## Teaching Notes

### By *Selene Nikaido*

*nikaido@ucmo.edu*

**Course Information**

Department: **School of Natural Sciences, Biology Program**

Level: Lower/Upper Undergraduate (select one) **Upper undergraduate**

Course type: Lab/Lecture/Both (other, please describe) (select one) **Both**

Students: Majors/Non-majors (select one) **Majors (mostly). Course is required for Biochemistry and some Biology majors**

Number of Students: **10**

**Module Information**

Original Module Name: **Annotation Exercise – Treasure Hunt**

Link to Original: <https://qubeshub.org/community/groups/gsfmn/collections/annotation-exercise>

[Adapted Module Name: (if applicable). Introduction to Genome Annotation

Link to Adapted Module]

Modified Module Name: **Introduction to Genome Annotation**

Files associated: (ie. Class Worksheet, Summative Quiz, Lecture Powerpoint, etc)

**Class worksheet; slide deck from the original module (Genome Solver: Genome Annotation) is used.**

Modification Learning Goals: (did not changed from original)

* To navigate a database that stores prokaryotic sequence data including data from the Human Microbiome Project (HMP)
* To search the features of a genome browser
* To download data from a database
* To compare gene regions on a genome browser

**Teaching Notes**

*(Think about what you would like to read about this activity if you came back to it in 2 years)*

Suggestions for this section (not all required, and extras always welcome):

* What did you change and why? **I added a section at the beginning so users understood what background was necessary. I also added a guided reading to accompany the slide deck. I find that unless students are held accountable, they will skip parts of the exercise. Also, some specific information needed to accompany the slide deck. I added this information in the reading questions.**
* How did the activity go? **I did not introduce this exercise to students this semester. I will next semester (Spring 2020). However, my experience with genome annotation guided my modifications.**
	+ What went well and why? The students were able to finish the exercise by answering questions within a 2-hour laboratory period.
	+ What went wrong and why? Students will need guidance on the slide deck. We will go over the guided reading questions. This will take an additional period.
	+ What was the prep like? As with any worksheet involving websites, one must check that each link is live and that the website did not change in appearance. The NCBI website is notorious about changing.
	+ How much time went into prep? No prep as this is a dry lab. Instructor may have to go through the websites as they change quite often.
	+ Did you have to do any prep (i.e. grow cultures, grow seeds, order supplies) ahead of implementation? n/a
	+ Would you do this activity again? I plan on testing this activity with advanced students. See below.
	+ What would you change in the future? I would like to beta test this exercise with advanced students (ones who completed Genetics) and then with Genetics students. Some questions may have to be altered.
* What do you wish you’d known before you ran the activity? Reading and understanding the accompanying slide deck helps. It makes me realize that students have to do the same.
* Is there anything else you would like to make note of? Before running through any bioinformatics exercise, you MUST review the websites to make sure screens look the same. Novices often do not adjust well when you say something is in this corner when they are not.
* How does this activity fit in your overall course curriculum? The original Annotation Exercise was adapted for a general course.
* In what ways, if any, did you modify your teaching practice with this activity? I already introduce bioinformatics exercises like this one. This exercise will fit well with the genome annotation exercise I used last year.