

PharmD Honors Research Program Handbook

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Skaggs School of Pharmacy
and Pharmaceutical Sciences

UNIVERSITY OF COLORADO **ANSCHUTZ MEDICAL CAMPUS**

Introduction

The PharmD Honors Research Program of the University of Colorado Skaggs School of Pharmacy and Pharmaceutical Sciences (SSPPS) aims to enrich the Doctor of Pharmacy (PharmD) curriculum by offering students the opportunity to design, execute, and present a research project. In addition to fulfilling the normal coursework requirements of the PharmD curriculum, students in the PharmD Honors Research Program complete a research project under the direction and guidance of a faculty mentor. The PharmD Honors Research Program is designed for select students of strong academic merit who choose to pursue a longitudinal research project in addition to the required curriculum. Students in the program complete *hands-on* original research using contemporary and advanced scientific methods. It is an expectation of the PharmD Honors Research Program that projects should lead to presentations at national meetings and/or publications in a professional scientific journal. Students often find the PharmD Honors Research Program to be an avenue towards expanded career opportunities and specialization. Students successfully completing the PharmD Honors Research Program will be recognized at graduation, on their transcript and diploma as having "Graduated with Honors in Research."

The general aim of the PharmD Honors Research Program is to "expand the possibilities" open to students who have demonstrated strong academic performance and motivation. The objectives of the program are to:

- 1) provide eligible students an opportunity to pursue an original research project that is worthy of a presentation at a national meeting and/or publication in the professional literature
- 2) develop research skills including research design, study execution, presentation and dissemination of results
- 3) provide individual faculty mentorship for students
- 4) stimulate independent creative and critical thinking, and enrich leadership skills
- 5) foster analytical reasoning through applied research activities
- 6) enhance verbal and written scientific communication skills
- 7) provide a forum for students to discuss their research and other topics through presentations and meetings

Program Administration

The program is administered by the PharmD Honors Research Program Committee of the SSPPS under the guidance of the Associate Dean of Academic Affairs. Committee members include faculty members from the Departments of Clinical Pharmacy and Pharmaceutical Sciences.

Admission Eligibility Requirements

Full-time PharmD students having a GPA of 3.0 or greater and are in good ethical standing in their professional courses are invited to apply for admission into the PharmD Honors Research Program during their P1 spring semester, P2 fall semester or P2 spring semester. Students in the P3 or P4 educational years are generally not eligible to enter the program. However, a P3 or P4 student *may* be considered for the program if they can clearly delineate how they will be able to complete the project and the PharmD Honors Research Committee is satisfied that the project can be completed prior to the P4 defense and prior to graduation. It is expected that each student in the PharmD Honors Research Program will commit at least 300 hours to complete the project.

A PharmD Honors Research Program student or project may receive funding from merit-based fellowships or scholarships. However, a PharmD Honors Research Program student may NOT receive personal remuneration for conducting a PharmD Honors Research Program project. For example, a student cannot be paid by an employer/preceptor for time spent on the research project.

Student and Project Mentor Responsibilities and Eligible Projects

Student Eligibility

Students interested in the PharmD Honors Research Program must:

- 1) Be enrolled in the professional Doctor of Pharmacy program
- 2) Be in good academic, professional, and ethical standings
- 3) Maintain a GPA \geq 3.0

Student Responsibilities

- Prior to applying to the program, each student is responsible for identifying a SSPPS faculty mentor. Interested students should review faculty profiles on the SSPPS website to help identify a faculty mentor in their desired area of research. Any faculty member with a primary appointment in the SSPPS may serve as an PharmD Honors Research Program project mentor. On occasion, students may be interested in performing their research under the guidance of an external preceptor or faculty member at another school on the Anschutz Medical Campus. If this the case, the student must also identify a SSPPS faculty member who will serve as a second mentor and as the faculty liaison. Interested students may seek assistance from the PharmD Honors Program Committee in selection of a mentor should difficulties in identifying an appropriate mentor arises. In this case, the student should contact the committee well in advance of the anticipated date of application to the program. ***The primary responsibility of identifying a mentor rests with the student, and requesting committee assistance with identifying prospective mentors does not guarantee that a successful match will result.***
- Once the student has identified a project mentor, the student and mentor must jointly develop the research project proposal and the plan for its projected completion, including a timeline for major project achievements. The student must submit the research proposal and other required application components to the PharmD Honors Research Program Committee to be considered for entry into the program (please see Application Guidelines). If accepted into the program, the student and faculty mentor shall be responsible for ensuring adequate progress is made on the project and that the project shall be completed by the spring of the P4 year.
- The student is responsible for taking primary ownership of the project and must be involved with the project from its inception to completion. The student must be well informed about the project and be able to knowledgably speak to all aspects of the work including, but not limited to, the premise of the research, how the research was performed, the data that was generated and interpreted, development of conclusions and future directions, etc.
- The student is responsible for providing progress reports every fall and spring semester in a format specified by the committee.

