

Welcome to BST 281 Lab 3

8 Feb, 2018

Mike MacArthur

macarthur@g.harvard.edu

Office Hours: Fridays 2-3p

Kresge Student Lounge

Problem Set 2 Now Posted

Due on Friday Feb 16th by 11:59pm

[Canvas Assignments page](#)

Homework 1 Review

- Computational controls
 - [Computational Controls Review](#)
 - Numeric types: int vs float
 - [See section 4.4](#)
 - Types of BLAST
 - [BLAST Homepage](#)
-
-

Journal Club Presentation Tips

Presentations start Wednesday February 21st

- If you do not have a group yet, get one soon!
 - You can use the Canvas Discussion Board if you are looking for a group
- Guidelines Reminder
 - Select a relatively recent, high-impact paper with a lot of quantitative biology
 - Send your proposed paper to Eric and Curtis so they can approve it
 - As a group, present the paper in ~30 minutes

General Presentation Guidelines

- Format your presentation like a paper
 - Background/rationale, Methods, Results, Discussion, Interpretation/Strengths & Weaknesses
- Spend an appropriate amount of time on each section
 - Ex. Spending 15 minutes on background is probably too much
- Practice your presentation so you know how much time it will take
 - Don't go way over 30 minutes!
- You do not have to present every single figure
 - Present what is important for the take-home message of the paper
 - Be sure that you're effectively communicating the overall point of the paper
- When presenting figures, explain them in detail. Remember, your audience has never seen them before
 - Say what the overall point of the figure is
 - Explain the axes and points, units, scale, etc
 - How were the data generated, what pipelines were run before the graphs were generated?
 - What are the statistical tests being shown and what is significant?
- State the authors' conclusions, but also give your interpretation of the data
 - What did the authors do well? What was especially novel about the paper?
 - Do you agree with the authors' conclusion, why/why not?
 - If not what, what would they have needed to convince you?
 - Was anything missing from the paper?
 - How could the work be continued in future projects?

If you have questions about presentation formatting, guidelines, etc please email me/Curtis/Eric or come to our office hours

Function Exercise

Functions Inside Functions

```
def reverse_complement( strDNA ):
    strRet = ""
    for s in reversed( strDNA ):
        if s == "A":
            strRet += "T"
        elif s == "C":
            strRet += "G"
        elif s == "G":
            strRet += "C"
        else:
            strRet += "A"
    return strRet

def showString( inString, returnNum, front):
    """
    Make a function that calls reverse_complement on
    inString, and prints out the number of characters
    defined by returnNum, returning characters from the front
    of the string if front = True and from the back of the string
    if front = False
    """
```

Strip, Split and Join Functions

Open the lab3.py file and run the commands in your Python interpreter

- What do each of these commands do (what are their inputs, outputs and actions)?

- split
 - strip
 - join
- What is RegEx?

Codecademy

Should be through lesson 7 (Battleship!) soon

If you're already done with Codecademy then you can check out:

Rosalind Python Bioinformatics problems

The Bioinformatics Stronghold section has a lot of useful applied exercises

There are also multiple answers to almost all of the questions on StackOverflow, GitHub, etc