

Programming for Analytic Methods

MAA 530, Loras College

Wednesdays from 6:30 PM – 8:30 PM Central Time

Online via Zoom

Spring 2023 (February 1 – May 3)

Instructor: Dr. Scott Feister

Class: On Zoom, at the class times (see eLearn Announcements for link)

Email: scott.feister@loras.edu

Communication: I'd like to hear from you a lot -- more rather than less -- so **error on the side of over-communicating**. I'm glad to get your messages!

The best way to message me is through email. I'll aim to respond **within one business day** (that is, after one weekday, and not over the weekend).

Note: As a general policy, I won't answer questions about assignments "just in time" before they're due -- the uncertainty of whether I'll see and answer the message is too stressful for everyone involved. Please send your questions about assignments more than 24 hours (one business day) before the due dates.

Course Description

This course explores a variety of analytical methods for building models (predictive or explanatory). This course will focus on programming languages used for accessing, analyzing, and implementing such models. While many software platforms are available to automate various parts of this process, programming languages are commonly used – Python at present. This course exposes students to the use of these languages, focusing on their use for accessing and cleaning data sources and implementing models in a production environment. The subsequent course (Big Data Ecosystem) utilizes these languages for an understanding of the entire process of Business Analytics. While some students may develop proficiency with coding in these programming languages, the purpose of the course is to provide sufficient exposure to the use of these languages for making business decisions regarding choices of software, human resources, and organizational structures necessary for developing Business Analytics efforts.

Learning Objectives

- To understand the fundamental programming concepts of data science environments including their solution design, implementation and presentation by mapping technology strategy of an enterprise to its business requirements.
- Data Extraction and filtering from a large dataset stored in a variety of different formats.
- Interactively visualize large datasets and present the results as a driver for adaptive business intelligence.

Course Content

- Introduction to Computing and Problem Solving
- Jupyter Notebooks
- Python Control Structures & Data Types
- Numeric Precision & Seaborn Visualization
- Objects, Attributes, & Methods
- Introduction to Web Scraping
- Distilling a Story from Data
- Manipulating Numeric Arrays
- Python Functions
- Standalone Python Scripts
- Web Scraping I
- Web Scraping II
- Final Project Presentations

Textbook

The required textbook for this class is through an online platform called ZyBooks. I customized your course textbook by arranging chapters from two different source books. As a result, your textbook has a blend of introductory Python lessons alongside more advanced data science techniques.

I believe it's going to let you move through large amounts of material at your own pace. One great feature of this online textbook is that it provides immediate feedback as you work through the exercises.

1. Sign in or create an account at learn.zybooks.com
2. Enter zyBook code: LORASMAA530FeisterSpring2023
3. Subscribe

A subscription is \$77. Students may begin subscribing today. Subscriptions will last until Jun 14, 2023.

Video Call Expectations

I completely understand that you may have to do your videocalls from odd places, like from your bed or from your kitchen table. I will expect that you'll have interruptions: your cats may join the videocall, or your children. All this is perfectly alright!

Grading Policy

You will earn your final grade based on these elements:

- Small projects and activities, assigned as homework
- Final project and presentation

Percentage Assignments

<u>Category</u>	<u>Percentage</u>
Homework Projects	50%
Final Project and Presentation	50%
<hr/>	
Total	100%

Final grades in this course are out of 100 possible percentage points. All combined, you will earn your final grade according to the following scale:

Letter	A	B	C	F
%	90+	70+	40+	>40

I will not discuss grades until 24 hours after you receive your graded work. This is so that you can read through my comments as applicable and bring with you a **written document** with your concerns/questions. After you have received your graded work, you have two weeks to discuss it with me. **In general, grades are changed only due to a miscalculation.** It is your responsibility to keep track of your graded work. After your graded work has been returned I strongly suggest that you keep it for your records.

Attendance Policy

Attendance is expected. If you miss a class, please politely **ask a classmate** (e.g. email them) to help summarize **important course clarifications, homework activities, class activities,** and **discussion topics** that you've missed.

Late Assignments

Every assignment will have a specific due date and time. Late assignments may be accepted during the session, at my discretion -- reach out as soon as possible to ask.

The descriptions and timelines contained in this syllabus are subject to change at the discretion of the Professor.

End of Syllabus