

# CSC 857 Bioinformatics Computing, Fall 2013

## HOME ASSIGNMENT 1 (Total 5 Points)

Assignment Date: August 27, Due Date: September 10, In Class

All questions in assignment 1 require you to read the text “Bioinformatics- An Introduction for Computer Scientists”, copies of which were handed out in the first class. Additionally, you should research each question on the web.

Provide short (1/2 – 1 page) answers to each of the questions. You are welcome to provide figures or diagrams to clarify your answer. If you use figures made by someone else (e.g. from the web), cite the source. All answers should be typed using 10-11pt times font and single spacing.

### Question 1 (1 Point)

Part A. DNA, RNA, and Proteins are example of “large molecules”. List some of the different ways through which you can substantiate the notion of “size” for each of the above molecules and characterize their average “size”.

Part B. List and briefly describe currently available techniques that allow us to determine the structure (or the atomic constitution) of such large molecules.

### Question 2 (1 Point)

What are ESTs? Why are they useful?

### Question 3 (1 Point)

Distinguish between metabolic pathways and signaling pathways. Research and provide an example of each of these pathways. Briefly describe how you found this information.

### Question 4 (1 Point)

What is a two-hybrid experiment? What sort of information does it provide? What is this information important? At the state-of-the-art, what is the most common type of two-hybrid system in use?

### Question 5 (1 Point)

What is *RNAi*? What are its uses? Research and briefly describe how *RNAi* can be obtained. Provide all necessary citations for you information.