

Pharmaceutical Sciences (PhD) - Reviewer's Report - Academic Data

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Pharmaceutical Sciences (PhD)

Program Mission Item

Mission:

The College of Pharmacy's mission is to improve the lives of others locally and globally through a climate of discovery to develop future leaders in pharmacy practice and science, support research across the spectrum from drug discovery to medication use in society, advance pharmacy practice to optimize patient-centered care and healthcare delivery, and foster lifelong learning. The College of Pharmacy's strategic plan goal for graduate education is to provide outstanding research training in those areas core to our college, through enhanced graduate student mentorship, increased external research funding, and improved recruitment strategies. Our mission and strategic plan align with the Board of Governors' mission to provide graduate education of the highest quality and the University of Florida's mission to enable our students to lead and influence the next generation and beyond for economic, cultural, and societal benefit.

Program Type and Level: Research Doctorate

Start: 07/01/2021

End: 06/30/2022

Program: Pharmaceutical Sciences (PhD)

Program CIP: 51.2010

Site Information: On Campus (Residential)

If Other Site: :

Responsible Roles: Kimberly Mahoney (mahoneykr@ufl.edu), Maureen Keller Wood (mkeller@ufl.edu)

PG1 Foundational Knowledge/Skills/Training

Goal: To provide high quality research training in Pharmaceutical Sciences through dedicated graduate student mentorship.

Program: Pharmaceutical Sciences (PhD)

Evaluation Method:

All PhD students in their second year or beyond are expected to meet with their Supervisory Committee at least once per year, which will be recorded and tracked by the Office of Graduate Education in coordination with the department graduate coordinators. Additionally, faculty supervisors are required to provide an Annual Student Evaluation to their students each year, where student progress is assessed and reported to the Office of Graduate Education. Regular meetings with the Supervisory Committee and annual feedback about their academic progress are required for the purpose of ensuring students received dedicated mentorship from the faculty.

Results:

In 2021-22, 75 (82.4%) of the 98 eligible PhD students submitted documentation of a Supervisory Committee meeting.

In 2021-22, 106 (94.6%) of the 112 eligible PhD students received an Annual Student Evaluation from their faculty supervisor.

The 2021-22 Committee Meeting report and Annual Student Evaluation response rates were reviewed by the COP Graduate Education Committee, comprised of the Associate Dean for Research and Graduate Education, the five department graduate coordinators, the Office of Graduate Education, and a graduate student representative. At least 95% of eligible PhD students should complete these two requirements. The 2021-22 results do not meet the program's goal, and the following changes have been implemented:

- Improvements to the Supervisory Committee Meeting Report form to make it easier and more efficient for faculty to complete.
- Involvement from department leadership (graduate coordinators and chairs) to promote compliance.

PG2 Research

Goal:

To provide broad research training opportunities ranging across the life cycle of a drug under the direct mentorship of graduate research faculty and supported through increased research funding.

Program: Pharmaceutical Sciences (PhD)

Fall 2021 #	303	59	18	53	25	7	35	11	4
Fall 2021 %		19.5%	5.9%	17.5%	47.2%	13.2%	11.6%	31.4%	11.4%

Overall, the number of applications to the Pharmaceutical Sciences PhD program for Fall 2022 increased by approximately 35%. The percentage of matriculated students with US citizenship increased from 31.4% to 45.2% and the percentage of matriculated students categorized as Under Represented Minorities increased from 11.4% to 16.1%. Each of these categories reflected approximately 25% growth.

The 2021-22 admissions data was reviewed by the Office of Graduate Education and Associate Dean for Research and Graduate Education. These results were deemed to have met the program's goal. To ensure ongoing improvements to recruitment and admissions, the following actions have been taken:

- Implement an improved tracking system for identifying the effectiveness of our recruitment strategies.
- Distribute and collect survey to incoming cohort for feedback on recruitment and admissions process.

SLO1 Knowledge

Outcome:

Students will identify, interpret, and utilize core knowledge across the spectrum of Pharmaceutical Sciences as it relates to the student's research. At the most advanced level, this will include interpreting experimental data and designing experiments.

