

SYLLABUS

STAT 231-03: INTRODUCTION TO MATHEMATICAL STATISTICS

Class Hour and Class Room

- **Class Hour:** Monday, Wednesday and Friday 1:00pm - 2:00pm every week.
- **Class Room:** CLAS 313.

Website for Stat 231

- Please frequently visit the course materials website at

“<http://www.stat.uconn.edu/~mlan>”

for all course materials and information including course syllabus, textbooks, course documents, homework assignments, final exam, and some others.

Instructor

☞ **Name:** CYR EMILE M'LAN

☞ **Office:** CLAS 324

☞ **Office hours:** Monday 10:00am - 11:00am and Wednesday 2:00pm - 3:00pm or by appointment.

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About Textbooks

- *Mathematical Statistics with Applications, Sixth edition, by D.D. Wackerly, W. Mendenhall, and R.L. Scheaffer, Duxbury Press. ISBN: 0-534-37741-6*
- **A scientific calculator.**

Prerequisites

- ☆ Stat 230.
- ☆ MATH 210 or 220 (Multivariate Calculus).

Grader

- **Name:** Ziwen Wei
- **Email:** ziwen.wei@huskymail.uconn.edu

Course Description

- ✓ **Three credits.**

This course teaches the mathematical foundations underlying basic statistical methods for decision making at the intermediate level. Topics covered include:

- ✓ Sampling Distribution and the Central Limit Theorem. (Chapter 7)
- ✓ Estimation: *bias, mean square error, point estimation, interval estimation, sample size.* (Chapter 8)
- ✓ Properties of Point Estimators and Methods of Estimation: *relative efficiency, consistency, sufficiency, Rao-Blackwell theorem, minimum-variance unbiased estimators, method of moments, methods of maximum likelihood* (Chapter 9)
- ✓ Hypothesis Testing: *elements of a statistical test, large sample test, type II error probabilities, sample size, p-values, small-sample test, power, Neyman-Pearson Lemma.* (Chapter 10)

General Course Objectives

❁ Learn, apply and appreciate basic knowledge and the skills of mathematical statistics.

- Understanding the theory and foundation behind each method used in inferential statistics.
- Develop statistical reasoning and an ability to apply this reasoning to real-life problems, regardless of the form of the distribution.
- Effective usage of the statistical jargons (notions, concepts).
- Appreciate the universality of statistical methods in every aspect of life.

❁ Gain a broader and deeper understanding of statistics.

- Understand the how and why each method works.
- Understand the extent to which a statistical technique is appropriate.
- Understand why many statistical methods are so desirable.
- Evaluate and compare various statistical methods and interpret analysis outputs appropriately.

Course Activities:

- **There will be homeworks** (more than 10 for the whole semester). Each homework will consist of 5 or more problems. However, only two or three randomly chosen problems will be selected for grading.

Howeworks will usually be assigned approximately weekly and you have exactly a week to turn in your homework. All homeworks are due at the beginning of class on the announced due date. Solutions to all homework problems will be provided on the course web page.

Please note that as a general rule **late homeworks** are worth about 50% (1 day late submission) and 0% (2 or more days) of the full credit except for medical emergencies with appropriate documents. Homework assignments including due-dates will be posted on the course homepage.

- **There will be 2 midterm exams.** (about 2 hours each) Absence from the midterm exams are excused only in extreme cases. In other circumstances a zero will be reported as your grade.

- **There will be one final exam** (about two hours), which will be given in the final exam week according to the school scheduled date. Absence from the midterm exams are excused only in extreme cases. In other cases, you will receive an F for the course. **There will be no other exam, no supplemental exam, and no deferred exam! There is no make-up exam!** Is that clear enough?
- Midterm exams and final exams are closed book and closed notes. However, you are allowed to bring in two 8.5×11 pages of your own summary of class materials at each exam. Should only include a list of formula. Bring also a calculator.

Grading

The grades will be assigned as follows:

Homework	20%
Midterm Exam 1	25%
Midterm Exam 2	25%
Final Exam	30%

In order to obtain a good course grade, you need to successfully complete all homeworks, the two midterm exams and the final exam.

Class Ethics

- Turn off your cell phones and pagers before class starts.
- Talking loudly to your classmates in class is prohibited while the instructor is lecturing. You should minimize the noise as much as possible.
- Academic dishonesty and misconducts (cheating, plagiarism, etc...) will not be tolerated and will be dealt with according to university rules and regulations.

Advice

- You should spend 10 hours or more every week on this course outside of class hours.
- Please come prepared to class with textbook, pencils, calculator, and notebook.
- You should learn all the definitions. This course is full of definitions.
- You should read my lectures notes carefully. More important, read the examples and solutions provided in my lecture notes and all examples covered in class. Make sure you can reproduce the solutions of each example alone.
- You should know each theorem and main results and under what circumstances they can be used.
- Feel free to come to my office during office hours or take an appointment if you cannot make it on office hours. You can also consult with your tutor.
- Attending classes regularly is strongly recommended because the material is cumulative. It is common knowledge that students attending classes frequently get good marks.
- Avoid as much as possible to fall behind.
- You are strongly encouraged to work with other students for homeworks. However, each of you is required to submit an individual solution. No copying will be tolerated.
- You should bring a scientific calculator at every lecture.