal of presenting the project proposal by early December and completing the project by the end of March.
- From this point forward the student and research advisor should stay in close contact, perhaps meeting on a regular bi-weekly or monthly basis, until the research project is completed.

If no area of research interest has been identified prior to the beginning of the fall semester of the second year, then the provisional advisor and Program Director will meet together with the student before the semester begins to establish expectations and determine whether it is possible for the student to identify a research project and find the research advisor by the end of September. If this is not accomplished, then the provisional advisor and the Program Director will meet without the student to discuss the situation. The provisional advisor and the Program Director will then meet together with the student to confirm that the student will not graduate at the end of the second year and to establish expectations for the remainder of the second year of coursework. If no area of research interest has been identified by the end of the spring semester of the second year, then the provisional advisor will meet with the Graduate Education Committee (GEC) with the goal of remedying the situation. If there is no evidence that the student is prepared to work towards finding an area of research interest, then the GEC may advise the student to withdraw or take some time off from the program to contemplate his/her academic and professional goals.

If a student enters the PHS Program intending to complete the degree in more than two years, then the above timeline should be followed working backwards from the intended graduation date.

If a student enters the PHS Program with more than 6 credits already completed and desires to graduate in less than two years, and if the research advisor has not already been identified, then the provisional advisor will begin working with the student immediately to identify a specific topic and research advisor.

B. Research Advisors

The role of the research advisor is to provide academic guidance for the student in regards to completion of the required capstone experience. The research advisor determines when the student has fulfilled the requirements of the capstone experience (see below) and has sole discretion in the matter. Either the research advisor or the student may request involvement of the Program Director at any time if there are concerns about the progress of the research project. The research advisor shall attend both the presentation of the project proposal and the final project presentation.

The relationship between the student and the research advisor is intended to be mentorship. Although it is generally permissible for the student's research project to entail some particular aspect of the advisor's research program, the student is not expected to act as the advisor's research assistant. More detailed information about the nature of the capstone experience is provided below.

III. ACADEMIC REQUIREMENTS

A. Requirements for Master's Degree

Each student in Public Health Sciences is expected to acquire breadth of knowledge in the disciplines of biostatistics, epidemiology, and health services research, and skills in the areas of experimental design, data collection and quantitative analysis. Each student must complete at least 30 credits at the 500 level, including 3 research credits and 27 credits of formal course work. Each student must complete the capstone experience, a research project concluding with a manuscript suitable for publication. The manuscript does not need to be submitted for publication in order to fulfill the requirements.

B. Courses

The 27 credits of formal coursework required in the PHS Program consist of 16 credits of 500 level courses plus 11 credits of 500 level electives. Required courses include:

- Biostatistics:
 - PHS 520 – Principles of Biostatistics (3 credits)
 - PHS 521 – Applied Biostatistics (3 credits)
- Epidemiology:
 - PHS 550 – Principles of Epidemiology (3 credits)
 - PHS 551 – Advanced Epidemiology (3 credits)
- Health Services Research:
 - PHS 536 – Health Survey Research Methods (3 credits)
- PHS 500 - Research Ethics (1 credit)

Elective courses include:

- **Biostatistics:**
 - PHS 522 – Multivariate Biostatistics (3 credits)
 - PHS 580 – Clinical Trials: Design and Analysis (3 credits)
 - PHS 581 – Clinical Trials: Case Studies (1 credit)
 - PHS xxx – Database Management (1 credit)
- **Epidemiology:**
 - PHS 552 – Molecular Epidemiology of Chronic Disease (3 credits)
- **Health Services Research:**
 - PHS 535 – Quality of Care Measurement (3 credits)
 - PHS 570 – Health Economics and Economic Evaluation (3 credits)
- **Clinical Research:**
 - PHS 511 – Methods Used in Translational Research (1 credit)

Courses in Health Policy and Administration (HPA) and Statistics (STAT) may be taken as elective courses and will be considered on an individual basis in consultation with the student's academic advisor.

Representative schedule of courses for years 1 and 2:

Year 1

- **Fall:** PHS 520, PHS 550, 500 and Stats Lab
- **Spring:** PHS 521 and PHS 551
- **Summer (optional):** Two 1-credit electives

Year 2

- **Fall:** Two 3-credit electives (PHS 552, 570 or 580)
- **Spring:** PHS 536 and one 3-credit elective (PHS 522 or 535); PHS 594

Research Ethics (PHS 500) may be taken during any semester. Research Topics (PHS 594) should be taken during the semester during which the bulk of the capstone experience research project takes place, typically the final semester.