SLO Area (select one): Knowledge (Grad)

Assessment Methods Checklist: Faculty Evaluation/Review

Qualifying/Comprehensive Examination

Dissertation

Assessment Method Narrative:

Students' academic performance and knowledge of core concepts of Pharmaceutical Sciences is monitored throughout the graduate career and assessed in the students' Annual Evaluation by their Supervisory Chair. Mastery of the concentration-specific knowledge is assessed by the Supervisory Committee at the qualifying examination and final dissertation defense.

SLO Not Assessed This Year:

Threshold of Acceptability: 95

How many students did you assess for this outcome?: 127

How many students met the outcome?: 126

What percentage of students met the outcome?: 99

Does this meet your threshold of acceptability?: Yes

Results:

Faculty supervisors were asked to evaluate if students have progressed successfully in their academic coursework. Of the 106 PhD student evaluations submitted by the graduate faculty in 2021-22, 82 (77.4%) were rated as making Excellent Progress in the demonstration of Academic Performance, 24 (22.6%) were rated as making Competent Progress, and 0 students were rated as Unsatisfactory. 106/106, (100.0%) of students assessed have achieved competency in this metric.

In 2021-22, 10 PhD students defended their final dissertation (10/10, or 100% pass). Under the Knowledge category, 9 scored Excellent, 1 scored Competent, and 0 scored Unsatisfactory. All students assessed achieved competency in this metric.

In 2021-22, 11 PhD students completed their qualifying exam (10/11, or 90.9% pass). Under the Knowledge category, 6 scored Excellent, 4 scored Competent, and 1 scored Unsatisfactory. 90.9% of students assessed have achieved competency in this metric.

The 2021-22 Knowledge SLO results were reviewed by the COP Graduate Education Committee, comprised of the Associate Dean for Research and Graduate Education, the five department graduate coordinators, the Office of Graduate Education, and a graduate student representative. These results were deemed to have met the threshold of acceptability.

Improvements have been made to the assessment method by revising the Graduate Examination form. The form has been updated by the Office of Graduate Education, with input from the committee members, to improve efficiency and add a "Pass with Remediation" option with feedback about deficiencies with a timeline for completion. The revised form requires faculty to provide written summary of the strengths and weaknesses identified in the qualifying exam to assure that the committee is working with the students to increase excellence in cases in which students are graded as competent. These improvements will allow students to receive more specific feedback at their assessment than previously provided.

SLO2 Problem Solving/Critical Thinking

Outcome:

Students will apply discipline- and research project-related knowledge to complete their dissertation research by formulating hypotheses, designing experiments, interpreting results, and forming conclusions from their experiments.

SLO Area (select one): Knowledge (Grad)

Assessment Methods Checklist: Qualifying/Comprehensive Examination

Dissertation

Assessment Method Narrative:

Students' appropriate application of problem-solving and critical thinking skills will be monitored throughout the graduate career in the research lab and in professional presentations to the department and/or College. Mastery of problem-solving skills as it applies to research are assessed by the Supervisory Committee at the qualifying examination and final dissertation defense.

SLO Not Assessed This Year:

Threshold of Acceptability: 95

How many students did you assess for this outcome?: 21

How many students met the outcome?: 20

What percentage of students met the outcome?: 95

Does this meet your threshold of acceptability?: Yes

Results:

In 2021-22, 10 PhD students defended their final dissertation (10/10, or 100% pass). Under the Problem-Solving category, 7 scored Excellent, 3 scored Competent, and 0 scored Unsatisfactory. All students assessed achieved competency in this metric.

In 2021-22, 11 PhD students completed their qualifying exam (10/11, or 90.9% pass). Under the Problem-Solving category, 6 scored Excellent, 4 scored Competent, and 1 scored Unsatisfactory. 90.9% of students assessed have achieved competency in this metric.

The 2021-22 Problem-Solving/Critical Thinking results were reviewed by the COP Graduate Education Committee, comprised of the Associate Dean for Research and Graduate Education, the five department graduate coordinators, the Office of Graduate Education, and a graduate student representative. These results were deemed to have met the threshold of acceptability.

