**Week 2: Introduction**

Learning Objectives for First Week in Lab

*Skills*

* Accurately pipet a given volume with one of three pipets (1 – 1000 µL)
* Produce serial dilutions and measure your accuracy
* Generate Excel graph and alter default settings

*Cognitive*

* Propose explanations for graph results of serial dilutions
* Interpret data measuring light absorbance (using spectrophotometer)

**Pre-Lab**

Before you come to lab:

1) Read “How to use a Pipetman” so you can be ready for lab.

[www.bio.davidson.edu/113/weekly\_Labs/Micropipettor.pdf](http://www.bio.davidson.edu/113/weekly_Labs/Micropipettor.pdf)

2) Watch 4 videos and download 3 new Excel files and one Word file report template. <<https://www.bio.davidson.edu/people/macampbell/113/2iterationsGGAstudent_S2024.html>>

3) Answer each of these four questions in two sentences or less. You will be called upon randomly for the answer you found.

A) What is the function of the *promoter* in a gene?

B) Do you think a disease could result from a mutated promoter given it does not encode the protein?

C) How can you make a 0.002% trypan blue *solution* if trypan blue is a *powder*?

D) What wavelength of light is the absorption maximum of trypan blue?

**In-Lab**

During lab:

CATME has placed you in a lab group. The algorithm maximizes several categories of diversity and minimizes scheduling conflicts. You will work in this group each week for the entire semester.

1. Answer questions A – D collectively.
2. Perform all the dilution series exercises for series A data  
   (stock solution is 0.116 mM trypan blue):
   1. Watch the videos that introduce the various tasks
   2. Produce series A dilutions and generate your own data
   3. generate 4 graphs for series A – D
   4. Propose explanations why graphs B – D do not fit the trendline as well as series A.
3. Draw a picture of a bacterial gene that includes these components: promoter, ribosomal binding site (RBS), start codon, stop codon, transcriptional terminator. Be sure to consider the spacing of all these elements. You may use ICB or the internet to help you. Confirm your drawing with the instructor.