Faculty Fellow Report
Jia Shi, IPHY department May 17, 2018

I am one of the Faculty Fellows through the first round of ASSETT Faculty Fellow program in the academic years of 2017-2019.

Title and brief description of your project:

Title: Faculty Fellows Program Supports Development of IPHY Learning Goals

Description of my project: In the IPHY department, we implemented a program to develop learning goals for our lab courses and labs that are associated with our capstone courses. There are two lab courses, Human Anatomy and Human Physiology, and four IPHY capstone courses that have labs. These four courses are Biomechanics, Cell Physiology, Neurophysiology, and Exercise Physiology. With the exception of the Human Physiology Lab, none of these labs had learning goals. My project was to develop the learning goals for all of these labs.

The Challenge you addressed in your department with this project:

Each lab has a lead teaching assistant (TA) who is the most knowledgeable person about the lab materials and lab logistics. The first challenge was to recruit the lead TAs from each of these four labs. However, these TAs were extremely busy because they were graduating this May so it was critical to work with them before they leave. I was persuasive and was able to convince three lead TAs to work on the learning goals with me. We met weekly and came up with the drafts of the learning goals for Cell Physiology, Exercise Physiology and Biomechanics during the spring 2018 semester.

The second challenge was to finalize the lab learning goals with the faculty members who teach the corresponding lecture courses. The specific challenge was how to get multiple faculty members who teach the same course agree on the lab learning goals. For example, one of the faculty member liked the learning goals for the Exercise Physiology lab and made just minor edits. However, the other faulty member wanted to add some

learning goals that were not directed related to the lab. Our solution was to make a compromise in this case.

Describe desired result: By the end of the spring 2018 semester, we have drafted learning goals for five labs.

1) Cell physiology Lab: The learning goals for the Cell Physiology lab was finalized with the faculty who teaches the Cell Physiology lecture. He agreed to incorporate the lab learning goals in the Cell Biology Lab course syllabus and PowerPoints in the fall 2018 semester.
2) Exercise Physiology Lab: After drafting the learning goals for the Exercise Physiology lab, I organized a meeting with two faculty members who teach the same lecture course, and two lead TAs, one of them is the new lead TA for this lab. I have revised the learning goals based on the faculty members' feedback and is waiting for the faculty members to approve the final draft.
3) Biomechanics Lab: We have a draft of the learning goals for the Biomechanics lab and I will set up a meeting this summer with the two faculty members who teach the Biomechanics lecture course to finalize the learning goals.
4) Neurophysiology Lab and Anatomy Lab: Two IPHY teaching faculty have agreed to draft learning goals for Neurophysiology lab and Anatomy Lab this summer. I will help them when they need me.

I hope that all above five labs will start using the learning goals in the fall 2018 semester. I will organize faculty/lead TA meetings at the end of fall 2018 semester and spring 2019 semester to share what we have learned from the implementation of these learning goals in each lab.

Describe the project. What did you do?

I met with several lead TAs each week and drafted learning goals for Cell physiology lab, Exercise Physiology lab and Biomechanics lab. We have finalized learning goals for Cell Physiology Lab, and they will be implemented in this lab course this fall. The learning goals for the Exercise Physiology and Biomechanics labs have been drafted and they will be finalized by the end of this summer.

Describe the outcome. What worked, what didn't work, lessons learned.

By the end of this summer, all labs will have finalized learning goals, and these learning goals will be implemented in fall 2018. These lab learning goals will help the teaching faculty to:

1) Understand what students need to learn in these labs

2) Develop specific assessment instruments to assess students learning gain

3) Structure the labs to maximize learning gain

4) Provide cohesiveness between the labs

5) Visualize lab skills that may be overlapping between labs and/or need to be reinforced

6) Assess how the human physiology lab may affect learning gain in the other IPHY core courses that feature a lab IPHY students will benefit from the lab learning goals as they can use these learning goals as a study tool to assess their own learning during a semester.

IPHY students will benefit from the lab learning goals as they can use these learning goals as a study tool to assess their own learning during a semester. As an example, one of the Human Physiology Lab learning goals is: Develop a figure caption and table title that summarizes the experimental variables, comparator group/condition, methodology, sample being tested, sample size, and statistical information, as appropriate". This learning goal requires that students generate a complete figure caption and table title so that readers can identify the top level information in the presented data prior to reading the entire lab experiment. This is an important skill as many scientists and researchers often read the figure captions and table titles first before reading a scientific journal article. This learning goal is in line with writing modern scientific journal articles where researchers often present their data with figures and tables.

I will gather faculty and lead TAs in late fall 2018 semester to share ideas about what worked (if the learning goals helped students) and what did not work (e.g. cohesiveness between labs?).

I was able to work with the lead TAs on three lab learning goals in one semester (very efficient). Faculty members were busy or on sabbatical so it was tough to schedule meetings especially towards the end of the semester. What I learned was to talk to individual faculty before the meeting. For example, by talking to both faculty members who teach the Exercise Physiology, they made edits and comments on the learning goals document before the meeting so it shortens the meeting and made the meeting productive. I also learned that it was extremely difficulty to ask faculty about their availability in emails. It worked best when I sent them a doodle poll (even there were only two faculty involved!).

Reflect on your experience in the Faculty Fellows program and working on your project.

Through the Faculty Fellows program, I feel I got to interact with faculty members more and it increased my opportunity to communicate with a number of faculty about pedagogy in our department. In this case, the learning goals. It was relatively easy and efficient to work with the lead TAs on learning goals for the several lab courses. The involved faculty members were also supportive although it took a lot of follow ups and negotiation to finalize the lab learning goals.

If appropriate, please include other artifacts and visuals (data, weblinks, pictures, write-ups)

Below is the link to the IPHY Newsletter I wrote about my project.
https://www.colorado.edu/intphys/news/iphynews2017dec.pdf