- The student is required to prepare a written final report in a publishable format. The report is due 2-weeks prior to the formal presentation/defense.
- The student is responsible for formally defending their project to the PharmD Honors Research Program committee and their peers during the P4 spring semester. If a student completes the project by the P3 year, they may be permitted to defend earlier if they can be scheduled for their defense by the committee.
- To aid in the completion of projects, students may apply two elective credit hours to their project by enrolling into an Honors Thesis Study Course (when available), use one of their P4 APPE elective rotations as a research elective, or utilize both options.
- The student may NOT receive personal remuneration for conducting a PharmD Honors Research Program project. For example, a student cannot be paid by an employer/preceptor for time spent on the research project.

Mentor Responsibilities

- Project mentors are responsible for the following:
 - Ensuring adequate guidance and mentorship from beginning to completion of the project
 - Ensuring that the student meets the requirements for entrance into, retention in, and completion of the program
 - Approving the student's application and project proposal prior to submission to the PharmD Honors Research Program Committee and writing a letter confirming their commitment to serve as the student's mentor
 - Ensuring that the student is on track to complete the project by the P4 spring semester. This involves ensuring milestones are reached and progress reports are submitted by designated due dates during the fall and spring semesters
 - Informing the PharmD Honors Research Program Committee of any unresolved concerns related to the student's performance at fall and spring semester progress reports, and/or on an as-needed basis
 - Attending the fall and spring semester progress report presentations
 - Attending the final presentation/defense
 - Completing the Project Mentor evaluation forms, which will be part of the PharmD Honors Research Program Committee's final review criteria

Eligible Projects

The project may be in the disciplines of translational sciences, clinical sciences or practice, outcomes research, public health, healthcare administration, social sciences, or educational research. Completion of the project must be equivalent to ~10 hours of work per week for two semesters, i.e., ≈300 hours. Students should undertake projects that can be reasonably completed in this time.

Program Retention Requirements

The requirements for **retention** of students in the PharmD Honors Research Program include:

- 1) Academic, professional, and ethical standings meriting continuation in the professional program
- 2) Maintenance of GPA ≥ 3.0
- 3) Enrollment in the professional Doctor of Pharmacy program
- 4) Regular attendance and participation at the PharmD Honors Research Program meetings and presentations (except during the P4 year)
- 5) Evidence of satisfactory progress in the PharmD Honors Research Program project (as evaluated by progress reports, the faculty mentor and/or PharmD Honors Research Program Committee)

NOTE: Students may be dismissed from the program if they fail to meet all of the above-mentioned criteria. Students placed on probation or suspension by the Scholastic Appeals and Advancement Committee may be asked to withdraw from the PharmD Honors Research Program. Students who are dismissed from the program shall not be allowed to enroll again.

Program Completion Requirements

The PharmD Honors Research Program Committee is responsible for designating that a student has successfully completed the requirements of the program. The requirements for **completion** of the PharmD Honors Program include:

