STAT 360: Probability and Statistics

Lectures: **MTWTh** 12:45 - 2:20 PM in VUB 122

Instructor	Email	Office Hours
Fabiana Ferracina	fabiana.ferracina@wsu.edu	after class with advanced notice in VUB 342

Syllabus Summary

1. Attendance is mandatory;
2. Weekly homework: problems will be assigned every day during class and due in class the following Monday;
3. One midterm and a final: allowed a calculator and a double sided notes sheet;
4. Weekly quizzes/activities;
5. Daily reading assignments due on Blackboard.

Description

What will we study?

Probability and Statistics with applications. Probability deals with the quantification of events that are for practical purposes considered random. Statistics deal with applying probability theory to data. There are two ways of "doing statistics": descriptive data analysis and inferential statistics. Descriptive data analysis is about summarizing you data: finding the min/max, mean/median, quantiles and so on. Inference is about being able to tell what the data population (e.g. WSU students taking Summer courses) is like for a given question (e.g. Income/Age/Gender) based on a sample (e.g. pick 30 random WSU students taking Summer courses).

In this course we will cover: probability models, sample spaces, random variables, distributions, moments, comparative experiments, tests, correlation and regression in engineering applications.

Textbook and supplement are:

1. Walpole, R.E., Myers, R.H., Myers, S.L., and Ye, K. (2012): Probability & Statistics for Engineers and Scientists. Pearson, ninth edition (*required* - I don't care in what form or from where you acquire it);
2. Make an account for R Studio on the "cloud" at `http://rstudio.cloud`;

Prerequisite for this course: Math 172.

Course Website

I will primarily use Blackboard (Bb) to communicate with you regarding course content and announcements.

Attendance Policy

Attendance and participation during lectures will count for 5% of your total grade. It is a small percentage, but it will boost your knowledge and ability to better tackle the other graded aspects of the course and incidentally my hope is that this policy will help you learn and engage with the material. I will keep track of each student's participation and attendance, then use a consistent formula at the end of the semester to award these points.

Readings

Every class day by 12:30 PM you are expected to turn in a pdf document of a typed summary based on reading the textbook section that will be covered on that day's lecture.

Quizzes and Activities

There will be a graded quiz/activity every Thursday where you can use your notes and work in pairs. It will cover the material learned during that week.

Homework

There will be homework assigned every day during class. They may be textbook problems or problems we ask in class. You can type or handwrite the homework, but it must be neat and readable. Since the homework is to reflect your progress through the semester, I will not be giving extensions. It will be due every Monday at the beginning of class.

Exams

There will be one midterm and a final exam. You can use a calculator and one double sided notes sheet. You may **NOT** use a smart device (such as a phone), and may **NOT** borrow calculators during the exam.

Grading

Your grade will be based on the percentages below. I will maintain a gradebook on Bb so you can keep track of current grades.

What?	% of Total
Attendance	5%
Readings	5%
Quizzes/Activities	10%
Homework	25%
Midterm	25%
Final Exam	30%

Grading Scale:

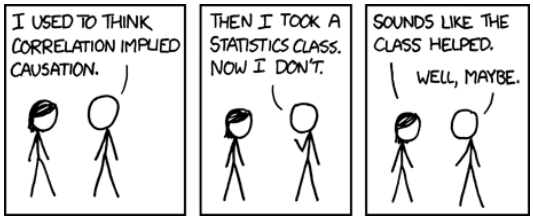
A 93-100%	A- 90-92.99%
B+ 87-89.9%	B 83-86.9%
B- 80-82.9%	C+ 77-79.9%
C 73-76.9%	C- 70-72.9%
D+ 67-69.9%	D 60-66.9%

F Below 60%

Other Resources

Quantitative Skills Center (Math Lab): Located in VUB 102, it is a great place to do your homework and get questions answered (it's basically free tutoring!). The QSC is open/staffed Mon-Thurs 9 a.m.- 3 p.m. and Friday 9 a.m.- 1 p.m. For subject-specific tutoring, please check out their website linked above.

Internet: You have a lot of resources through MyMathLab. There are many helpful (and not-so-helpful) websites. Khan Academy is particularly good when you want to see something explained and watch more examples worked out.



Summer 2019 Schedule

Week	Monday	Tuesday	Wednesday	Thursday
05/06	Chapter 1: Intro to Statistics and Data Analysis	Sample Space and Events (2.1-2.2)	Counting Sample Points and Probability (2.3-2.4)	Rules (2.5-2.7)
05/13	Random Variables and Probability Distributions (3.1-3.3)	Joint Probability Distributions (3.4)	Mean and Variance (4.1-4.2)	Linear Combinations of Random Variables and Chebyshev's Theorem (4.3-.4.4)
05/20	Discrete Distros (5.1-5.2)	More Discrete Distros (5.3-5.4)	Poisson Distribution (5.5)	Review+Catch-up (Ch. 1-5)
05/27	Memorial Day (No class)	Midterm covering ch. 1-5	Uniform and Normal Distros (6.1-6.2)	More Normal, Applications (6.3-6.4)
06/03	Gamma, Exponential and Chi-Squared Distros (6.6-6.7)	Random Sampling and Important Statistics (8.1-8.2)	Sampling Distributions and CLT (8.3-8.4)	Sampling Distribution of S^2 (8.5)
06/10	Estimation Intro and Statistical Inference (9.1-9.2)	Classical Methods, Estimating Mean (9.3-9.4)	Standard Error and Prodiction Intervals (9.5-9.6)	Final Exam

This schedule is tentative and may be adjusted as required. Other important dates can be found on the Academic Calendar.