

# Molecular Biology Through Discovery (Spring 2017)

## Final Questionnaire

### **I. Goals of the course**

#### **Your thoughts on independence?**

Resp 1: I think I have become more independent because of this class. Prior to taking the class, I tried to find an independent study. Similar to finding a mentor, I had to email people I did not know and ask them to help me. I had no idea where to even begin. After taking this course I am more confident in doing so.

Resp 2: I'm more lean toward it, I can highlight issues and problems & read through articles many articles with ease. "Take control over your own education" : should be " Battle your way to Take control over your own education".

Resp 3: Never had a class as independent as this, so I'd say it forced me to make progress and be responsible for myself.

Resp 4: I have really made significant leaps towards scientific independence. I was able to understand not only the papers but also create my own road map for a project.

Resp 5: I have conquered independence in the aspect of researching and learning new methods and materials. My ability to ask important questions still needs much work but as far as learning and growing this class has helped me do so .

#### **Your thoughts on observations/assertions (and paying attention to the experiments behind observations)?**

Resp 1: I learned that I shouldn't believe everything I read in a research article. They could have made mistakes just like me.

Resp 2: I'm more comfortable with the concept of having less other possibilities is what makes one assertion is stronger than others. while observation is frozen in its bubble. Basically it's like a painting by Leo Da Vinci, what he intended for it & what we thought he did.

Resp 3: I never thought about reading papers in this way before this class, but now that I am, reading papers becomes significantly easier.

Resp 4: I think it is important but a lot of times this is not necessary. It is necessary for an individual in the field of molecular biology to have a grasp of the basics of many of these experiments so that if a presentation, like ours, comes up we are able to easily understand the experiment. I felt a little lost during some of the presentations (that I wasn't assigned) partially because I had no idea what the experiment they were conducting was.

Resp 5: Yes my ability to differentiate between observation and assertions has greatly increased. Being able to read an article and look at the graphs to understand the research instead of reading the authors thoughts and comments has made me a better scientist.

## **Your thoughts on molecular biology?**

Resp 1: It is interesting.

Resp 2: very important! after all, they are the building blocks, aren't they?

Resp 3: I felt I already had a good understanding of molecular bio before the class having taken cell bio. It was more the through discovery aspect that was new to me.

Resp 4: I think molecular biology is extremely fascinating and after this course I am seeking more experience on the bench side of medicine. I felt really fulfilled by taking this course and want to learn more about the techniques involved.

Resp 5: Molecular biology is an amazing and fundamental field of study, the ability to understand it is the ability to learn biology at its core, which is fundamental to anyone who wishes to impart change in the healthcare or research fields.

## **II. The Means of the Course**

### **The classroom experience**

Resp 1: I stopped doing most questionnaire because I wanted to spend my time on my other classes. I kept doing the problem sets and I did all the exams other than that it was best for me to turn my attention to my other classes. I only missed two of your lectures this semester, the first time because a loved one had a fever of 103 F, I could not leave her. What I am trying to say is that I benefitted from attending your lectures, however, the ones that used BioBike we tedious at the least.

Resp 2: I'm one of those whom have attend almost every class (I missed one for what I thought it was not a class day). I can highlight what I got from coming to class in three main points: 1-Leaving my comfort zone (not the physical one). 2-Understanding the process of different ways to solve an issue. 3-Being able to read people mind and process of analyzing an issue (Yep, just like a superpower). my theory would be: people tend to do better when a goal has been/is set for/by them. In their minds, there's a small or non existence correlation between their final proposal and class attendance. I would change that illusion by gradually taking away what they typically feel after going to a class and give them a sensation of achievement each week of the class (Ivan Pavlov's dog).

Resp 3: I that on some days there were way too much online notes, companions, or simulations for that specific day such that if I did only a portion of it I felt only a small portion of the time in class would be helpful for me. Maybe spread the online notes, companions, simulations out slightly so that there was a clear topic of discussion for each class (ie just one companion).

Resp 4: I think it would really help if some of the class time was more of a discussion based between peers and facilitated by you. I think that by filling out the questionnaire makes it very formal way to ask questions. This discourages students from coming in with questions of their own to class.

Resp 5: It seemed that in the panel process what was judged was my ability to interpret and apply experimental procedure for this reason if class was more based on designing

experiments through molecular biological standards than I'm sure I would have gone more but reading older research to understand the basics wasn't intriguing. We stand on the shoulders of giants, if I am presented a 2016 experiment that uses sanger sequencing I will not only learn the method through that experiment but also how it is being currently applied. Articles from 1966 are nice but dated.

### **Results vs conclusions**

Resp 1: Before taking this class, when reading a research article, I always jumped to the results and summary section. I only saw what parts of the article suited my bias best and by doing that I didn't learn anything. Now, I read the whole thing to understand how it was done and why it was done in that manner. I now leave with a much better understanding of an experiment and by extension, the results of that experiment.

Resp 2: I was having an issue understanding the experiment itself, that's until you draw one! this technique is very helpful, and I think interdicting it to students is very helpful.

Resp 4: The variety of tools used to distinguish results vs. conclusions were very helpful to understand the differences between them.

Resp 5: scientific literacy and understanding is the only defense against media and reports that hold no merit, we must learn to go back to the fundamentals of research and science and draw our observations and assertions simply based on the facts and not political agendas.

### **The research project**

Resp 1: I learned how to write a, what I hope to be, decent research proposal. I learned how to create a question, how to "answer it", and what steps I needed to take to answer that question. I gained from the panel insight that I need to relax more. I was unable to answer a simple question, that the answer to was already in one of my presentation slides because I was nervous. I tried to meet with my mentor when I had a great number of questions, otherwise, I emailed them and they helped a lot.

