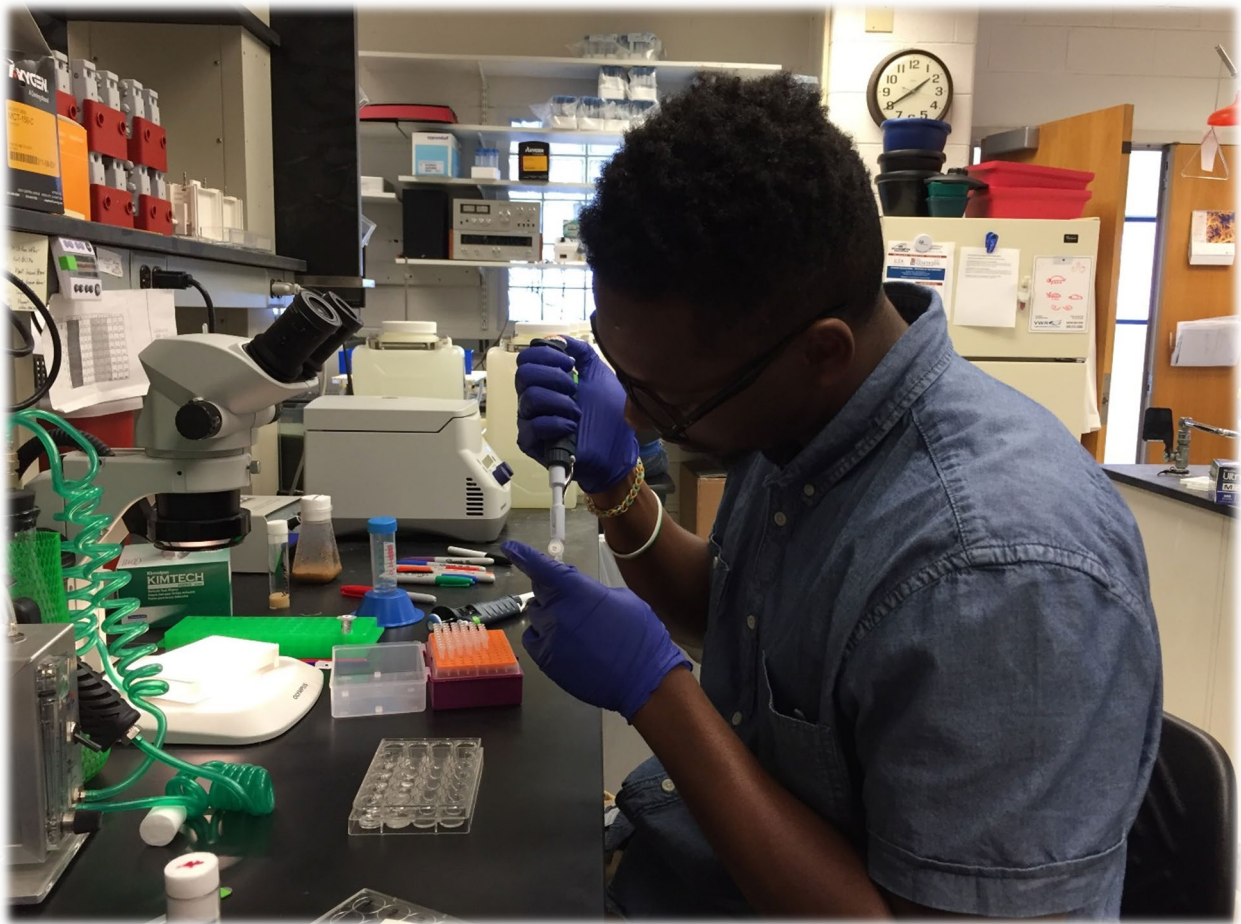


Pharmacology Department Advancement to Candidacy (Adv2Cand)



Guidelines, Policies, Procedures, and Forms
Revision Date: April 16, 2021

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Concepts and Intentions

Students will complete PHAR 9400, Grant Writing in the Pharmacological Sciences (See Appendix A), in the fall of their second year (concurrently with PHAR 9001 and 9002). The course is designed to help students learn how to effectively communicate scientific concepts and justify proposed experiments in writing. Through a series of mentor-led sessions and peer-to-peer workshops, students will have the opportunity to create a document that may be turned into a funding proposal. Students are encouraged to work on their Candidacy Exam project in this course.

