STAT 441 - Mathematical Statistics I

Syllabus

Schedule : MTWR (1:10PM - 2:05PM)Classroom : Centennial 2311Instructor : Dr. Sherwin G. Toribioemail : storibio@uwlax.eduOffice : Cowley Hall 1023Office Phone : (608)785-6606Office hours : MTWRF (11:00 AM - 12:00 Nn & 2:15 PM - 3:15 PM), or by appointment.

Course Description : Review of discrete and continuous random variables. Moment generating functions, multivariate probability distributions, marginal and conditional probability distributions, functions of random variables, order statistics, Central Limit Theorem, point estimation and confidence intervals. Prerequisites: grade of "C" or better in STAT 245 and MTH 310; junior standing.

Course Objectives : After taking this course students should be able to

- 1. Recognize common discrete and continuous distributions and associate them with situations where they apply.
- 2. Use moment generating functions to find moments of random variables and for identifying probability distributions.
- **3.** Express probability distributions in terms of joint, marginal, and conditional distributions when studying multivariate situations.
- 4. Apply various methods for finding the probability distribution of a function of random variables.
- 5. Identify the probability distribution of order statistics.
- 6. Recall the relationships between the normal, t, Chi-squared, and F distributions and use the Central Limit Theorem to find probabilities for various scenarios in which it applies. Estimate population parameters using both point and interval estimates.

Textbook: "Mathematical Statistics with Applications", 7th ed., by Wackerly, Mendenhall, and Scheaffer.

Grading:

4 Long Exams @ 100 pts each	400 pts
1 Comprehensive Final Exam	200 pts
Homework	200 pts
Total points	800 pts

To get a grade of

А	- one has to get at least 736 (92%) points out of 800 and at least 75% in the final example.	am.
A/B	- one has to get at least 696 (87%) points out of 800 and at least 70% in the final example.	am.
В	- one has to get at least 656 (82%) points out of 800 and at least 65% in the final example.	am.
B/C	- one has to get at least 608 (76%) points out of 800 $\underline{\mathrm{and}}$ at least 60% in the final example.	am.
С	- one has to get at least 560 (70%) points out of 800 and at least 55% in the final example.	am.
D	- one has to get at least 480 (60%) points out of 800 and at least 50% in the final example.	am.

 $Tentative \ Exam \ Dates:$

Exams	Dates	Time	Coverage
Exam #1	Sept. 29	Class Time	Chapters 1, 2, and 3 (except 3.10)
Exam #2	Oct. 23	Class Time	Chapters 4 and 5
Exam #3	Nov. 17	Class Time	Chapters 6 and 7 (except 7.5)
Exam #4	Dec. 11	Class Time	Chapter 8 and 7.5
Final Exam	Dec. 18	7:45 AM - 9:45 AM	Comprehensive

Long Exams : In order to finish these long exams in the allotted time, you should be well prepared for them. That is, you should be familiar with all the material we covered in class and have practiced enough to know how to answer most of the problems in the exam at first glance.

Make-up Exam Policy: In order to be excused from a long exam, you must have a valid reason and you must discuss the matter with me before the exam. In the event that you miss a long exam due to circumstances beyond your control, I may count your final exam for a larger part of your grade.

Homework : Homework will be assigned regularly and they will be due the next class day. All your work should be <u>neatly</u> written (using proper notation) on clean sheets of paper. We might discuss some of the homework problems the day they are due, so no late homework will be accepted.

Attendance : Attendance will be monitored daily and will be considered in the rounding of your final percentage grade. If you miss 2 or less classes, your final percentage grade will be rounded up. If you miss between 3 to 4, your final percentage grade will be rounded to the nearest percentage. If you miss 5 or more class, your final percentage grade will be rounded down. Based on my experience, students start having difficulties when they miss classes. So it is for your own benefit to attend all lectures. If you have to miss a class, make sure that you learn the material that you missed before the start of the next class.

Classroom Courtesy : Please turn off your cellphones, tablets, or any other electronic device when you get into the classroom. If you have to leave early, please let me know at the beginning of class and make a quiet exit.

Academic Honesty Policy: Academic dishonesty will NOT be tolerated in this classroom. If you are caught cheating in an exam, it will result in an automatic F in that exam and a written reprimand to be included in the student's disciplinary file. Do not even let yourself come under suspicion of dishonesty.

Students with disabilities : Any student with a documented disability (e.g. ADHD, Autism Spectrum Disorder, Acquired Brain Injury, PTSD, Physical, Sensory, Psychological, or Learning Disability) who needs to arrange academic accommodations must contact The ACCESS Center (165 Murphy Library, 608.785.6900, ACCESSCenter@uwlax.edu) and meet with an advisor to register and develop an accommodation plan. In addition to registering with The ACCESS Center, it is the student's responsibility to discuss their academic needs with their instructors.

UWL's legal obligations to students : For other statements that reflect UWL's legal obligations to students regarding sexual misconduct, religious accommodations, and veterans and active military personnel, go to https://www.uwlax.edu/info/syllabus/

Final note : Mathematics/Statistics is not a spectator sport. It requires daily participation, both in the classroom and in the homework. This might be a difficult course for some of you, so find a study partner(s). Two heads are usually better than one and it makes the work a lot more fun.....

Good luck and I hope you will do well in this course!