

Program-Level Assessment: Annual Report

Program Name (no acronyms): Pharmacology & Physiology

Department: Pharmacology & Physiology

Degree or Certificate Level: Ph.D.

College/School: Medicine

Date (Month/Year): 12/23

Assessment Contact: Heather Macarthur

In what year was the data upon which this report is based collected? 2022- 2023

In what year was the program's assessment plan most recently reviewed/updated? 2021

Is this program accredited by an external program/disciplinary/specialized accrediting organization or subject to state/licensure requirements? No, it is part of the University wide accreditation

If yes, please share how this affects the program's assessment process (e.g., number of learning outcomes assessed, mandated exams or other assessment methods, schedule or timing of assessment, etc.): N/A

1. Student Learning Outcomes

Which of the program's student learning outcomes were assessed in this annual assessment cycle? (Please provide the complete list of the program's learning outcome statements and **bold** the SLOs assessed in this cycle.)

Outcome 1: Students will show competency in the basic principles of Pharmacology and Physiology.

Outcome 2: Students will write a research proposal and become competent at the basic essentials of grant writing, specifically in how to formulate and test scientific hypotheses.

2. Assessment Methods: Artifacts of Student Learning

Which artifacts of student learning were used to determine if students achieved the outcome(s)? Please describe the artifacts in detail, identify the course(s) in which they were collected, and if they are from program majors/graduates and/or other students. Clarify if any such courses were offered a) online, b) at the Madrid campus, or c) at any other off-campus location.

Outcome 1: The artifacts of student learning used to determine achievement of outcome for competency in the basic principles of Pharmacology & Physiology included regular attendance, answers to written exam questions (PPY 5110, 5120, 5130), and oral presentations of independent research topics (PPY 5120, 5130) as well as regular participation in journal club presentations and discussions (PPY 6900) and attendance at seminars (PPY 6800).

Outcome 2: PPY 5140 is a grant writing course and artifacts used to determine outcomes include regular attendance in all formal class sessions of PPY 5140, regular communication with their mentoring team, their final written proposal and participation in a mock study section.

None of these courses are offered online or at the Madrid campus.

3. Assessment Methods: Evaluation Process

What process was used to evaluate the artifacts of student learning, and by whom? Please identify the tools(s) (e.g., a rubric) used in the process and **include them in/with this report document** (please do not just refer to the assessment plan).

Outcome 1: There were several methods employed to determine student achievement of the stated outcomes. These included regular written tests in their advanced level coursework (PPY 5110, 5120 and 5130) and faculty evaluation

sheets for oral presentations of independent research topics (PPY 5120 and 5130) and of journal club presentations PPY 6900. Rubrics for evaluating presentations are included with this report.

Outcome 2: PPY 5140 is a grant writing course and as such the students are instructed as to what comprises the different aspects of an NIH R01 research grant. They then construct a grant based on their proposed lab research. The written research proposal is evaluated by two independent faculty members based on agreed review criteria (Rubric attached).

The course directors of all Advanced level courses and the Journal Club reviewed the results and evaluations. All results/evaluations were available for students to review and discuss with course directors. In addition, the graduate steering committee meets with each student annually to ensure progress is being made towards their degree completion as expected.

For all courses a “B” grade (which represents a score of $\geq 75\%$) is required as a minimum passing grade.

4. Data/Results

What were the results of the assessment of the learning outcome(s)? Please be specific. Does achievement differ by teaching modality (e.g., online vs. face-to-face) or on-ground location (e.g., STL campus, Madrid campus, other off-campus site)?

Outcome 1: We examined data from the exam results and oral presentations of independent research topics and grading of student journal club presentations for the 2022-2023 academic year. The academic achievement was satisfactory with all students achieving a “B” grade or better for PPY 5110, 5120, and 5130 as well as for their journal club assessments for PPY 6900. Seminar (PPY 6800) is assessed on attendance only.

Outcome 2: We have examined the data for the grant writing course proposals critiques course and while the students are performing satisfactorily, we are currently reviewing all parts of this course to ensure that we are providing the students with the optimum advice on successfully writing research proposals.

5. Findings: Interpretations & Conclusions

What have you learned from these results? What does the data tell you? Address both a) learning gaps and possible curricular or pedagogical remedies, and b) strengths of curriculum and pedagogy.

Outcome 1: Academically our outcomes are being achieved, namely competency in the basic principles of Pharmacology and Physiology. All participating students in the past academic year passed all required courses and exams. All students participated in journal club presentations and received passing grades.

Outcome 2: We are currently reviewing our grant writing course in order to implement improvements in the next academic year.

6. Closing the Loop: Dissemination and Use of Current Assessment Findings

A. When and how did your program faculty share and discuss the results and findings from this cycle of assessment?

We have shared these results at our Departmental Education committee meetings and at our Departmental Faculty meetings, and discussed improvements to our curriculum going forward.

B. How specifically have you decided to use these findings to improve teaching and learning in your program? For example, perhaps you’ve initiated one or more of the following:

Changes to the Curriculum or Pedagogies

- Course content
- Teaching techniques
- Improvements in technology
- Prerequisites
- Course sequence
- New courses
- Deletion of courses
- Changes in frequency or scheduling of course offerings

Changes to the Assessment Plan

- Student learning outcomes
- Artifacts of student learning
- Evaluation process
- Evaluation tools (e.g., rubrics)
- Data collection methods
- Frequency of data collection

Please describe the actions you are taking as a result of these findings.