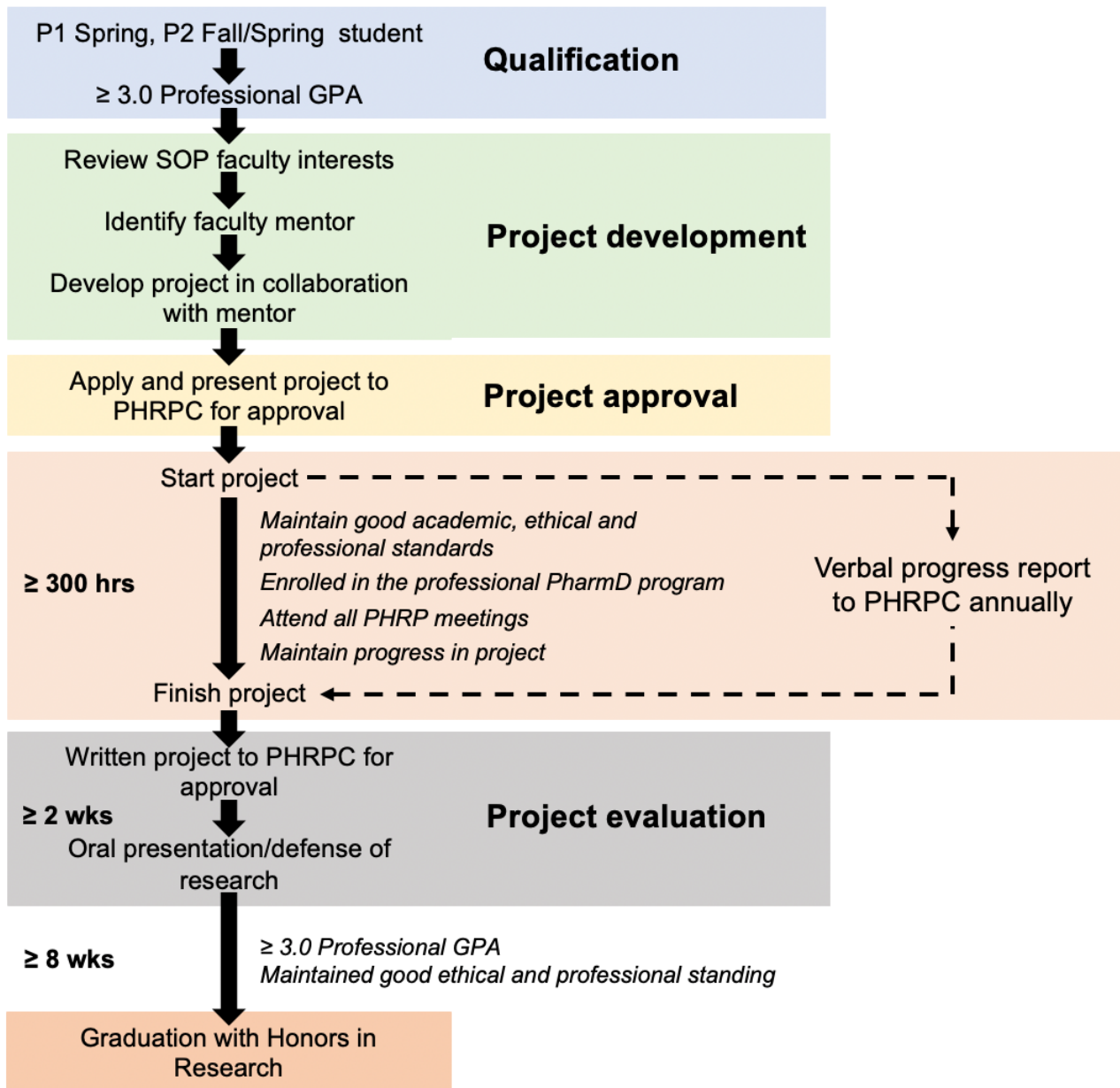
- 1) Student has maintained a GPA \geq 3.0
- 2) Student is not under review by the Scholastic Appeals and Advancement Committee and/or has not been found to have violated the Student Ethics and Conduct code by the Student Ethics and Conduct Committee
- 3) Student has completed a PharmD Honors Research Program project as certified in writing by the primary faculty mentor
- 4) Student has completed a PharmD Honors Research Program project as certified by the PharmD Honors Research Program Committee. Approval is based upon successful completion of the following:
 - Submission of a written report due at least 2 weeks before the oral presentation/defense. The report should be in the format of a research manuscript that would be suitable for publication in a scientific journal.
 - Oral presentation/defense (with slides) of the completed PharmD Honors Research Program project to the PharmD Honors Program Committee at least 8 weeks before the date of the student's graduation from the professional PharmD program. The presentation should be 20 minutes in length and reflect the research completed. Presentations must consist of background, purpose/hypothesis, methods, statistical analysis, results, interpretation, strengths/limitations, conclusion, and future directions. The student should also include a brief reflection of study timeline, accomplishments and what they have learned and got out their experiences of being in the program.
 - Students will also be asked to provide feedback on the PharmD Honors Research Program.

NOTE: Students are encouraged to present their projects at local or national meetings and/or submit their manuscripts describing their research project for publication in a scientific journal.

Figure 1: Schematic Representation of the PharmD Honors Research Program

PHRPC = PharmD Honors Research Program Committee

PHRP = PharmD Honors Research Program



Application Guidelines and Requirements

Step 1: Brief Email Letter of Intent

Students interested in applying to the PharmD Honors Research Program should submit a brief letter of intent/interest to SOP-pharmd.honorsresearch@cuanschutz.edu that contains the following information:

- Student name
- Year in school
- Faculty mentor name
- Research proposal title

Once received, the student will be given access to the PharmD Honors Research Program Canvas site where complete program information can be found and proposals are to be submitted (see below).