C. Transfer Credit

Students are allowed to transfer up to 10 credits from an external graduate program to fulfill the 27 credit course requirements for the PHS graduate program. Instructors will review the syllabus for the equivalent courses to determine their eligibility for transfer.

D. Capstone Experience

An original research project is required that results in a report or in a manuscript suitable for publication, although it need not be submitted for publication. In addition to the written component, students are expected to give 2 oral presentations of their research. The first shortly after the outline of the research project has been finalized, but before the work has begun in earnest, and the second at the conclusion of the research project. All faculty and students will be invited to attend these presentations. The presentations will not be formally

evaluated and there is no pass/fail requirement. Presentations should include visual aids, such as a PowerPoint presentation, and should be 15 to 25 minutes long.

There are 4 tracks for the MS degree: Biostatistics, Epidemiology Health Services Research and Clinical Research. The capstone experience requirements vary somewhat across the 4 tracks.

- **Biostatistics:** The capstone experience may consist of an original analysis of an existing dataset employing techniques learned during the coursework. If the student does not have access to a suitable data set, one will be made available by the advisor or the Department. Development of new methodology or an original simulation study to investigate the statistical properties of existing methodology is also an acceptable research project.
- **Epidemiology:** To prepare an epidemiological manuscript, suitable for publication at a peer-reviewed journal, reporting the results addressing specific study questions or research hypotheses. A presentation of the research paper at a department seminar is required. The research may involve existing data or primary data collection, and must include analyses that address specific research questions or test hypotheses. Literature reviews are acceptable only if they involve new syntheses of data, as in meta analysis. If Meta-analysis is selected, it should also be suitable for publication.
- **Health Services Research:** Preparation of a paper, suitable for submission for publication at a peer-reviewed journal, reporting the results of original health services research. The research may involve secondary data analysis or primary data collection, and must include analyses that address specific research questions or test hypotheses. Literature reviews are acceptable only if they involve new syntheses of data, as in meta analysis.
- **Clinical Research:** Please go to the Clinical Research Training Programs website at <http://www.hmc.psu.edu/crtp/>.

E. Grade-Point Average/Unsatisfactory Scholarship

Students are required to have a minimum grade-point average of 3.0 for all course work. One or more failing grades or a cumulative grade-point average below 3.0 may be considered evidence of unsatisfactory scholarship and be grounds for dismissal from the University [see the Graduate Programs Bulletin].

If, for reasons beyond the student's control, a student is prevented from completing a course within the prescribed time, the grade in that course may be deferred with the concurrence of the instructor.

The period during which a grade may be deferred shall not extend, without further approval of the dean of the college, the executive director of the Division of Undergraduate Studies, or the executive officer of the commonwealth campus concerned, beyond the end of the sixth week of the next semester in which the University is in session. A deferred grade that is not changed to a passing grade by the instructor before the end of this period automatically becomes an F.

IV. GRADUATE EDUCATION COMMITTEE

The Graduate program in PHS is governed by the Graduate Education Committee (GEC). The GEC shall consist of the Graduate Education Director and four other faculty members with primary or joint appointments in the Department of PHS. Members, other than the Director, will serve two year terms and may be reappointed or replaced by the PHS Chair at any time. The GEC shall include at least one faculty representative from each of the PHS divisions, Biostatistics, Epidemiology and Health Service Research.

V. GRADUATE FACULTY IN PHS

Appointment of Faculty

Candidates for appointment to the Graduate Faculty in the PHS Program must submit the following to the PHS GEC:

- curriculum vitae
- statement of anticipated responsibilities as a member

The committee will review the candidate's application by the following criteria:

- ability to teach in applicable courses
- ability to advise graduate students
- ability to conduct research and scholarly activity in the Public Health Sciences

Candidates approved by the PHS GEC will be assisted in completing relevant applications to be forwarded to the College of Medicine Graduate Faculty Evaluation Committee.

Graduate Faculty members in PHS are expected to:

- participate in teaching of graduate courses in PHS
- serve as provisional advisors
- advise students conducting capstone experience research project

New tenure-track faculty who have not yet achieved Graduate Faculty status may be asked to teach courses and to serve as provisional advisors. These activities will strengthen the faculty member's application for appointment to the Graduate Faculty.