Virtual Curriculum Committee Meeting
September 2019

Three proposals and one request for comments were before the committee for consideration. They were sent via email:

Items one and two on the list are adjustments to the "Stats Class" (Technically BIMS 8380 Basics of Study Design and Practical Statistics) and the "Data Science" Class (BIMS 8382 Introduction to Biomedical Data Sciences), both taught by Marieke Jones and David Martin. The third is a proposal for a new course. Please read through all three and respond with a vote on each, in favor or opposed. Finally, there is a proposal for longer term consideration (item 4) on which I am seeking your initial thoughts. I would appreciate hearing from you by **Tuesday, October 1st at the latest.** If you think it is important that we meet to discuss, please let me know as soon as possible and I will work on setting up a meeting.

1. Effective Spring 2020, the order of the Stats Class and the Data Science class will flip, so that Stats would be offered in Spring 1 and Data Science in Spring 2. To simplify scheduling, both classes will meet on Tuesday and Thursday from 9-10:30.

2. To accommodate the increased enrollment due to the course being required by many of the training grants, Marieke and David have graciously offered to teach the Stats class twice per year. Therefore, they propose a Fall 1 offering of the Stats class in the time slot from 1-2:30 on M and W. This timing was selected to offer the fewest possible conflicts and allow the course structure that they prefer.

3. A new faculty member, Dr. Jim Zimring is proposing an addition to the BIMS course offerings. This new course would be titled "Logic of Experimental Biology" and it is based on a course that he offered previously at Emory and University of Washington. I have enclosed the course overview paragraph below and the full syllabus is attached. I have spoken with him at length about the need to adjust the goals and breadth of the course to fit with our modular course structure, as well as the enrollment challenges that he will face, and he remains excited to proceed. If you agree in principle that this will be a good addition to our offerings, I will work with him to find a slot in the master schedule that will minimize conflicts. I will request approval on the schedule from you at a later date. For now, the initial thought is that this will be a Fall class targeting students in their second year or later.

4. (Longer term) Marike and David have put forth a proposal that the Stats Class and the Data Science class be melded into a single class that runs through both S1 and S2. They find that it is difficult to cleanly separate the material and skills between the two courses and several student evaluation have supported this contention. The downside is that trainees will be committed to a 12 week course. The upside is that I have heard evidence to suggest that the NIH is moving in the direction of expecting most trainees to receive instruction in Data Science as well as Statistics. So, we might be a bit ahead of the curve on this. If you could please offer initial thoughts on this, I would appreciate it! I will discuss this with the TG PIs as well, as they require the Stats class and their trainees would all be impacted.

Course Overview: Logic of Experimental Biology
Both undergraduate and graduate education in the basic sciences consist largely of a mastery of the "scientific facts" of a field, an understanding of the dominant theoretical paradigms in an area, and learning the linguistic particulars of specialized vocabulary. However, little formal attention is paid to the workings and process of science itself. For at least 2400 years, philosophers have been analyzing modes of reasoning, fallacies of thinking, and the legitimacy or truth claims made by different methods of scientific exploration. Moreover, it is a myth that there is, or ever has been, an agreed upon "scientific method" that constitutes the correct way to investigate nature. In recent centuries, fields dedicated to the analysis of science itself (philosophy of science, history of science, sociology of science) have emerged, each of which analyzes the process that scientists engage in as a part of their everyday function. Most graduate students learn method and process through their individual research projects, interactions with mentors and peers, and by attending scientific seminars and meetings. However, little attention has been traditionally paid, within the basic science curriculum, to codifying the issues in an organized way. This course will provide an overview of the practice of science itself, and introduce the students to historical issues, matters of consensus, and cutting edge issues of ongoing controversy. Attention will be paid to both theoretical and practical application of scientific method, with a distinct focus on the practical application of the covered concepts to the practice of everyday scientific exploration. After completing the course, students should understand and interface differently with the science they encounter, papers they read, and their own projects.

Members voting: Janet Cross, Xiaowei Liu, Brooke Sauder, Tim Bender, Heather Raimer, Mark Beenhakker, Mike McConnell (7/10 or 70% of voting members = quorum)

The three proposals submitted for consideration at this time received unanimous support.

Regarding proposal 4 the following comments were submitted (edited for length)

1) I can understand a desire to combine the classes as the subject matter is intertwined. If the training grants begin to require both classes, I think it makes sense to combine them. However, at this time, I think it is better to keep them separate for now and see how items 1 and 2 go. Perhaps it would make sense to make the statistics class a prerequisite for the data science class to eliminate the need for redundancy? Some of the training grants already have a lot of required coursework. I would anticipate that combining the classes would make fewer students take either.

2) I think this is a good idea. I was at an NIH training grant meeting a couple of months ago. For what it's worth, I don't think we are ahead of the curve relative to other, recently funded programs…probably more like in the middle-to-slightly-behind the curve.

3) I think this is a great idea since they do have many points of common ground, and if we do this I think, if amenable to Marieke and Stephen, that it is also offered both fall and spring as proposed in point 2