# IE 48002 / IE 58005 Advanced Statistics with R Fall 2022-23 Syllabus

• Lecture Times and Classrooms: M 12:40 – 14:30 FENS G029

W 12:40 – 13:30 FENS G029

• **Instructor:** Semih Sezer

FENS L024 Phone: 9586

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**Office Hours:** By appointment.

- **Course description:** The course aims to discuss important topics in statistics in a mathematically rigorous way. The topics that will be discussed include sampling distributions and asymptotics, point and interval estimations, hypothesis testing. Implementations will be illustrated with R.
- **Lecture Material**: We will follow the lecture notes. They will be posted on SUCourse+. R tutorials will also be posted on SUCourse+.

#### **Supplementary Reading for R:**

- *Introductory Statistics with R*, P. Dalgaard, 2<sup>nd</sup> Ed., Springer

## **Recommended (Optional) Reading for Statistics:**

- *Introduction to Mathematical Statistics*, R.V. Hogg, J.W. McKean, A.T. Craig, 7<sup>th</sup> Ed., Pearson

## • Course Content (Tentative Plan):

- Probability Theory
- Sampling Distributions
- Convergence Concepts and Limit Results
- Delta Method
- Sufficient Statistics
- Point Estimation
- Interval Estimation
- Hypothesis Testing
- and more... as time permits

#### • Grading Policy:

There will be two exams: one midterm and one final. The weights of these exams will be 45% and 55% respectively.

Both exams will be take-home exams. The midterm will be on December  $2^{nd}$ , and the final will be on January  $7^{th}$ .

| • | It is students' responsibility to follow all the announcements those made via SUCourse+ Course Management System. | made | in | class | and |
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