The Candidacy Exam takes the form of an **NRSA proposal** with **NIH-style reviewer feedback** and includes the opportunity for students to revise their proposals, incorporating this feedback. The process takes about **six weeks** to complete.



Deadlines

Date	Who	Gives/Does What	To/With Whom
August 15	DGS	Meets with	Rising 2 nd Year Students
	Carrie	Sends this booklet	Mentors and Rising 2 nd Years
December 1	Student	Submits Exam Application/Committee Request Form	Carrie
December 5	Carrie	Consolidates application/committee requests	DGS
December 10	DGS	Committee Changes	Carrie
December 15	Carrie	Committee Approvals and Changes	Student (cc: Mentor, DGS)
December 30	Student	Schedules Exam Date	Exam Committee (cc: Carrie)
<i>The following deadlines assume the last possible exam date of April 15. All deadlines below should be calculated based on the actual exam date.</i>			
March 10 <i>6 weeks before Exam</i>	Student	Submits Written Proposal	Exam Committee (cc: Carrie)
	Carrie	Sends this booklet, with instructions and forms	Exam Committee
March 24 <i>4 weeks before Exam</i>	Exam Chair	Provides NIH-Style Reviewer Feedback from Exam Committee Members	Student (cc: Carrie)
April 8 <i>1 week before Exam</i>	Student	Submits Revised Proposal with Introduction	Exam Committee (cc: Carrie)
	Mentor	Submits Letter of Support	Carrie
April 13 <i>2 days before Exam</i>	Carrie	Exam Results Form, Mentor's Letter	Exam Chair
April 15	Exam Date		
	Student	Completes Oral Examination	Exam Committee
	Exam Chair	Fills out and submits Exam Results Form	Carrie
April 15-18	Carrie	Prepares Adv2Cand Packets, Schedules Grad Committee Meeting	Grad Committee
April 22	Grad Committee	Meets to review and vote on Adv2Cand	
April 25	Carrie	Prepares and sends Adv2Cand Letters	DGS
April 30	Exam Chair	Exam Committee Letter	Student (cc: Carrie)
	Carrie	Sends signed Adv2Cand Letter	Student (cc: Mentor, DGS)
	Carrie	Completes PHDCAND Milestone in SIS	

Student Responsibilities

The student is responsible for:

- Successful completion of PHAR 9400.
- Adhering to all deadlines, policies, and procedures related to the Adv2Cand process.
- Requesting Exam Committee Members on the Exam Application Form.
- Scheduling the Candidacy Exam (oral defense of written proposal).
- Ensuring Carrie receives copies of the written proposal and resubmission.

Faculty Responsibilities

Director of Graduate Studies (DGS)

The DGS is responsible for:

- Meeting with students to explain the Adv2Cand process, timeline, and expectations.
- Reviewing and approving Candidacy Exam Committees.
- Distributing Pharmacology Graduate Committee members across all student exams to even the workload.
- Assigning a member of the Pharmacology Graduate Committee to serve as the Candidacy Exam Chair.
- Calling a meeting of the Pharmacology Graduate Committee to vote on student Adv2Cand.
- Informing student of Adv2Cand.

Student's Mentor

The student's Mentor is responsible for:

- Instructing the student in grant-writing skills and actively participating in the PHAR 9400 curriculum.
- Providing a letter to the Pharmacology Graduate Committee that assesses the student's overall capability to succeed in completing the Ph.D. This letter should address the student's strengths as well as growth areas, scientific acumen, collaborative abilities, etc.

Exam Committee Chair

Assigned by the DGS, the Exam Committee Chair will be one of the two members of the Pharmacology Graduate Committee serving as Examiners for the student. The Exam Committee Chair is responsible for:

- Collecting NIH-style Reviewer Feedback from Exam Committee Members.
- Consolidated this feedback and providing it to the student (cc: Carrie), adhering to the established deadlines.
- Moderating the Exam discussion.
- Filling out and submitting the Exam Results Form to Carrie
- Providing a written letter of feedback to the student (cc: Carrie), assessing both the written proposal and oral defense.

