Introduction to Analytics Modeling

Last Updated: Tue, 07/08/2025

Course prefix: ISYE

Course number: 6501

Section: MSA

CRN (you may add up to five):
85232

Instructor First Name: Joel

Instructor Last Name: Sokol

Semester: Fall

Academic year: 2026

Course description:

ISYE 6501 Introduction to Analytics Modeling is an introduction to important and commonly used models in Analytics, as well as aspects of the modeling process. You will learn fundamental models used in analytics, cross-cutting concepts, combining models, and software.

Course learning outcomes:

The most important thing you can learn from this course is not the memorization of any specific bit of material. Instead, I would like you to learn these skills:

- Given a business (or other) question, select an appropriate analytics model to answer it, specify the data you will need to solve it, and understand what the model's solution will and will not provide as an answer.
- Given someone else's use of analytics to address a specific business (or other) question, evaluate whether they have used an appropriate model (and appropriate data) and whether their conclusion is reasonable.

Another goal of this course is for you to learn how to think though descriptions and usage of new models, so you can continue to learn throughout your career; new techniques will certainly be developed after you graduate, and we want you to be able to pick them up quickly.

We will not cover the mathematics and algorithms under the hood, or deeper mastery of the modeling needed to set up the use of the technique. You can acquire those deeper levels of knowledge in elective courses. (In fact, we could spend an entire semester on many of the topics you'll see in the course.)

Required course materials:

No purchased materials required; all materials will be available free online.

Grading policy:

GRADING POLICIES

Scribing

Each day of class, three or four students will serve as “scribes” for the class, taking good notes and posting them on the Piazza site for all participants. Scribe duty will rotate among students.

Homework groups

Homework will be done in groups of 3-4 students. The idea is that you can help each other learn; it is not to lighten your workload by letting each of you do one homework question and then staple all the answers together for the group. You should all work on each question (either individually first, and then get together to discuss and come up with a group answer, or entirely as a group). Everyone should understand the answers your group submits.

Homework grading

Homework will be graded partially for correctness and partly for the attempt. Your group will also see other groups’ homework submissions; so you can also learn from others’ approaches and give your feedback to help them learn more too, but you will not need to peer-grade them. (Note: this means other groups will see your submissions too!) It is your responsibility to check the homework solutions against your answers, and ask questions if there’s anything in the solutions you don’t understand (or if you don’t understand why or whether your answer is incorrect). The same grading rules apply to the course project.

Course grades

Course grades will be based *approximately* on the following formula: 25% for each quiz (midterms and final), 8% for the course project, 2% for scribing, and 15% for homework (your two lowest homework scores will be dropped). Significantly different levels of effort/contribution in homework and project groups will be taken into account in individual grading. Small differences in levels of effort/contribution will not affect individual grades.

Attendance policy:

Attendance

Attendance in class is not required. However, it is recommended since there is no written textbook for the course. I will be happy to answer any questions you have during class, which is another good reason to show up.

Food/drink

I don’t mind if you eat or drink during class, as long as (i) you’re still able to pay attention, and (ii) other students are also able to pay attention – please be considerate and avoid foods that smell especially good and distracting right before lunch.

Electronic devices

Use of electronic devices (laptops, phones, etc.) to take notes in class is certainly okay. I ask that you please do not use electronic devices to play games, check web sites, text, etc. – while you might be able to pay attention while doing those things, they can be very distracting to others.

Questions

Ask questions at any time! You don’t even need to raise your hand; just yell out your question if I’m not looking at you. I’m always happy to answer questions; they’re a great way to learn.

Academic honesty/integrity statement:

Students are expected to maintain the highest standards of academic integrity. All work submitted must be original and properly cited. Plagiarism, cheating, or any form of academic dishonesty will result in immediate consequences as outlined in the university's academic integrity policy.