

Class Schedule:

Mon-Tue-Wed-Fri from 2:20PM - 3:35PM in Thomas 117 and Thursday from 2:20PM - 3:35PM in Thomas 118

Instructor:

Trinetri Ghosh

Office: 331 Statistical Library, Thomas Building

Email: tbg5133@psu.edu

Office Hours: Monday and Thursday 3:45PM - 4:45PM (Please do not use Angel or Canvas to email)

Teaching Assistant:

Jia Wang

Office: 301 Thomas Building

Email: jzw88@psu.edu

Office Hours: Wednesday 4PM - 6PM

Prerequisites: MATH 111 or MATH 141

Text Book: Probability & Statistics with R for Engineers and Scientists, by M. Akritas.

Course Objective:

To familiarize students with the basic concepts and ideas of statistics and probability. To provide training in the use of statistical methods and graphics for the analysis and presentation of data encountered in the sciences and engineering. The free software R, used by over 90% of statistics graduate students for their research programming needs, will be used as an integral part of the course. The particular topics covered are:

- (1) Basic concepts of probability and statistics (sample vs population, simple random sampling, sample and population mean, variance and percentiles, graphical statistics, comparative studies and experimental design).
- (2) Probability and conditional probability.
- (3) Univariate and multivariate distributions, correlation and regression.
- (4) The Central Limit Theorem.
- (5) Basic concepts of estimation, confidence intervals and hypothesis testing for one sample and regression.
- (6) Comparison of two means and two proportions (independent and paired data), including rank tests.
- (7) Comparison of more than two means and proportions. Bonferroni and Tukey simultaneous confidence intervals and multiple comparisons, and rank methods.

Summary of Course Requirements: The final grade for the course will be based on homeworks, lab assignments, one Mid-term and a final exam.

Homework	20%
Lab Assignment	10%
Mid-Term	30%
Final	40%

Mid-term: Mid-term will be given during class time on June 5, 2017. It will be on the material covered until May 31, 2017. You can bring one double-sided hand-written note.

If due to sickness, family emergency, team obligations etc, you need to miss the Mid-term, you should inform me (e.g., by email) BEFORE the Mid-term date in order to make alternate arrangements. There will be no make-up exams for those who miss the Mid-term without pre-notification, and a zero grade will be assigned. Solution to the Mid-term will be posted on the next day.

Homework: The homework will typically be assigned when the relevant material will be covered in the class and will be due next Wednesday in the class. The assignments will be announced in class and displayed on Canvas.

Homework MUST be turned in in class on the due date. There is a 5 point penalty for homework turned in after class, but by 5PM, on the due date.

If, due to sickness, family emergencies etc, you need to miss class when homework is due, you should inform me (e.g., by email) BEFORE the due date to make alternate arrangements for turning in your homework.

Solutions for each homework assignment will be posted on Canvas, on the next day. Homework will usually be returned on Monday.

Lab Assignment: The purpose of the lab sessions is to reinforce statistical and probabilistic concepts, and to provide hands-on experience in computer-based data analysis and statistical graphics. Each lab session will be followed by a lab assignment the due date of which will be Tuesday night.

In this course we will use the statistical packages R which can be accessed in the computer labs on campus. It is most convenient, however, if you download R on your personal computer (the download is free). You can download it from <http://www.r-project.org/>. RStudio is recommended as an integrated development environment (<https://www.rstudio.com>).

Final Exam: The final exam will be comprehensive. You can bring two double-sided hand-written notes.

Grades(tentative plan): 93-100 = A, 87-92.9 = A-, 80-86.9 = B, 70-79.9 = C, 60-69.9 = D, 0-59.9 = F

Disability Services: Penn State welcomes students with disabilities into the University's educational programs. If you have a disability-related need for reasonable academic adjustments in this course, contact the Office for Disability Services (ODS) at 814-863-1807 (V/TTY). For further information regarding ODS, please visit the Office for Disability Services Web site at <http://equity.psu.edu/ods/>.

Academic Integrity and Mutual Respect: All Penn State and Eberly College of Science policies regarding academic integrity, ethics, honorable behavior and mutual respect apply to this course. These can be found -

<http://www.psu.edu/ufs/policies/>

<http://science.psu.edu/current-students/Integrity/Policy.html>

<http://science.psu.edu/climate/code-of-mutual-respect-and-cooperation>