As identified in SLO 1, improvements have been made to the assessment method by revising the Graduate Examination form. The form has been updated by the Office of Graduate Education, with input from the committee members, to improve efficiency and add a "Pass with Remediation" option with feedback about deficiencies with a timeline for completion. The revised form requires faculty to provide written summary of the strengths and weaknesses identified in the qualifying exam to assure that the committee is working with the students to increase excellence in cases in which students are graded as competent. These improvements will allow students to receive more specific feedback at their assessment than previously provided.

SLO3 Research Skills

Outcome:

Students will utilize the scientific method to formulate hypotheses based on their ability to interpret the literature, their own experimental observations, and those of others; design a technically sound and up-to-date experimental plan with appropriate controls; execute the experimental plan in a technically proficient manner; interpret the data; and reformulate the hypotheses.

SLO Area (select one): Skills (Grad)

Assessment Methods Checklist: Faculty Evaluation/Review

Qualifying/Comprehensive Examination

Assessment Method Narrative:

Students' use of the scientific method will be monitored throughout the graduate career in the research lab setting and assessed in the students' Annual Evaluation by their Supervisory Chair. To be admitted to PhD candidacy within the Pharmaceutical Sciences graduate program, the student must present a unique research proposal to their Supervisory Committee during their oral qualifying examination. The student is expected to present their proposal, defend the proposal satisfactorily, and answer questions posed by the Supervisory Committee to successfully pass the oral qualifying exam and be admitted to PhD candidacy.

SLO Not Assessed This Year:

Threshold of Acceptability: 95

How many students did you assess for this outcome?: 127

How many students met the outcome?: 125

What percentage of students met the outcome?: 98

Does this meet your threshold of acceptability?: Yes

Results:

Faculty supervisors were asked to evaluate if students have successfully exhibited their research skills, through presentations or publications. Of the 106 PhD student evaluations submitted by the graduate faculty in 2021-22, 70 (66.0%) were rated as making Excellent Progress in the demonstration of Research Skills, 35 (33.0%) were rated as making Competent Progress, and 1 (0.9%) student was rated as Unsatisfactory. 105/106, (99.1%) of students assessed have achieved competency in this metric.

In 2021-22, 11 PhD students presented their research proposal at their qualifying exam. 10/11 or 90.9% of students passed the examination and were admitted to PhD candidacy. The student who initially failed the qualifying exam has been approved by their Supervisory Committee and department to remediate and retake the examination in AY2022-23.

The 2021-22 Research Skills results were reviewed by the COP Graduate Education Committee, comprised of the Associate Dean for Research and Graduate Education, the five department graduate coordinators, the Office of Graduate Education, and a graduate student representative. These results were deemed to have met the threshold of acceptability.

As identified in SLO 1 and SLO 2, improvements have been made to the assessment method by revising the Graduate Examination form. Adding a "Pass with Remediation" option with feedback about deficiencies with a timeline for completion will allow students to receive more specific feedback at their Qualifying Examination than previously provided, strengthening the development of their research skills.

SLO4 Professionalism

Outcome:

Students will exhibit behaviors and values that are consistent with ethical standards in research appropriate to safety, administrative, and regulatory rules. Students will deliver a formal scholarly presentation of original research results, including clearly communicating the information at an appropriate level to the audience, answering questions and providing relevant additional background information, and utilizing appropriate audio-visual aids to support their findings.

SLO Area (select one): Professional Behavior (Grad)

Assessment Methods Checklist: Faculty Evaluation/Review

Qualifying/Comprehensive Examination
Dissertation

Assessment Method Narrative:

Professionalism in the research lab and classroom setting is monitored by the student's mentor throughout their graduate career and evaluated in the Annual Student Evaluation. Professional presentation skills are assessed by the Supervisory Committee at the qualifying examination and final dissertation defense.

SLO Not Assessed This Year:

Threshold of Acceptability: 95

How many students did you assess for this outcome?: 127

How many students met the outcome?: 125

What percentage of students met the outcome?: 98

Does this meet your threshold of acceptability?: Yes

Results:

Faculty supervisors were asked to evaluate if students have exhibited behaviors and values consistent with ethical standards in research and academics. Of the 106 PhD student evaluations submitted by the graduate faculty in 2021-22, 85 (80.2%) were rated as making Excellent Progress in the demonstration of Professional Behavior, 19 (17.9%) were rated as making Competent Progress, and 2 students (1.9%) were rated as Unsatisfactory. 104/106, (98.1% of students assessed have achieved competency in this metric.

