Instructor:

Vu Dinh
Email: vucdinh@udel.edu. Office: Ewing Hall 312.

Class Times:

- Lectures: MWF, 3:35pm-4:25pm, Gore Hall Room 304
- Labs:
    - Section 050L: Monday 2:30pm - 3:20pm, Gore Hall Room 222
    - Section 051L: Wednesday 2:30pm - 3:20pm, Gore Hall Room 222
- Office hours (starting from the second week of classes)
    - Tuesday 3:00pm - 4:30pm, Ewing Hall Room 312
    - Friday 1:30pm - 3:00pm, Ewing Hall Room 312
    - or by appointments

Course's webpage:

https://vucdinh.github.io/m205f22

Visit this page regularly. All handouts (homework assignments, lectures, lab instructions) will be posted at this webpage. Canvas will be used only to access grades and graded online assignments.
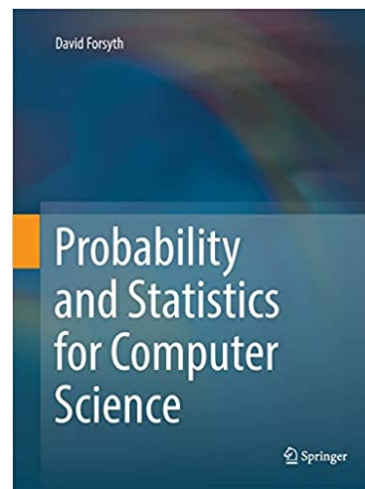
Prerequisites: MATH210 (Discrete Mathematics) or MATH230 (Finite Mathematics with Applications).

References:

Lectures:
Probability and Statistics for Computer Science.
David Forsyth (2018)
The text is available online from the UD library.

Labs:
$simpleR$ – Using R for Introductory Statistics
John Verzani (2002)
Link

Topics: The aim is to cover Chapters 1-9 of the text. Topics include descriptive statistics, graphical displays, sampling, variation, normal distribution, estimation, hypothesis testing, one-way analysis of variance, simple linear regression and goodness of fit.

Tentative schedule:

Date	Theme/Topic	Labs	Assignments
Aug 31	Syllabus		
Sep 2—9	Chapter 1: Describing dataset	Section 2: Handling data	
Sep 12—16	Chapter 2: Looking at Relationships	Section 3: Univariate data	
Sep 19—23	Chapter 3: Basic Ideas in Probability	Section 4: Bivariate Data	Homework 1 (due 09/23)
Sep 26—30	Chapters 3-4	Section 4: Correlation	
Oct 3—7	Chapter 4: Random variables and expectations	Section 6: Random data	Homework 2 (due 10/07)
Oct 10—14	Chapter 5: Useful distributions	Section 7: The central limit theorem	
Oct 17—21	Chapter 6: Samples and populations	Section 9: Confidence interval estimation	Homework 3 (due 10/21)
Oct 24—28	Review Midterm exam		Midterm: Oct 28 (lecture) Oct 24-26 (labs)
Oct 31—Nov 4	Chapter 7: The significance of evidence	Section 10: Hypothesis testing	
Nov 7—11	Goodness of Fit	Section 12: Goodness of Fit	Homework 4 (due 11/11)
Nov 14—18	Linear Regression	Section 13: Linear regression	
Nov 21–25	Thanksgiving break		
Nov 28 —Dec 2	One-Way Analysis of Variance	Section 15: Analysis of variance	Homework 5 (due 12/02)
Dec 5—7	Selected topics + Review		
Exam week			

Homework: Assignments will be posted on the web every other Monday (starting from the third week) and will be due on Friday of *the following week, at the beginning of* lecture. No late homework will be accepted. Your lowest homework scores will be dropped in the calculation of your overall homework grade.

Quizzes: To encourage you to keep up with reading and understanding the concepts, at the end of some chapters, there will be a short quiz during class. The quiz dates will be announced at least *one* class in advance. Your lowest quiz score will be dropped.

Exams:

- There will be an in-class midterm exam during the week of October 24-28. The exam consists of two parts: a written exam during the Oct 28 lecture, and the computational exam during the lab sessions of that week.
- Final exam (written) during the final week.

Evaluation:

- Overall scores will be computed as follows:
  25% homework, 15% quizzes, 25% midterm, 35% final
- No letter grades will be given for homework, midterm, or final. Your letter grade for the course will be based on your overall score.
- The lowest homework scores and the lowest quiz score will be dropped.