Outcome 1: For the 2023/2024 academic year we have changed the format of Systems Physiology & Pharmacology courses, PPY 5120 and 5130, to be driven by class discussions and student led presentations, keeping instructor led didactic lectures to a minimum.

Outcome 2: We are currently reviewing and refining our grant writing course PPY 514, to incorporate updated review criteria and be formatted to a proposal that students can utilize to apply for research funding.

We should note that our program underwent a departmental self-assessment and an external review this year. The reviewers agreed with the changes we are making to our curriculum (particularly the teaching techniques) and encouraged us to move forward in this process.

If no changes are being made, please explain why.

N/A

7. Closing the Loop: Review of Previous Assessment Findings and Changes

A. What is at least one change your program has implemented in recent years as a result of previous assessment data?

Outcome 1: We have changed the format of our advanced physiology and pharmacology courses (PPY 5120 and 5130) to be driven by active forms of student learning rather than simply didactic lectures.

Outcome 2: This review is still in progress.

B. How has the change/have these changes identified in 7A been assessed?

These changes are being carried out currently in the 2023/2024 academic year, so to date we have incomplete assessments. However, so far our students are participating satisfactorily and scoring well in written exams and presentation evaluations - all above a "B" grade level. We will review the outcomes of the changes at the conclusion of the semester in which they run. One shortcoming is that with only 3-4 students per class, it is hard to get statistically significant data from student academic outcomes or reviews on only one year's worth of changes.

C. What were the findings of the assessment?

In progress.

D. How do you plan to (continue to) use this information moving forward?

Complete assessments of the effects of changes to PPY 5120 and 5130, and 5140 will probably take at least 3 years for us to assess properly given our student numbers. However, we will be attentive to any shortcomings and continue to refine the courses as needs be.

IMPORTANT: Please submit any assessment tools (e.g., artifact prompts, rubrics) with this report as separate attachments or copied and pasted/appended into this Word document. Please do not just refer to the assessment plan; the report should serve as a stand-alone document. Thank you.

Grading Rubric for PPY 5120/5130 Class Presentations - 48 points total

[note, please do not interrupt the presentation. Ask all questions after the presentation].

1) The Technical Presentation of Chosen Topic:

- a. How easy could one follow the presentation?
- b. Was the logical layout clear?
- c. Were the PowerPoint text and images easy to read and comprehend?

_____ out of 12 points

Comments:

2) Depth of Research of the Chosen Topic

- a. Did the presenter stay focused on the chosen topic?
- b. Were the presented data supportive of the main premise?
- c. How well were primary sources utilized as compared to review articles?

_____ out of 12

Comments:

3) How well did students

- a. express their own thoughts about their chosen topic?
- b. draw their own conclusions about their chosen topic?

_____ out of 12 points

Comments:

4) How well did students answer the faculty questions after their presentation?

_____ out of 12 points

Comments:

_____ total points

General Comments:

**PPY 514 Grant Writing Course
Student Proposal Grade Sheet
800 Points Total (80% of Final Grade)**

Student Name: _____

Total Score: _____

Grader Name: _____

1. Completeness of proposal (250 points): _____

Are all the elements of the proposal (Specific Aims, Significance, Innovation, Research Design) completed and appropriately detailed?

2. Clarity of proposal (250 points): _____

Are the hypothesis and goals of the proposal clearly articulated?

3. Scientific Content (250 points): _____

Are the Aims feasible? Do the proposed experiments adequately address the hypothesis? Are proposed experiments justified by Significance and Innovation?

4. Citations (50 points): _____

Is the proposal fully referenced using the appropriate citations?

Signed: _____

Date: _____

Evaluation Form - Department of Pharmacology and Physiology Journal Club (2020/2021)

Name of Presenter: _____ Date of presentation: _____

Name of Evaluator: _____

	Unacceptable A+			Outstanding		
1. Clearly describes the problem addressed by the target paper and the potential significance of the work.	1	2	3	4	4.25	
2. Clearly explains the authors' stated objectives.	1	2	3	4	4.25	
3. Clearly describes the methods and demonstrates awareness of whether or not they are appropriate to address the authors' objectives.	1	2	3	4	4.25	
4. Clearly explains the results of the experiments.	1	2	3	4	4.25	
5. Considers whether or not the work accomplished the authors' objectives.	1	2	3	4	4.25	
6. Clearly summarizes the significance of the work (in the light of item 5).	1	2	3	4	4.25	
7. Clearly explains how the field has been influenced by publication of the target paper and what future directions the authors and others might take to further advance the field.	1	2	3	4	4.25	
8. Cogently addresses questions from the audience (i.e., has done the requisite reading).	1	2	3	4	4.25	
9. Speaks clearly with adequate volume; avoids distracting mannerisms of speech and gesture; makes occasional eye contact, etc. In short, demonstrates good public speaking practices.	1	2	3	4	4.25	
10. Makes presentation of the target paper interesting and appealing to the audience.	1	2	3	4	4.25	
11. Selected a suitably substantive paper.	1	2	3	4	4.25	
12. Overall rating (not necessarily an average of items 1-11)	1	2	3	4	4.25	
13. Additional comments:						