Resp 2: -a glance into the impacts of one small idea towards the ever expanding bubble of knowledge. -to me, the questions where of safety or better methods to obtain the same expected results. this indicates that they either found my research practical but some flaws, or they thought it didn't considered the basic details. either way, what I needed to be before meeting them was my gain. -I personally worked on this ever week on this proposal. -i've met with him 4-5 times. personally, I felt so dissatisfied I didn't even wanted him to come to my presentation.

Resp 3: Some more involvement in the earlier half of the semester might have helped. I know you aren't big on lecture, but some words might be given to explaining the research project very early on rather than referring to the class website.

Resp 4: Although the expected course of interaction between mentor and mentee should have been higher in my case, I elected to try to solve problems on my own, through my own discovery. Of course, there were certain things where I felt I was at a roadblock and felt I needed to reach out. During these times, I did reach out to you or my mentor. In the

end, I felt that with the plethora of resources given to me, I would be more than able to solve these problems.

Resp 5: I enjoyed the whole process and wish more classes at vcu had a proposal like setting as this one did. The one downfall was the attention to detail provided my reviewers at such a late point in the process. An issue that would undermine the central idea of my project is something that should have been brought up in the third exam meeting at the latest or at least mentioned when I submitted my proposal outline. Instead this vital feedback was given sometime between the mock and final presentations causing panic and anxiety.

### **Help and feedback**

Resp 1: I still did not receive feedback for my bibliography, to be fair most of the article I used in my final paper were different. I attended both of Gus' and Elaina's help session, usually for BioBike help.

Resp 2: yes.

Resp 3: Feedback was helpful, but I felt my feedback didn't make it back in a very timely manner. This might not be your fault given how many people are enrolled in this class, but some problem sets never made it back to me before the exams and I didn't get feedback about draft proposal before the final one was due leaving me to make some arbitrary changes.

Resp 4: Yes I think there is ample amount of opportunity to get feedback and improve in this class if you really want to. I emailed you once or twice regarding meeting up outside of the regular hours and this worked out beautifully for me. Elaina really helped me during her sessions and outside of class through email as well.

Resp 5: The feedback was great, at times the message came as convoluted and blurry to me but it always gave me some sort of insight into what I was doing right, wrong, and how I could improve.

### **III. Bottom line**

#### **What advice would you give someone entering the class?**

Resp 1: Do all the work, don't try to be a smart ass and fool Jeff. I won't work.

Resp 2: Have patient and be true to yourself.

Resp 3: Stay active. Even if you don't do a problem set or companion, at least read through it to be familiar in class discussion.

Resp 4: You need to put in the work to get out an improvement. As stated, the course is about improvement so as long as their main priority is to increase their capabilities than this class is an excellent fit.

Resp 5: focus on the research proposal and providing something novel and intriguing. get a mentor you vibe well with and feel comfortable meeting on a regular basis with, dont be afraid to ask questions (google is gonna be your best friend here)

### **Three things you'd advise that this class never to do again?**

Resp 1: Have exam 3, I had to work on the rough draft and study for other classes. Move it to an earlier point in time. Stop using BioBike, what I mean by that is that it crashed a lot when I used it, I would ask you to try and fix that? Not sure if you can but I think it would benefit the students that will take this course next semester.

Resp 2: I personally didn't mind anything.

Resp 4: -tone down the amount of material given to the students, its overwhelming. focus more on the material needed to learn outside of the proposal. -potentially reduce the questionnaires content to allow for people to feel free to ask questions in class -reduce the syllabus content a bit, to assist with point #1

Resp 5: Old research articles, bring in the 21st century.

### **Three things you'd advise that this class keep doing at all costs?**

Resp 1: Definitely the research proposal, I was a very beneficial experience, if an idiot like me can do it and get to the final presentation, anyone can. No excuse.

Resp 2: 1-the chosen experiments (articles) level. 2- The second exam. 3- individual meetings

Resp 3: 1. the entire research project 2. take home exams versus in class 3. frequent questionnaires to direct class discussion

Resp 4: -the format was excellent -the possibilities of getting help was really good as well, and I used it as much to my advantage -

Resp 5: Exams, pre-exam meetings, and mock panel.

### **Three ideas that would make the course better for those that come after you?**

Resp 1: Please fix BioBike.

Resp 2: -the amount of reading every week is way too much when adding them to other classes work. -the final exam timing should not be that close to the proposal draft. -an outside group activity to explain one experiment.

Resp 5: Lose the problem sets, renew the research articles you teach with, increase the number of meetings with professor

### **Did you get what you wanted out of the course? If so, what? If not, what did you miss?**

#### **Do you feel more proficient in some way? If so, how?**

#### **What if anything do you think will still be with you from the course in five years?**

Resp 1: I got a lot out of this course. I now know how to read articles better and that will stick with me.

Resp 2: -Yes, one step further into my mind. -Yes, I met this classmate later this semester, she was looking into an article she had no idea what it was talking about. i tried to help her. I was surprised to find out it rather easy! I understood the main concepts of it, what she got wrong, and what she need to understand from it. in a sense I was able to draw the

outlines of an article I've never read before. -what else but a drawing of a memory of these days. E

Resp 4: Yes, I feel more proficient. I feel very independent and confident in my abilities to analyze research papers and use them to my advantage. I think my research paper and the concepts I learned from this project will definitely be with me in the coming 5 years.

Resp 5: I believe so, i was able to Make progress towards independence, Distinguish observations from mere assertions, & Grasp the basics of molecular biology as a useful tool. I do feel more proficient considering I can now research and write on any scientific topic conceivable given the proper resources. In five years aside from an understanding of molecular biology I believe the commitment to science and its fundamentals will stick with me .