

## BIMM171B Genomics Research Initiative Lab 2

TTH 12-3 pm

YORK 3010

Lab: York 4406

Instructor: Swarna Mohan ([swmohan@ucsd.edu](mailto:swmohan@ucsd.edu))

TA: Emily Pierce ([e1pierce@ucsd.edu](mailto:e1pierce@ucsd.edu))

### Tentative Schedule

Day	Activities
Week 1	
T April 3	Overview of class Review of Genomics, Transcription, and Translation <b>Initial discussion of poster topics/groups for Research Showcase (June 6<sup>th</sup>)</b>
Th April 5	Introduction to reading frames, operons, BLAST, Genbank, and genome annotation <b>Install virtual machine and DNA Master by Tuesday, April 10</b>
Week 2	
T April 10	Introduction of DNA Master BLAST the phage genomes Start annotation of phage genomes
Th April 12	Review of phage biology and further discussion of genomics and annotation Continue annotation of phage genomes
Week 3	
T April 17**	Discussion of major phage proteins and phage biology continued Continue annotation of phage genomes <b>Begin Host Range Experiments</b>
Th April 19**	Introduction to Phamerator Comparison of phage genomes to related phage Continue with Host Range Experiments Continue annotation of phage genomes
Week 4	
T April 24**	Introduction to Mass Spectrometry and proteomics <b>Form groups, choose topics for Research Showcase – start working on abstracts</b> Continue with Host Range Experiments Continue annotation of phage genomes
Th April 26**	<b>Continue working on abstracts – register for Research Showcase by Tuesday May 1<sup>st</sup> – instructor approval needed for abstracts before submission</b> Finish first round of host range experiments Start analyzing Mass Spec. data Continue annotation of phage genomes
Week 5	
T May 1**	<b>Final annotation files due – electronic submission (Instructions will be up on TritonEd)</b> Review of Streptomyces and Antibiotics Continue analyzing Mass Spec. data <b>Start 2<sup>nd</sup> round of Host Range Experiments</b>

Th May 3**	Guest lecture on 16s rRNA, speciation in bacteria, and building phylogenetic trees Finish Mass Spec. analysis Continue 2 <sup>nd</sup> round of Host Range Experiments
Week 6	
T May 8**	Start 16S rRNA analysis Continue 2 <sup>nd</sup> round of Host Range Experiments
Th May 10**	Finish 16S rRNA analysis Finish 2 <sup>nd</sup> round of Host Range Experiments
Week 7	
T May 15	Guest lecture on Biosynthetic clusters and the search for new antimicrobials Compile class results for host range and antibiotic spot testing (from Fall) Comparison of Streptomyces genomes to related bacteria
Th May 17	Summarize host range experiment and 16s rRNA analysis Start annotation of Streptomyces genome – biosynthetic cluster
Week 8	
T May 22	Continue annotation of Streptomyces genome – biosynthetic clusters
Th May 24	Finish annotation of Streptomyces genome – biosynthetic clusters
Week 9	
T May 29	Poster preparation
Th May 31	Finish Poster Preparation – submit for instructor approval
Week 10	
T June 5	Lab Clean-up and check out
W June 6	Poster presentation – Research Showcase – 4 -6 pm, Price Center

**\*\*Days we will spend part of the class in lab. Proper PPE needed.**

**Office hours:** By appointment only. (24 hours' notice via email required)

**Grades will be based on:**

1. Completion of Annotation Files in DNA Master
2. Attendance and participation
3. Assignments (5-6) & Quizzes (3)
4. Lab Notebook for host range experiments
5. Poster preparation and presentation at the Division of Biology Undergraduate Research Showcase (Wed June 6<sup>th</sup>, 2017 4 -6 pm).

### Annotation Files

Annotations will done in groups of 2 and each pair will be required to electronically turn in a set of final DNA Master annotation files. All annotation files will be due on Tuesday, May 1<sup>st</sup>, by midnight. Instructions on where and how to upload the documents will be up on TritonEd.

**\*\*Make sure you have access to the TritonEd site for this class.\*\***

## **Attendance**

**Class attendance is mandatory and attendance will be taken every day.** Please let your instructor know by email (swmohan@ucsd.edu) if you have an unavoidable conflict or an illness and will miss class. Unexcused absences will result in the reduction of your attendance points and a lower grade in the course.

## **Assignments**

There will be 5-6 assignments based on lecture material and data analysis. These assignments will either be homework or part of an in class activity. Homework assignments will be posted on TritonEd.

**\*\*Make sure you have access to the TritonEd site for this class.\*\***

## **Quizzes**

There will be 3 quizzes covering lecture material. Dates of the quizzes will be posted on TritonEd at least one week prior to the quiz.

## **Research Notebook**

As in fall quarter, you will be keeping laboratory notebooks that document the experiments that you do in lab. You may continue using your old lab notebook, but you must clearly begin a new section (makes it easier to evaluate/grade)

## **Poster Preparation**

Each group will prepare a research poster describing one aspect of the class research project. Topics for the poster presentation will be chosen in class on April 24<sup>th</sup>.

## **Presentation at Undergraduate Research Showcase**

As a final exam, you will present your research poster as part of your group at the Undergraduate Research Showcase that is put on by the Division of Biological Sciences. **It is in the Price Center on Wednesday, June 6, 2017 starting at 4 pm.**

Lots of info about the research showcase can be found here:

<https://biology.ucsd.edu/education/undergrad/research/showcase/>

**\*\*Note: The Research Showcase is not during regular class time. At least one member from the group must be present at your poster at all times.\*\***