

GRC FINAL REPORT

INSTRUCTIONS: GRCs should fill out the following form and email it to cur@ku.edu by **Friday, December 19th, 2014**. Keep in mind that the intended audience for this document will be future GRCs and/or instructors wanting to do similar projects, so keep your comments brief and focused on what will be most useful for other GRCs and instructors.

1. GENERAL INFORMATION:

- a. **Your name:** Rebecca Marquez
- b. **Course number & name:** Molecular Biology of Cancer - Biol688

- 2. OVERVIEW:** *Provide a one sentence summary of your GRC project.* The goal of this project was to perform an extra credit activity learning to read and present scientific research articles that focused on cancer research.

- 3. BACKGROUND:** *This section should give the reader just enough context to understand your project.*

- a. **Course description:** *Provide 1-3 sentences describing the course overall.*

Students attended 3 out of class sessions: 1) I gave an overview of how to simplify reading a research article 2) students were broken up into groups to discuss the research article they were assigned to present, one figure per student 3) students presented their research article in a group fashion and handed in an independent written summary of the article.

- b. **Typical students:** *Provide 1-3 sentences describing the typical student and their experience level doing research.* Most students were not actively conducting independent research. This exercise was for extra credit, but included students that were doing well and interested in learning more about research and students that were not doing well and needed the extra points, but also gained an appreciation for the new research concepts they learned.

4. GOALS & OBJECTIVES:

- a. **Need for project:** *Provide 2-4 sentences describing the need for the research project in the class. What were students not learning before that you would like them to learn with this project? Where were students struggling?*

The class is very fast paced and includes a lot of information. I think this exercise was an opportunity for the students to apply the biological mechanisms they had learned in class and reinforce their knowledge over one mechanism, i.e. a particular signaling pathway, by conducting this exercise. I think this also helped students understand the many paradigms and questions that are still unresolved about cancer biology by reading these recent articles.

- b. **Learning goals & objectives:** *List the learning goals and objectives for your GRC project. Add more rows if needed.*

LEARNING GOALS	CORRESPONDING LEARNING OBJECTIVES
Read and understand a research article.	Performed a presentation detailing the figures carried out in the paper as well as a written description.
Read and discuss research in a scientific article.	Students worked in a group setting in order to be able to communicate the research with their peers. This enabled students to help their peers understand the techniques and types of methods carried out.
Learn to explain the challenging details in a scientific article in a simplified manner.	A write-up over the paper was carried out to demonstrate they could write on a scientific topic.
Learn to give a scientific presentation.	Each group presented their paper to the rest of the students. Each student discussed one figure themselves, while some students presented the background and conclusion as well.

5. IMPLEMENTATION:

- a. **Activities:** *Describe the activities you designed for the class. What did you have students do? Please include any materials (slides, worksheets, etc.) that others might find useful as attachments.*

Students attended 3 out of class sessions.

Session 1: I gave an overview of the project, gave an example, and assigned groups to work on project, identified articles the students would work on.

Session 2: Students worked in groups answering questions regarding the content of the article. I was available to answer questions and provide additional directions.

Session 3: Students turned in write up and gave brief presentation over the article.

I have attached the presentation I gave in the first session as well as instructions for the write up.

- b. Activity log:** *Fill out the following table to give a general sense of how your 30 GRC hours were spent.*

ACTIVITY	# HOURS (estimate; leave blank if not applicable)
1. Facilitating activities in class.	0 hrs
2. Meeting with students individually.	0.5 hr
3. Facilitating group activities outside of class.	9 hrs
4. Developing activities & assessments.	12 hrs
5. Providing written feedback to students (through email or written comments).	2 hrs
6. Developing online content for students.	1 hr
7. Evaluating student final products.	4 hrs
8. Coordinating instruction from other KU units (libraries, CUR, etc.).	1 hr
9. Meeting/planning with main instructor of course.	2 hrs
10. Other (please list).	
TOTAL HOURS: 31.5	

- c. **Assessment (can combine with “activities” if that makes more sense):** *Describe how you assessed student learning (a final paper, presentation, etc.). Please include any assignments or rubrics as attachments.*

There was a total of 15 points available. I broke this grading into 5 points for participating in the 3 sessions; 5 points for presentation; and 5 points for write-up. Points were only subtracted from write-up if it was lacking information. Students had to participate in 3 sessions and do a presentation in order to be eligible for any points.

6. **STUDENT PERFORMANCE:** *Note: we ask that you try to assess at least one learning objective for the GRC program. If you assessed more than one, please include that information as well.*
- a. **Narrative description of student learning:** *Provide a short paragraph summarizing student learning on the project.*

While there were many layers to the project, the main learning objective was to be able to read and report the information contained in a cancer research paper. I was very impressed with the students' ability to learn and present these technically challenging papers.

- b. **Visual representation of student learning:** *If possible, provide a visual representation of student learning as a whole, such as a chart that includes student performance on different levels of a rubric (can look at past GRC reports for examples, or ask Nikki).*

7. DISCUSSION:

a. Effectiveness of research project: *Provide a short paragraph reflecting on the results presented above. How effective was the project in achieving the desired learning objectives? Were there unexpected benefits or logistical problems that you encountered?*

Overall, I felt that the project was very successful. I was incredibly impressed with the students' ability to tackle such challenging papers. They were very interested in the content. Upon helping students understand the techniques being used in the papers, I received comments like "that is cool". I was most impressed with the students' presentation of the data. They were enthusiastic and did a very nice job describing how the experiments were conducted. I learned a few new presentation styles that I hope to use in the future. I believe the students enjoyed working in a group setting as well. I think it is very important for students to be able to learn from their peers and be able to teach them as well. The written portion of the project was very diverse in presentation. Hopefully in the future, I can use some of the students' write-ups that were exactly what I wanted as examples of how to complete the write-up.

As an extra credit activity, the biggest issue was figuring out when the class could meet outside of class. It worked out where I only had to have two sections for each session. In the future, scheduling might be a bigger problem. I think we were able to find a nice timeslot in between tests for the students to work on the project. In the future this might help with scheduling as well.

b. Plans for revision: *Provide 1-3 sentences describing what changes, if any, you will make the next time you do this project with a class.*

- Schedule the out of class sessions earlier. Make sure to give specific deadlines to receive RSVPs for the class sessions selected. Seemed like when I said points would be deducted for failure to respond, then the responses were timely.
- Have the students e-mail me their final write-up. Some students handed in a hard copy and others did e-mail. Some students sent the e-mail to the wrong address. So if I have them e-mail me a copy, then I will respond that I received it and this will prevent anyone from having extra time to work on the write-up.
- I will have examples of the write-ups so students have a format to follow. Many of the write-ups were very long with too much information. Having a template will eliminate this.
- Originally, I chose papers that were also reviewed in other journals or on websites, so the students could have a layman's version of what the paper was about. Many of the

students didn't read this version, while some students used this content for their write-up. In addition, most papers that are worthy of additional layman's write-ups were in difficult journals such as Cell or Nature. If I eliminate using papers that have the layman's write-up, I can chose papers that are less complicated and have fewer sub-figures.

- 8. PERMISSION:** Please indicate in which of the following ways, if any, that you would be comfortable with the Center for Undergraduate Research sharing this report with others.
- a. I am willing to have this report shared on the Graduate Research Consultant Blackboard site (for future GRCs and instructors). We would include your name with your report.
 - b. I am willing to have this report shared with others on a public website (on CUR website, etc.). The Center would contact you and the instructor of the course for final approval before publishing content online. *Note: if you are willing to share this report on our website and have any photos of class activities, please email us those photos along with this report.*