Exam Committee Members

Requested by the student and approved by the DGS, Exam Committee Members are responsible for:

- Reading and thoughtfully reviewing the student's written proposal.
- Providing NIH-Style feedback for the student to the Exam Chair, adhering to the established deadlines.
- Reading and thoughtfully reviewing the student's resubmission of the written proposal.
- Attending and participating in the student's oral defense of the written proposal.
- Signing the Exam Results Form at the oral exam.

There is no expectation or requirement that serving as an Examiner for the Candidacy Exam commits the faculty member to serving on the student's Dissertation Committee.

Pharmacology Graduate Committee

Appointed by the Department Chair, the Pharmacology Graduate Committee is responsible for:

- Participating in Candidacy Exams by serving as both Exam Committee Members and as Exam Chairs, when assigned by the DGS.
- Evaluating the student's overall progress in the program (i.e., grades in coursework, participation in Journal Clubs/Seminars/Research Retreats, collegiality, performance on Candidacy Exam, letter of support for Advancement from student's mentor, etc.).
- Voting on the student's Adv2Cand.

Members of the Pharmacology Graduate Committee			
Barrett, Paula <i>Professor</i>	PQB4B	434-924-5454	Pinn 5224B
Bayliss, Douglas <i>Joseph & Frances Lerner Chair and Professor</i>	DAB3Y	434-982-4449	Pinn 5009A
Beenhakker, Mark <i>Associate Professor</i>	MPB5Y	434-243-8497	Pinn 5058A
Desai, Bimal <i>Associate Professor</i>	BND6N	434-243-0850	Pinn 5015A
Harris, Thurl <i>Associate Professor and Director of Graduate Studies</i>	TEH3C	434-924-1584	Pinn 5221B
Lynch, Kevin <i>Professor and PI of the PSTG</i>	KRL2Z	434-924-2840	Pinn 5227B



Proposal Guidelines

Exam Structure

The Candidacy Exam is comprised of two parts: a grant-style document, or *Written Proposal*, and an *Oral Examination/Defense* of this document.

Examination Committee

Five members are required for the Examination Committee. Examiners should be selected by the student in consultation with the mentor, based on topical expertise.

- Three of the members must be preceptors on the Pharmacological Sciences Training Grant.
- Two members must be from the Pharmacology Graduate Committee.
- Your mentor may not be one of the Examiners.
- These Examiners do not need to be the people you wish to have on your dissertation committee.

Written Proposal

Basic Format

This document will be in **grant format**; it should be typed using **11 pt Arial** and **single line spacing**. It must be **10 pages** in length **including figures, excluding references** (try to keep references under 50). The proposal should **follow NIH guidelines for predoctoral NRSA fellowships**.

The proposal will include **2-3 *Specific Aims*** and will follow the general NIH proposal guidelines described below. The Examination Committee understands that the initial version of your proposal (i.e., Aims 1 & 2) may have received substantial feedback during PHAR 9400, another BIMS writing course, and/or from your PI.

However, **one aim of your proposal should be independently conceived and written**, and will specifically test an impactful, far-reaching hypothesis that includes an ambitious set of experiments. Students are encouraged to include experiments or techniques that are outside of their lab's area of expertise for this aim. Thus, the final aim will test the student's ability to independently develop a set of experiments that will transform their field. This expansive **will not be penalized for being too ambitious**. However, the aim **will be rejected** by reviewers **if it is not expansive enough** or if it simply follows normal experimental procedure in the lab.

Please note: The student mentor will be required to attest to the fact that the expansive aim was independently conceived and written.

NIH-style Feedback on Written Proposal

The Examination Committee will receive the *Written Proposal* no fewer than **six weeks** prior to the *Oral Defense* date. **Two weeks** after receiving the *Written Proposal*, the Examination Committee will provide the student with formal feedback in the form of standard, NIH proposal reviewer comments. Reviewers will use the NIH Style Reviewer Feedback Form (See Appendix C) to submit their feedback to the Exam Chair. The comments will address the following aspects of the proposal: (1) Significance,

(2) Approach, and (3) Writing Quality. The reviewers are instructed to take into consideration the requirement for an expansive aim that is outside the lab's primary areas of expertise.