- Here are the letter grades you can achieve according to your overall score.
  - $\geq 90\%$: At least A
  - $\geq 75\%$: At least B
  - $\geq 60\%$: At least C
  - $\geq 50\%$: At least D

Data Analysis: We will do data analysis using an open-source statistical system called R

http://cran.r-project.org/

Install R:

- Windows: Go to http://cran.r-project.org/bin/windows/base/ and download using the link saying "Download R 4.x.y for Windows"
- Mac: http://cran.r-project.org/bin/macosx/R-latest.pkg
- Linux: Go to http://cran.r-project.org/bin/linux/ and download as needed.

Install RStudio:

We will use RStudio, an open-source integrated development environment (IDE) for R. It includes a console, syntax-highlighting editor that supports direct code execution, as well as tools for plotting, history, debugging and workspace management.

http://www.rstudio.com/ide/download/

Ethics:

- You **must** write up solutions on your own. You may **never** read or copy solutions of other students.
- You are **encouraged** to discuss with other students about the class materials and homework.

UD Policies:

- **The Safety of Our Learning Environment.** Student learning can only occur when students and their instructors feel safe, respected, and supported by each other. To ensure that our learning environment is as safe as possible, you are expected to abide by the most up-to-date University of Delaware's COVID-19 Guidelines.

- **Academic Integrity.** Please familiarize yourself with UD policies regarding academic dishonesty. To falsify the results of one's research, to steal the words or ideas of another, to cheat on an assignment, to re-submit the same assignment for different classes, or to allow or assist another to commit these acts corrupts the educational process. Students are expected to do their own work and neither give nor receive unauthorized assistance. Complete details of the university's academic integrity policies and procedures can be found at

  https://sites.udel.edu/studentconduct/sgup/
  Office of Student Conduct, 218 Hullihen Hall, (302) 831-2117.
  E-mail: student-conduct@udel.edu

- **Harassment, Discrimination, and Sexual Misconduct.** The University of Delaware works to promote an academic and work environment that is free from all forms of discrimination, including harassment. As a member of the community, your rights, resource and responsibilities are reflected in the Non-Discrimination, Sexual Misconduct, and Title IX policy. Please familiarize yourself with these policies at

You can report any concerns to the University's Office of Equity and Inclusion, at 305 Hullihen Hall, (302) 831-8063 or you can report anonymously through UD Police (302) 831-2222 or the EthicsPoint Compliance Hotline at

You can also report any violation of UD policy on harassment, discrimination, or abuse of any person at this site:

- **Faculty Statement on Disclosures of Instances of Sexual Misconduct.** If, at any time during this course, I happen to be made aware that a student may have been the victim of sexual misconduct (including sexual harassment, sexual violence, domestic/dating violence, or stalking), I am obligated by federal law to inform the university's Title IX Coordinator. The university needs to know information about such incidents to, not only offer resources, but to ensure a safe campus environment. The Title IX Coordinator will decide if the incident should be examined further. If such a situation is disclosed to me in class, in a paper assignment, or in office hours, I promise to protect your privacy–I will not disclose the incident to anyone but the Title IX Coordinator.

  For more information on Sexual Misconduct policies, where to get help, and reporting information, please refer to

  At UD, we provide 24/7/365 crisis assistance and victim advocacy and counseling. Contact 302-831-1001 to get in touch with a sexual offense support advocate, as well as confidential and anonymous counseling services for other concerns.

- **Accommodations for Students with Disabilities.** Any student who may need an accommodation based on a disability should contact the Office of Disability Support Services (DSS) office as soon as possible. For more information, please visit Getting Registered at DSS. Contact DSS by phone: 302-831-4643; fax: 302-831-3261; website: www.udel.edu/dss; email: dssoffice@udel.edu; or visit 240 Academy Street, Alison Hall Suite 130 during business hours (8-5 M-F).

- **Non-Discrimination.** The University of Delaware does not discriminate against any person on the basis of race, color, national origin, sex, gender identity or expression, sexual orientation, genetic information, marital status, disability, religion, age, veteran status or any other characteristic protected by applicable law in its employment, educational programs and activities, admissions policies, and scholarship and loan programs as required by Title IX of the Educational Amendments of 1972, the Americans with Disabilities Act of 1990, Section 504 of the Rehabilitation Act of 1973, Title VII of the Civil Rights Act of 1964, and other applicable statutes and University policies. The University of Delaware also prohibits unlawful harassment including sexual harassment and sexual violence.

  For inquiries or complaints related to non-discrimination policies, please contact:

  Office of Equity and Inclusion
  Email: oei@udel.edu; Phone: (302) 831-8063
  305 Hullihen Hall Newark, DE 19716

  For complaints related to Section 504 of the Rehabilitation Act of 1973 and/or the Americans with Disabilities Act, please contact:

  Phone: 302-831-4643; Email: dssoffice@udel.edu
  or visit at 240 Academy Street, Alison Hall Suite 130.

  or contact the U.S. Department of Education - Office for Civil Rights.