Step 2: Full Application Proposal

*****Application deadlines for admission into the PharmD Honors Research Program are midnight on November 1 or April 1 via Canvas*****

All applications should be uploaded to the PharmD Honors Research Program Canvas site by the stated deadlines. Applications must include:

- A 1-2 page cover letter written by the student delineating the students goals and objectives (short- and long-term) for pursuing the PharmD Honors Research Program, the student's qualifications for the program, and a brief explanation of the project and the name of the project faculty mentor.
- A brief letter of support from the SSPPS project faculty mentor indicating a willingness to supervise the student for the project and a declaration confirming the availability of adequate resources for completion of the project and that the project can be reasonably completed in the time (dates) proposed by the student
- Research proposal (using the Research Proposal Template) outlining the PharmD Honors Research Program project, that includes the following sections:
 - **(Page 1) Title Page:** lists the title of the research project, the PharmD Honors Research Program applicant's name and expected graduation year, the name of the faculty mentor(s), and the proposed dates of study; and a summary statement (a two-sentence description of the purpose of the research)
 - **(Page 2) Abstract:** a 250-word summary of the project.
 - **(Pages 3-6) Research Proposal:** includes the following sections and is appropriately cited using appropriate scientific citation style-
 - **Introduction/Background:** provides background detail regarding what is known on the subject, why the study is important, what relevant work has been reported in the literature, and what is the gap in the field will be addressed by the study. At the end of the Background section, the purpose of the study should be clearly stated in bold font. This section should include references using appropriate scientific citation methods (e.g., AMA format).
 - **Specific Aims and Hypotheses:** a list of objectives that your research will seek to address and hypotheses accompanying these objectives
 - **Study Methods:** a description of the methods that will be used to address the aims of the project, including inclusion/exclusion criteria (if applicable), data endpoints and data collection methodology, and planned statistical analyses
 - **Anticipated Results:** provides a description of the anticipated results, and potential pitfalls/limitations and alternative approaches should be discussed in this section
 - **Study Importance/Innovation:** a description of what the research hopes to achieve, why the research is important, and how it will add to the body of knowledge
 - **References:** a list of references that have been cited in the proposal (not included in the 3-4 page limit)
- Student project responsibilities must be clearly delineated in a separate paragraph
- If additional individuals/collaborators will be involved in the project (e.g., graduate students, PRAs, post-docs, statistician, other collaborators, etc.), the student must list the names of the involved individuals and provide a brief description of their roles in the project.
- A study timeline for project completion that indicates quarterly milestones and proposed dates of project commencement and completion.

After the review by the Pharm Honors Research Committee, the Committee Chair will provide a written response to the student and mentor within 4 weeks of the application submission. The response will indicate the status of the application as “approved”, “requires revision and/or response” (i.e., queries need to be addressed before full approval is granted, and these concerns may be related to the project or the need for additional information), or “denied.” For an application that receives a “requires revision and/or response”, the student must submit a revision or response to the queries within 8 weeks of the initial application deadline. For an application that receives a “denied” decision, a revised form of that application will NOT be reconsidered.

PharmD Honors Research Proposal Template

(Page 1)

Project Title:

PharmD Honors Research Program candidate:

Expected graduation year:

Faculty mentor (s):

Dates of study:

Study summary statement:

(Page 2)

Abstract: a summary of the project (250 words maximum)

(Page 3-6)

Research Proposal

Introduction/Background

Provides background detail regarding what is known on the subject, why the study is important, what relevant work has been reported in the literature, and what is the gap in the field that your study will address. At the end of the Background section, the purpose of the study should be clearly stated in bold font. This section should be referenced using appropriate scientific citation methods (e.g., AMA).

Specific Aims and Hypotheses: (Maximum of 3 aims)

Include a list of aims that your research will seek to address and hypotheses accompanying these aims.

Study Methods:

Include a description of the experimental approaches/methods that will be used to address the aims of the project. This section should include a data analysis plan and description of how the data will be analyzed (e.g., proposed statistical analysis). For clinical-based projects inclusion/exclusion criteria should be described and if patient numbers for meaningful statistical analyses will be met. For laboratory-based projects a description of techniques and assays that will be used to address the research objectives should be provided.

Anticipated Results:

Include a description of the anticipated results, and potential pitfalls/limitations and alternative approaches.

Study Importance/Innovation:

Include a description of what the research hopes to achieve, why the research is important and how will it add to the body of knowledge.

References:

Include a list of references that have been cited in the proposal (Pages devoted to this section are not included in the 3-4 page limit).

Student Responsibilities:

Student must clearly delineate their expected responsibilities throughout the project in a separate paragraph.

Other Collaborators

Student must list the names of other individuals/collaborators (e.g., graduate students, PRAs, post-docs, statistician, other collaborators, etc.) involved in the project and provide a brief description of their roles in the project.

Study Timeline:

Include a study timeline for project completion that indicates quarterly milestones and proposed dates of project commencement and completion.