Resubmission with Introduction

In preparation for the *Oral Defense* the student will provide the Examination Committee with both (1) a one-page "Introduction" detailing changes made to the revised proposal, and (2) the revised proposal. **All revision work must be performed by the student independently of their mentor.** Please clearly indicate any substantial changes made in the revised document (e.g., by underlining, changing font color, etc.). The Examination Committee will receive the Introduction and revised proposal no fewer than **seven days** prior to the *Oral Defense*.

Grading

The Examination Committee will evaluate your *Written Proposal* and *Oral Defense* separately. Each will be assigned a grade of High Pass, Pass, Conditional Pass, or Fail.

Written Proposal Guidelines

Specific Aims

Not to exceed 1 page

- Abstract summarizing rationale (1-2 paragraphs)
- Specific Aims
 - Aim 1-3: declarative phrase or question (hypothesis based aims page is essential)
 - 2-3 lines listing the experimental approaches (1.1, 1.2, 1.3) used to explore the question

Background and Significance

2 pages

- Use **bolded** subheadings to divide the information
- Explain what is known and not known, indicating where your studies will address these knowledge deficiencies.

Preliminary Data and Significance

1 page

- Usually this is your own data, but for this exercise, data from others may be included.

Research Design and Methods

- **Specific Aim 1** (and for subsequent specific aims): Repeat statement of aim.
 - **Rationale:** Provide a succinct one paragraph summary of the rationale
 - **Protocols for each individual approach (1.1, etc.)**
 - (1.1) Subheading of Experiment
 - **Design:** explain experiment
 - **Control Experiments**
 - **Data Analysis:** exactly what you will measure, number of cells, experiments, statistical analysis, power calculations
 - **Anticipate Results/Limitations**
 - (1.2, 1.3)
 - **Methods**

Literature Cited

Try to keep it under 50, if you can.

Using Diagrams

Note: when discussing the literature in the Background and Significance section or explaining an experiment under the Research Design and Methods, a small diagram is sometimes very helpful to:

- Delineate cascades
- Explain complicated experimental approaches
- List constructs or reagents that might be compared.

Oral Exam/Defense

The Examination Committee will separately evaluate and grade your ability to orally defend the *Written Proposal*. This defense will also be assigned a grade of High Pass, Pass, Conditional Pass, or Fail. Questions will focus on, but may not be limited to, the written document and your oral presentation. Your mentor may be present at the defense as a “silent partner” to observe your performance, but you mentor cannot engage with the Examination Committee during your oral defense.

Immediately after completion of the oral portion of the exam the Examination Committee will provide a brief summary of the outcome, a final score on each component of the exam (oral and written), and an outline of the next steps. Soon after the completion of the exam the chair of your Examination Committee will provide a letter more fully summarizing the results of the written and oral exams.

Forms

Exam Application Form

See Appendix B. **Due Date: April 15**

FAQ

- **Q.** Can my mentor be an examiner?
A. No
- **Q.** I have identified a faculty member with particular expertise in my proposal topic, but they are not a preceptor on the PSTG. Can they be an examiner?
A. Yes. The Exam Application form has space for you to suggest **one** non-PSTG member with relevant expertise. The request will be considered by the DGS.

NIH-Style Reviewer Feedback Form

See Appendix C. **Due Date: Two weeks after the *Written Proposal* is received** (due date to Exam Chair will be sooner than this so the Exam Chair can meet the two-week deadline).

FAQ

- **Q.** Will reviewers be identified when feedback is given to student?
A. No. The Exam Chair will collect the forms and give them to the student. Reviewer names will not be on the forms.

Exam Results Form

See Appendix D. **Due Date: Date of Exam**

FAQ

- **Q.** Who is responsible for filling out and submitting this form?
A. The Exam Chair
- **Q.** Who should sign this form?
A. All Examiners
- **Q.** My meeting is over Zoom, how do I get the signatures?
A. Carrie will route the form through DocuSign to collect the signatures.

Letters

Mentor's Letter of Support

See Appendix E. Due Date: 1 week before the Exam Date

FAQ

- Q. Who is this letter addressed to?
A. The Pharmacology Graduate Committee
- Q. Who do I give this letter to?
A. Carrie
- Q. What should I include in the letter?
A. A comprehensive overview of the student's ability to succeed in the Ph.D. program. The letter should address student strengths as well as growth areas, scientific acumen, collaborative abilities, etc.

