

## MATH 667-01 STATISTICAL INFERENCE

Fall 2017

Location: NS 130

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

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Instructor: Ryan Gill

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Office: NS 248

Office Hours: Tuesdays 12:45pm-2:15pm, Thursdays 9:30am-11:00am, and by appointment

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Credit Hours: 3

Prerequisites: MATH 561 or consent of department

**Course Objectives:** This course covers advanced topics in mathematical statistics such as sampling distributions, exponential families, sufficiency, point and interval estimation, likelihood-based inference, hypothesis testing, Bayesian inference, statistical decision theory, and asymptotic theory.

**Learning Outcomes:** Students who complete this course will understand important definitions and be able to give rigorous proofs for important theorems covered in the course topics. Furthermore, students will be able to use critical thinking skills by applying these definitions and theorems to extend the results they have been taught and to apply the inference procedures to related models and real data. Learning outcomes will be assessed through exams and homework.

**Textbook:** Statistical Inference by George Casella and Roger L. Berger, second edition, Duxbury, 2001 (ISBN-10: 0-534-24312-6). Most of the material from Chapters 3 and 5-10 will be covered; several topics on probability in Chapters 1, 2, and 4 will be reviewed as needed. Additional material from statistical literature and personal notes will also be discussed.

**Other Resources:** Beamer slides and other materials will be available on Blackboard (<https://blackboard.louisville.edu>)

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**Grading Scale:** Grades will be based on 4 components: 3 exams and homework. The highest 3 components will count as 28% of the grade and the lowest component will count as 16% of the grade. 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, 8/22	First class meeting	Tuesday, 11/7	Exam 2
Friday, 8/25	Last day to drop/add	11/22-11/24	Thanksgiving break
Thursday, 9/28	Exam 1	Thursday, 11/30	Last day of class
10/9-10/10	Mid-term break	Wednesday, 12/6	Exam 3
Friday, 10/20	Last day to withdraw		(scheduled final: 11:30am-2pm)

**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 must be obtained as soon as possible.

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### 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.