In 2021-22, 10 PhD students defended their final dissertation (10/10, or 100% pass). Under the Professionalism category, 10 scored Excellent, 0 scored Competent, and 0 scored Unsatisfactory. All students assessed achieved competency in this metric.

In 2021-22, 11 PhD students completed their qualifying exam (10/11, or 90.9% pass). Under the Professionalism category, 9 scored Excellent, 2 scored Competent, and 0 scored Unsatisfactory. All students assessed have achieved competency in this metric.

The 2021-22 Professionalism results were reviewed by the COP Graduate Education Committee, comprised of the Associate Dean for Research and Graduate Education, the five department graduate coordinators, the Office of Graduate Education, and a graduate student representative. These results were deemed to have met the threshold of acceptability.

Including Professionalism in the Annual Evaluation allows for students to receive feedback and adjust their performance as needed, rather than waiting for the Qualifying Exam or Dissertation Defense to receive this valuable information. This also allows the faculty supervisor to thoroughly document student behavior, improving the ability to identify potential issues before they escalate.

Use of Results for Improvement

Improvement Types Checklist: Revised one or more existing Student Learning Outcomes (SLOs).

Removed one or more SLOs.

Modified one or more SLO assessment methods.

Revised one or more existing Program Goals.

Revised one or more existing Program Goal evaluation methods.

Use of Results for Improvement Narrative - Required:

The College of Pharmacy graduate program revised the 2021-22 Program Goals and Student Learning Outcomes as a result of feedback received from the UF Assessment office and to better align with our 2021-23 Strategic Plan. The program underwent the Board of Governors' 7-year Review in Spring 2022, including an External Review panel and a programmatic SWOT analysis, resulting

in an Action Plan that focuses on three main areas: graduate student mentorship, external research funding, and recruitment strategies.

The Office of Graduate Education and Associate Dean for Graduate Education & Research, with input from the Graduate Education Committee, reviewed the revisions to the Assessment Plan and the 2021-22 results. Under graduate student mentorship, the program continues to struggle to achieve full compliance from faculty for Annual Student Evaluations and Supervisory Committee Reports. This has been an ongoing issue, although the faculty response rate is improving. More input from the department and college leadership is needed to ensure students are receiving regular feedback from their Supervisory Committee. Other improvements will be made to the administrative business practices of the program to provide more resources to the students, including the creation of a consolidated graduate student handbook to replace the five department graduate student handbooks. This will include university and college-wide policies, as well as appendices for concentration-specific requirements, and is currently underway with an estimated completion of Spring 2023. The graduate students have also been asked for their input in improving their mentorship experience, such as creating a specific IDP template and taking an active role in the planning and organization of the 2022-23 Annual Student Retreat.

External research funding continues to increase each year, resulting in strong support for graduate student research training. The current resources and college programs appear to be successful in encouraging student grant submissions and incentivizing faculty success. No major changes will be implemented and the program will continue to monitor research funding levels.

Admissions to the Pharmaceutical Sciences graduate program have increased significantly for the second year in a row. The overall number of PhD applications received for Fall 2022 increased, as well as the number of US and URM applications. The percentage of US applications compared to the overall total decreased slightly, likely in part due to the relaxation of COVID-related visa restrictions. The graduate program has organized regular meetings with the college marketing and communications team to identify ways to improve targeted recruitment for high-performing applicants, specifically from diverse populations, rather than simply increasing the overall number of applications. Strategies that have been employed for the 2023 admissions cycle include the implementation of an improved tracking mechanism to identify the efficacy of our recruitment tactics and to collect feedback from our first-year students about the graduate school admissions process.

The 2021-22 program assessment, combined with the completion of the Board of Governors' 7-year Review, allowed us to reconfirm our program's goals and initiate improvements at the administrative, college, and departmental level. The College of Pharmacy will be shifting to new leadership during the 2022-23 year, which will provide an opportunity for further administrative review and improvements to the program.