Exam Chair's Letter of Exam Results

See Appendix F. Due Date: Two weeks after *Oral Defense*

Advancement to Candidacy Letter

See Appendix G. Due Date: Two weeks after *Oral Defense*

FAQ:

- Q. Does passing my Candidacy Exam mean I automatically Advance to Candidacy?
A. No. The Grad Committee meets to decide about your Advancement. The Committee will take into consideration **your overall performance in course work, laboratory rotations, Journal Club presentations, and participation in department activities** (e.g., Seminars, Research Retreat, etc.). The Committee will also consider the **Examination Committee's evaluation** of your *Written Proposal* and *Oral Defense*, as well as the **letter of support from your mentor**.

Appendices

Appendix A: PHAR 9400 Syllabus

Appendix B: Exam Application Form

Appendix C: NIH-Style Reviewer Feedback Form

Appendix D: Exam Results Form

Appendix E: Mentor's Letter of Support

Appendix F: Exam Chair's Letter of Exam Results

Appendix G: Advancement to Candidacy Letter

Appendix A: PHAR 9400 Syllabus

PHAR 9400: Grant Writing in the Pharmacological Sciences (2 cr)

Course Instructor: Thurl Harris

Fall 2020: Tuesdays, 8:00 – 11:00 AM, Pinn 5023

Course Description:

Biomedical researchers must be able to communicate scientific concepts and justify proposed experiments in writing clearly and effectively. In this course, trainees will learn and practice effective grant writing skills. Students will submit scientific proposals and workshop them with faculty mentor and peers.

Prerequisites:

- Instructor Permission by **July 31, 2020**
- Identified research problem (may be your intended Advancement to Candidacy Exam topic or a fellowship application)
- Substantial knowledge of the literature in the proposed research area
- Commitment to ongoing participation in both writing and editing for the duration of the course

Recommended Textbooks:

Writing the NIH Grant Proposal: A Step-by-Step Guide, Third Edition

Authors: William Gerin, Christine Kapelewski Kinkade, and Niki Page

ISBN-13: 978-1506357737, ISBN-10: 1506357733

The Elements of Style, Fourth Edition

Authors: William Strunk Jr. and E.B. White

ISBN-13: 978-0205309023, ISBN-10: 9780205309023

Participating Faculty:

Each faculty member is responsible for delivering session content to their trainee(s) and conducting the four Mentor Workshops outlined in the course schedule. Students meet for the Peer Workshops to review and critique each other's proposals.

- Thurl Harris, Ph.D., Associate Professor of Pharmacology (Course Instructor)
- Mentors of students enrolled in the course

Assignment Due Dates:

Writing assignments should be submitted as Word documents to the course Collab site. Assignments are due on **Saturday at 5:00 p.m.** prior to the next class to give reviewers time to edit and review your document.

Course Schedule:

September 8, 2020 – November 10, 2020

Session 1 (09/08/2020): Intro to Grant Writing and Editing Intro to Specific Aims	Session 6 (10/13/2020): Mentor Workshop – Research Plan (Aim 1) Discussion – Generating “Integrated” Aims
Session 2 (09/15/2020): Mentor Workshop – Specific Aims Intro to Significance and Background	Session 7 (10/20/2020): Peer Workshop – Research Plan (Aims 2, 3)
Session 3 (09/22/2020): Peer Workshop – Significance and Background	Session 8 (10/27/2020): Mentor Workshop – Research Plan (Aims 2, 3) Intro to Abstract, Revisiting Your Specific Aims
Session 4 (09/29/2020): Mentor Workshop – Significance and Background Intro to Research Plan	Session 9 (11/03/2020): Peer Workshop – Integrated Proposal
Session 5 (10/06/2020): Peer Workshop – Research Plan (Aim 1)	Session 10 (11/10/2020): Completing the non-proposal components of a fellowship application

Appendix B: Pharmacology Candidacy Exam Application Form

Due Date: December 1

Return To: Carrie

Student's Name: _____ Date: _____

Mentor:

(Name)

(Title)

(Department)

Proposal Topic:

The Examination Committee will be comprised of five faculty: three preceptors from the Pharmacological Sciences Training Grant and two members of the Pharmacology Graduate Committee. Please list below the faculty members that you and your Mentor have selected to serve on your Examination Committee. The final decision for all Examination Committee members resides with the Director of Graduate Studies.

