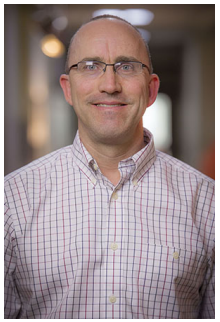
Course Syllabus for DS775: Prescriptive Analytics

Instructor:

Jeff Baggett



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More information is available on the UW–La Crosse Directory page (http://catalog.uwlax.edu/faculty/).

Dr. Baggett's Availability

All course related communication should go through Piazza. You can make the your post private if you don't want to share with the whole class or if your question would reveal substantial progress toward a solution to a problem.

My goal is to respond to all of your posts in some way. Sometimes I'll give a detailed response and other times I may simply endorse someone else's response.

Student responses to posts are strongly encouraged.

Here is my general schedule for responding to your posts:

Sunday–Thursday: posts after 8:00 pm CST will be addressed the next day. Responses to posts made on Saturday or Sunday may be slower than for posts made on other days.

Friday: posts after 5:00 pm CST will be addressed later on Saturday or Sunday.

Online Office Hours

- See Office Hour Availability (https://uwsa.instructure.com/courses/453498/pages/office-hours-availability) page.

Course Description and Objectives

This course covers procedures and techniques for using data to inform the decision-making process. Topics include optimization, decision analysis, game theory, and simulation. Computer implementation and applications will be emphasized.

At the end of this course, students will be able to:

- Use data and prescriptive analytics to inform the decision-making process.
- Select and apply appropriate models depending on the nature of the objectives, constraints, data, and the decision to be made.
- Assess model feedback and make adjustments to produce desired outcomes.

Resources

> **Buying Textbooks**: You are free to purchase textbooks and other materials from any vendor you choose. However, the University of Wisconsin Extended Campus encourages you to use our preferred vendor (http://www.bkstr.com/uwcollaborativestore/home) because you can easily find all books for the most current offerings of this program.

Required

- Hillier, F. S. (2014). *Introduction to Operations Research*. McGraw-Hill ISBN-13 978-0073523453 ISBN-10 0073523453
- Banik, R. (2018). *Hands-On Recommendation Systems with Python: Start building powerful and personalized, recommendation engines with Python*. Packt Publishing ISBN-13 978-1788993753 ISBN-10 1788993756

Technology Requirements

You will use the following technology as part of this course:

Resource	Type	On Virtual Desktop?
CoCalc (https://cocalc.com)	online computing host	no
Python (Anaconda Distribution (https://anaconda.org/))	software application	no
Silver Decisions (http://silverdecisions.pl/)	online software application	no

To sign up for CoCalc see the instructions included with Lesson 1. You do not need to pay for a CoCalc license.

Grading

You will have homework sets for each lesson and three projects to complete. Your mastery of course content is assessed using a variety of methods:

Homework (14)	700 total points
TOTAL	**700 total points**

Final grades are assigned using the following scale:

90–100%	A
80–89%	B
70–79%	C
0–69%	F

Late Submissions: All assignments are due at 9:00 AM on Wednesday. Assignments submitted after 9:00 AM Wednesday morning are late and must be submitted by Friday at 9:00 am to receive any credit.

Penalties for late submissions are as follows:

- Late submissions before Thursday 9:00 am will earn a 5 point penalty (out of 50 points).

- Late submissions before Friday 9:00 am will earn a 10 point penalty (out of 50 points).
- If you are making a late submission, it is your responsibility to let us know you will be making a late submission via a private Piazza post. If you do not notify us, we may grade whatever was present at the original due date. **We will not grade a late submission if we've already graded an earlier submission and you did not notify us that you were planning to make a late submission.**
- Submissions after Friday 9:00 am are not accepted for credit.
- Rare exceptions may be granted for emergencies, illness, etc. Contact your instructor, **in advance**, via Piazza.

Rubrics

Weekly Homework Submission Rubric (50 points possible)

This rubric below shows broadly what each grade category represents. To earn an A you'll need to hit all three criteria. Each problem is assigned a number of points and we assign partial credit according to the three criteria: completeness, correctness, and communication.

Points	Completeness	Correctness	Communication
45-50 (A)	All problems attempted	Most to all	Complete, clear sentences; correct grammar and spelling
35-44 (B or C)	Most	Many to most	A few incomplete sentences, spelling or grammatical errors
20-34 (D or F)	Some	Some to many	Many sentence fragments, spelling or grammatical errors
0–19 (F)	Few	Few to some	Garbage

Important! We will be using Piazza for class discussions that are **not assessed**. The system is highly catered to getting you help quickly and efficiently from classmates and the faculty. Rather than emailing questions to the teaching staff, I encourage you to post your questions on Piazza. If you have any problems or feedback for the developers, email team@piazza.com.

Other Notes

- Deadlines are firm; exceptions may be made on a case-by-case basis. Contact your instructor in advance. Non-emergency exemptions will not be made after deadlines.
- Online office hours/telephone calls/Zoom sessions are available. Request an appointment by e-mail.
- The instructor will try to grade submissions and offer feedback within one week of the deadline.
- Quizzes can only be taken twice!

Academic Integrity and Accessibility

DS 775 is offered through The University of Wisconsin–La Crosse.

As a student in this course, you are expected to abide by the academic standards outlined in the **Data Science Honor Code** (https://uwsa.instructure.com/courses/453498/pages/data-science-honor-code). To make sure you are getting the most of the course and upholding academic integrity, make sure you are familiar with the definitions of academic misconduct in this document.

Plagiarism: We take plagiarism extremely seriously in this course. You can never copy from previous solutions or from your classmates. We encourage you to discuss the homework with each other, but you must never share code or solutions. If you copy code, or anything else, from a third party site to incorporate into your solution, you must provide a citation in your homework submission. Failure to cite the work of others is plagiarism. We employ a "three strike" approach to penalizing plagiarism in this course:

- first incident: you will be given zeros for all questions on your homework submission that includes plagiarized elements.
- second incident: you will be given a zero on the entire homework submission that includes plagiarized elements.
- third incident: we will recommend that you earn a grade of "F" for the course (yes, this has happened!)

If you have any question on what is considered plagiarism, it is your responsibility to ask us for clarification before you submit the homework in question. "I didn't know that was plagiarism" is not a valid excuse.

Accessibility Statement: Students with documented disabilities have the right to request information and necessary accommodations from their University, as stipulated within Section 504 of the Rehabilitation Act and the Americans with Disabilities Act. Students interested in requesting academic accommodations must contact the Accessibility Services office at their home campus to begin the application process. Please be advised that the eligibility determination process and, once approved, implementation of accommodation services could take several weeks. It is important for students to be proactive and initiate the process early in order to ensure that accommodations are in place by the time they will be needed.