BT2020 - Numerical Methods for Biology

Jan - May 2019
Assignment 3

15th April , 2019

Due date: 25th April, 2019 @17:00
Maximum Marks: 20
Instructions: Write MATLAB codes to solve the problems mentioned below. If you need any assistance, feel free to write to me or the TAs via Piazza (private note). Evaluation will be based on the codes and logic.

Academic Integrity: You are allowed to discuss the problems verbally with your friends, but copying or looking at codes (either from your friend or the Web) is not permitted. Transgressions are easy to find, and will be reported to the "Sub-committee for the Discipline and Welfare of Students" and will be dealt with very strictly. Mention any collaboration (discussions only!) in your solutions.

Late submission penalties: 1 second – 24 h: 20%; 24–48 h: 40%; > 48 h: 60%

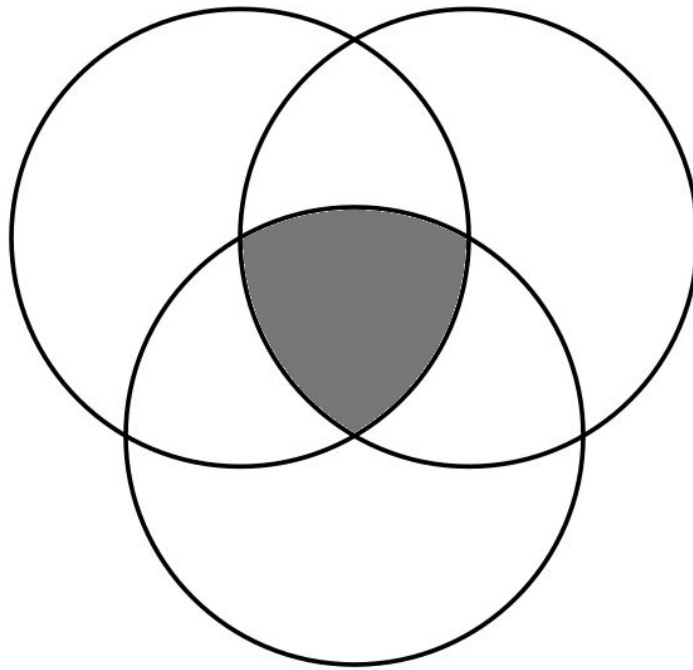**Early submission bonuses:** > 24 h: 5%, > 48 h: 10%, > 72 h: 20%

Hints:

1. Please have a look at the following page (from Cosma Shalizi's blog), on minimal advice to undergraduates on programming:
http://cscs.umich.edu/~crshalizi/weblog/593.html

Problem Statement

3 (20 Marks) Find the area of the shaded region shown in the figure below using Monte Carlo methods. All 3 circles have the same radius of 2 units.

Hint: You may define a coordinate system and place this figure anywhere on it, to start with.

How to Submit your Homework

- Submit your assignment ONLY via the submission link: http://tinyurl.com/bt2020-submit.
- You should not be signed into Dropbox while uploading this file (or use an incognito window to open the link), so that you can enter the following details during submission, instead of Dropbox auto-filling it:

- First Name: Roll Number
- Last Name: Your Full Name
- E-mail: Your smail id

- Save your solution file as hw3.m. Do not use different filenames!

- Your submission file, hw3.m should begin with the header information shown below — the number of the assignment, your roll number, your collaborators' roll number(s), and approximately how much time you took to solve the problems in that part of the assignment.

- Submissions not adhering to any of the above instructions will not be evaluated.

- Also do not send the files by e-mail — obviously, they will not be evaluated.

```
% BT2020 Assignment 3
% Roll number : BE17B001
% Collaborators : BE17B002 , BS17B003
% Time: 1:15
```