

MATH 668-01 LINEAR STATISTICAL MODELING

Spring 2018

Location: NS 130

Class Meetings: Tuesdays and Thursdays 2:30pm-3:45pm

Instructor: Ryan Gill

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Office: NS 248

Office Hours: Tuesdays 12:10pm-2:10pm, Thursdays 10:50am-11:50am, and by appointment

Credit Hours: 3

Prerequisites: MATH 667 or consent of department

Course Objectives: This course covers linear and related models including a discussion of fixed, mixed, and random effects models as well as regression and ANOVA models. The discussion will include estimation, hypothesis testing, confidence intervals, model fitting, and model diagnostics. Violations of the assumptions of the linear model will be examined. Statistical software will be used frequently. A strong background in linear algebra is needed.

Learning Outcomes: Students who complete this course will have a thorough understanding of general linear statistical models and be able to give rigorous proofs and derivations for important results in the course topics. Furthermore, students will be able to use critical thinking skills by applying these results to various models and using these results to analyze real data with the aid of computer software. Learning outcomes will be assessed through exams and homework.

Textbook: Linear Models in Statistics by Alvin C. Rencher and G. Bruce Schaalje, second edition, Wiley, 2008.

Other Resources: Materials are available on Blackboard (<https://blackboard.louisville.edu>)

Grading Scale: Grades will be based on two exams (30% each) and regular homework assignments (40%). Students who obtain a total of at least 90% will be guaranteed a grade of an A, 80% will guarantee a B, 70% will guarantee a C, etc.

Important Dates: The instructor reserves the right to make changes to this schedule when necessary. Any changes will be announced in class and on Blackboard.

Tuesday, 1/9	First class meeting	3/12-3/18	Spring Break
Friday, 1/13	Last day to drop/add	Thursday, 4/10	Exam 2
Thursday, 2/15	Exam 1	Thursday, 4/19	Last class meeting
Wednesday, 3/7	Last day to withdraw	Friday, 4/27	Last Homework due at 2pm (scheduled final)

Policies for Exams and Homework: No exam or homework may be made up except for (i) a legitimate emergency, or (ii) an authorized campus activity. Permission to make up any exam or homework must be obtained as soon as possible.

Students with Disabilities

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact the Disability Resource Center (852-6938).

Title IX/Clery Act Notification

Sexual misconduct (including sexual harassment, sexual assault, and any other nonconsensual behavior of a sexual nature) and sex discrimination violate University policies. Students experiencing such behavior may obtain **confidential** support from the PEACC Program (852-2663), Counseling Center (852-6585), and Campus Health Services (852-6479). To report sexual misconduct or sex discrimination, contact the Dean of Students (852-5787) or University of Louisville Police (852-6111).

Disclosure to **University faculty or instructors** of sexual misconduct, domestic violence, dating violence, or sex discrimination occurring on campus, in a University-sponsored program, or involving a campus visitor or University student or employee (whether current or former) is **not confidential** under Title IX. Faculty and instructors must forward such reports, including names and circumstances, to the University's Title IX officer.

For more information, see the Sexual Misconduct Resource Guide (<http://louisville.edu/hr/employeerelations/sexual-misconduct-brochure>).

Religious Holy Days and Observances

Students who observe work-restricted religious holy days must be allowed to do so without jeopardizing their academic standing in any course. Faculty are obliged to accommodate students' request(s) for adjustments in course work on the grounds of religious observance, provided that the student(s) make such request(s) in writing during the first two (2) weeks of term.

Attendance

Students are strongly encouraged to attend all lectures.