

Biology 3312 (Biostatistics) Syllabus—Summer I 2017

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Class time, Lectures, and Computer Practices:

Tuesdays and Thursdays, 8:30AM to 11:25AM

All the lectures and computer practices are held at Science Education and Research Center (SERC) RM456.

Usually, every class is started with a lecture followed by computer practice. Throughout this semester, we will learn using different software, including Microsoft Excel, SPSS, Graphpad/Prism, and R, to perform different statistical analyses. R programming is what we are going to focus on for our statistical analyses.

Office Hours:

Tuesdays and Thursdays 12:30PM to 2:00PM at RM419A BioLife Sciences Building

Textbook and Reference Book:

Intuitive Biostatistics: A Nonmathematical Guide to Statistical Thinking by Harvey Motulsky (3rd Ed, ISBN13: 978-0199946648 ISBN10: 0199946647)

You may also refer to:

Fundamentals of Biostatistics by Bernard Rosner (7th Ed, ISBN-13: 978-0538733496 ISBN-10: 0538733497)

For the computer practice/lab, a copy of lab manual/notes will be provided to you for free.

Course Description:

General introductory biostatistics for undergraduate students, including lectures covering basic biostatistics, and computer labs practicing how to use Microsoft EXCEL, SPSS, Graphpad/Prism, and R to perform statistical analyses.

Blackboard:

Course announcements and grades will be posted online using Blackboard. Please check Blackboard periodically.

Temple Email:

You may receive important information regarding the course via your Temple email. Please check your Temple email daily. You may ask general questions regarding the course via Temple email. If you have some specific questions and want to see me during the office hours or any other time, please email me via your Temple email to make an appointment and briefly describe your questions.

Assignments, Exams, and Grading:

Throughout this semester, there will be 7 in-class assignments and 2 take-home assignments. You need both your knowledge learned from both the lectures and computer labs/practices to complete these assignments.

Each in-class assignment contributes 2% of the final grade. Each take-home assignment contributes 3% of the final grade. The in-class assignments will be teamwork. Each group of 2-3 people only submits one copy of the assignment and receives the same grade for that assignment. The take-home assignments have to be done individually.

Each in-class assignment will be announced at the beginning of the computer practicing part of a class and is due at the end of the same class.

Take-home assignments will be announced in lectures and are due in one week thereafter.

There will be 2 midterm exams and a final exam based on the lectures only. The first midterm exam contributes 20% to the final grade. The second midterm exam, which is NOT cumulative, contributes another 20% to the final grade. There is a final exam for the computer practice/lab, which contributes 17% to the final grade. There is also a final exam for the lectures. It is cumulative and contributes 23% to the final grade.

Attendance will be taken into consideration.

Attendance:

You are expected to come to all the lectures and computer labs/practices, and take all the exams.

Please be on time to avoid missing any exams. There will be NO makeup exams.

If you have a medical or family emergency and cannot come to a lecture, a computer lab, or take an exam, please email me at your earliest convenience (prefer before the class). If you miss a class meeting for any reason, you will be responsible for all materials covered and

announcements made in your absence, although I may try to help you to cover the materials during the office hours.

Academic Honesty and Civility:

You must abide by Temple's Code of Conduct (see <http://www.temple.edu/assistance/udc/coc.htm>), which prohibits:

1. Academic dishonesty and impropriety, including plagiarism and academic cheating.
2. Interfering or attempting to interfere with or disrupting the conduct of classes or any other normal or regular activities of the University.”

NO cheating in the exams/quizzes! Being caught cheating will be resulted in being failed.

Disabilities:

Temple University is committed to the inclusion of students with disabilities and provides accessible instruction, including accessible technology and instructional materials.

The process for requesting access and accommodations for this course is: (1) Advise me the need for access or accommodations (should contact me privately to discuss the specific situation as soon as possible); (2) Contact Disability Resources and Services (DRS) at 215-204-1280 or walk in Ritter Annex 100 to request accommodations; (3) DRS will consult with me as needed about essential components of the program and can coordinate reasonable accommodations for students with documented disabilities; (4) Present me with a DRS accommodation letter.

Class Schedule:

Class	Date	Topics	Textbook
1	May 16, 2017 (Tuesday)	Introduction, descriptive statistics, variables, quantifying scatter, define functions in R, and computer practice	Chapters 1 & 9 Lab notes 1 & 4
2	May 18, 2017 (Thursday)	confidence interval of a proportion, Gaussian distribution, and computer lab	Chapters 3, 4, & 10 Lab note 2
3	May 23, 2017 (Tuesday)	Confidence interval of a mean, Poisson Distribution, and computer practice	Chapters 12 & 10 Lab note 3
4	May 25, 2017 (Thursday)	Midterm Exam 1 , Error bars	Chapter 14
5	May 30, 2017 (Tuesday)	P values; type I, II and III errors; data frame; plotting figures; and computer practice	Chapters 15 & 16 Lab notes 5 & 6
6	June 1, 2017 (Thursday)	Statistical significance and interpretations; hypothesis testing; hypothesis tests for comparing two proportions: Fisher’s exact test and Chi-squared test; computer practice	Chapters 16, 18, & 19, & 27 Lab notes 7 & 8
7	June 6, 2017 (Tuesday)	hypothesis tests for comparing two means: paired and unpaired t-tests; and computer practice	Chapters 23, 24, & 25 Lab note 9

8	June 8, 2017 (Thursday)	Midterm Exam 2 , Multiple comparisons: Bonferroni correction & FDR correction	Chapter22
9	June 13, 2017 (Tuesday)	hypothesis tests for comparing more than two means: One-way and two-way ANOVA test; and computer practice	Chapter 30 Lab note 10
10	June 15, 2017 (Thursday)	<i>Post hoc</i> analyses and computer practice	Chapter 31 Lab note 11
11	June 20, 2017 (Tuesday)	Key concepts of statistics and traps to avoid Computer Lab Final	Chapters 44 & 45
12	June 22, 2017 (Thursday)	Final Exam	

Note: Friday, May 19 is the last day to add or drop a full term 6-week course