Program Results Not Reported This Year:

Program Results Reporting Complete: true

Academic Assessment Plan Detail

Providing Department: Pharmaceutical Sciences (PhD)

Assessment Cycle:

Program Goal and Student Learning Outcome data is collected and tracked by the College of Pharmacy Office of Graduate Education throughout the academic year. The review and analysis of the results occurs every Fall, with the submission of the College of Pharmacy Assessment Plan by November 1 of each year. Results are shared with the College of Pharmacy Graduate Education Committee prior to the assessment submission deadline and modifications to the program are instituted per the committee's recommendations for the upcoming year.

- Analysis and Interpretation: Throughout the academic year
- Improvement Actions: Completed by November 1
- Dissemination: Completed by December 1

SLOs	Year	17-18	18-19	19-20	20-21	21-22	22-23
Content Knowledge							
#1		X	X	X	X	X	X
#2		X	X	X	X	X	X
Skills							
#3		X	X	X	X	X	X
Professional Behavior							
#4		X	X	X	X	X	X

SLO Assessment Rubric:

Graduate Examination Rubric:

SLO	Excellent	Competent	Unsatisfactory
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Knowledge			
Problem Solving			
Communication			
Professionalism			

Annual Evaluation Rubric:

Metric	Unsatisfactory	Competent	Excellent
<p>Academic Performance in Core Coursework Has the student successfully completed their required courses for their point of progression in the program?</p>	Student has not completed required courses or did not pass with adequate scores.	Student met all standards of coursework.	Student excelled in coursework, taken on extra academic challenges.
<p>Progression toward next Milestone Exam Has the student either successfully completed their next milestone exam (proposal, oral qualifying exam, or dissertation defense), or made sufficient progress towards that exam?</p>	Student has not completed the necessary steps toward the next exam.	Student met all standards in progressing towards the next exam.	Student excelled at progress towards next exam.
<p>Demonstration of Research Skills Has the student participated in the required presentation of their research, such as at the Research Showcase, conferences, or through publication?</p>	Student has not participated in presenting research.	Student has participated in one form of presenting research.	Student demonstrated multiple instances of presenting research.
<p>Demonstration of Professionalism Has the student exhibited behaviors and values consistent with ethical standards in research and academics?</p>	Student behavior and/or presentations need substantial guidance to meet standards.	Student meets all standards of behavior in the lab. Delivers suitable presentations in the classroom or other venues.	Student behaves as a model citizen in the research lab and serves as an example to their peers. Reliably delivers professional scholarly presentations in the classroom or other venues
<p>Overall Progression in Graduate Program Has the student successfully met all expectations for progression in the Pharmaceutical Sciences graduate program?</p>	The student has not met expectations for progression.	The student has met all expectations for progression with recommendations for improvement.	The student has successfully met or exceeded all expectations for progression.

Assessment Oversight:

Name	Department Affiliation	Email Address	Phone Number
Kimberly Mahoney	Academic Program Specialist III, Office of Graduate Education	mahoneykr@cop.ufl.edu	352-273-6230
Maureen Keller-Wood	Associate Dean for Research and Graduate Education	kellerwd@cop.ufl.edu	352-273-7687

Methods and Procedures - Undergraduate and All Certificate Programs:

N/A

Curriculum Map - Undergraduate Degree Programs:

N/A

Research :

The College of Pharmacy graduate program is research-intensive. PhD students maintain ongoing contact with their faculty advisor throughout the program regarding their research and course of study. Students' research skills are assessed through annual student evaluations, supervisory committee meetings, qualifying exams, and final dissertation defenses.

SLO Measures - Graduate and Professional Programs:

SLOs are assessed throughout the students' enrollment in the graduate program in annual student evaluations, qualifying exams, and final dissertation defenses. Respective rubric assessment results and student data are manually entered and tracked by the Office of Graduate Education.

Assessment Timeline - Graduate and Professional Programs:

Each student's progress is assessed throughout his/her course of study in annual student evaluations, the qualifying exam, and culminating with a final dissertation defense.

Student Learning Outcomes	Assessment 1	Assessment 2	Assessment 3
Knowledge			
#1	Annual Evaluation	Qualifying Exam	Dissertation Defense
#2	Qualifying Exam	Dissertation Defense	
Skills			
#3	Qualifying Exam		
Professional Behavior			
#4	Annual Evaluation	Qualifying Exam	Dissertation Defense