	Name	Title	Department
1.	PSTG Member	_____	_____
	<i>Expertise</i>	_____	_____
2.	PSTG Member	_____	_____
	<i>Expertise</i>	_____	_____
3.*	PSTG Member	_____	_____
	<i>Expertise</i>	_____	_____
4.	Grad. Comm.	_____	_____
	<i>Expertise</i>	_____	_____
5.	Grad. Comm.	_____	_____
	<i>Expertise</i>	_____	_____

*Occasionally there is a compelling reason to include a faculty member who is neither a PSTG preceptor nor a member of the Pharmacology Graduate Committee. To request an outside Examiner in lieu of a third PSTG preceptor, please provide the name, title, and area of expertise for this person below:

Pharmacology Graduate Committee Use Only

- This Candidacy Exam Form is approved and requires **no changes**.
- This Candidacy Exam Form is approved **with the following changes:**

Signature (Director of Graduate Studies)

Date

Appendix C: NIH-Style Reviewer Feedback Form

Due Date: Varies based on Exam Date

Return To: Exam Committee Chair

Candidacy Exam Review

Principal Investigator(s):

Overall Impact

Reviewers will provide an overall impact score to reflect their assessment of the likelihood for the project to exert a sustained, powerful influence on the research field(s) involved, in consideration of the following five scored review criteria, and additional review criteria. An application does not need to be strong in all categories to be judged likely to have major scientific impact.

Overall Impact *Write a paragraph summarizing the factors that informed your Overall Impact score.* 3

Scored Review Criteria

Reviewers will consider each of the five review criteria below in the determination of scientific and technical merit, and give a separate score for each.

Significance. Does the project address an important problem or a critical barrier to progress in the field? Is there a strong scientific premise for the project? If the aims of the project are achieved, how will scientific knowledge, technical capability, and/or clinical practice be improved? How will successful completion of the aims change the concepts, methods, technologies, treatments, services, or preventative interventions that drive this field?

Summary:

Strengths

-

Weaknesses

-

Approach. Are the overall strategy, methodology, and analyses well-reasoned and appropriate to accomplish the specific aims of the project? Have the investigators presented strategies to ensure a robust and unbiased approach, as appropriate for the work proposed? Are potential problems, alternative strategies, and benchmarks for success presented? If the project is in the early stages of development, will the strategy establish feasibility and will particularly risky aspects be managed? Have the investigators presented adequate plans to address relevant biological variables, such as sex, for studies in vertebrate animals or human subjects? Are statistics correctly and appropriately applied, including power analyses?

Summary:

Strengths

-

Weaknesses

-

Writing Quality. Is the proposal clearly and succinctly written? Is the hypothesis clearly articulated and are the aims well-defined? Etc. State what is good as well as the shortcomings of the proposal.

Summary:

Strengths

-

Weaknesses

-

Appendix D: Candidacy Exam Results Form

Due Date: Day of Exam

Return To: Carrie

Student Info	
Student's Name: _____	Exam Date/Time: _____
Mentor: _____	_____
	(Name) (Title) (Department)
Proposal Topic:	_____

Examination Results		
Written Proposal	Oral Defense	Rigor & Reproducibility (R&R)
<input type="checkbox"/> High Pass	<input type="checkbox"/> High Pass	<input type="checkbox"/> Check this box to certify that
<input type="checkbox"/> Pass	<input type="checkbox"/> Pass	R&R relating to the student's
<input type="checkbox"/> Conditional Pass	<input type="checkbox"/> Conditional Pass	proposal was discussed.
<input type="checkbox"/> Fail	<input type="checkbox"/> Fail	
Comments are required:		
R&R Comments:	_____	
Overall Comments:	_____	

Examiners	
Name, Department	Signature
1. Grad Comm – Exam Chair	_____
2. Grad Comm – R&R Rep	_____
3. PSTG Mentor	_____
4. PSTG Mentor	_____
5. PSTG Mentor	_____

This Candidacy Examination Committee read and evaluated the student's *Written Proposal* and subsequently provided the student with an *Oral Examination* of that proposal. We agree on the grade(s) assigned and comments above.