Bios 6301: Assignment 4

Charles Rhea

Due Tuesday, 03 October, 1:00 PM

$5^{n=day}$ points taken off for each day late.

20 points total.

This assigment includes turning in the first three assignments. All three should include knitr files (named `homework1.rmd, homework2.rmd, homework3.rmd, homework4.rmd`) along with valid PDF output files. Inside each file, clearly indicate which parts of your responses go with which problems (you may use the original homework document as a template). Add your name as `author` to the file's metadata section. Raw R code/output or word processor files are not acceptable.

Failure to properly name files or include author name may result in 5 points taken off.

Question 1

10 points

1. Use GitHub to turn in the first four homework assignments. Make sure the teacher (couthcommander) and TA (mhblackman) are collaborators. (5 points) *Completed*

2. Commit each assignment individually. This means your repository should have at least four commits. (5 points) *Completed*

Question 2

10 points

Use LaTeXto create the following expressions.

1.
$$P(B) = \sum_j P(B|A_j)P(A_j), \ \Rightarrow P(A_i|B) = \frac{P(B|A_i)P(A_i)}{\sum_j P(B|A_j)P(A_j)}$$

2.
$$\hat{f}(\zeta) = \int\limits_{-\infty}^{\infty} f(\S)e^{-2\pi i \S \zeta}d\S$$

3.
$$\mathbf{J} = \frac{d\mathbf{f}}{d\mathbf{x}} = \left[\frac{\partial \mathbf{f}}{\partial \S_1} \cdots \frac{\partial \mathbf{f}}{\partial \S_n}\right] = \begin{bmatrix} \frac{\partial f_1}{\partial \S_1} & \cdots & \frac{\partial f_1}{\partial \S_n} \\ \vdots & \ddots & \vdots \\ \frac{\partial f_m}{\partial \S_1} & \cdots & \frac{\partial f_m}{\partial \S_n} \end{bmatrix}$$