Course Syllabus for SIADS 643: Machine Learning Pipelines

Course Overview and Prerequisites

Students will gain an understanding of how machine learning pipelines function and common issues that occur during the construction and deployment phases. Students will learn how to prototype, test, evaluate, and validate pipelines. By the end, students should be able to build an end-to-end pipeline for supervised machine learning tasks.

The prerequisites for SIADS 643 include:

- SIADS 542: Supervised Learning
- SIADS 532: Data Mining I
- SIADS 643: Data Mining II

Instructor and Course Assistants

Michael Hess, Solution Architect Lead and Adjunct Lecturer in Information
Email: mlhess@umich.edu

Kris Steinhoff, Software Architect Lead and Adjunct Lecturer in Information
Email: steinhof@umich.edu

Course Communication Expectations

Please use slack for all communications. If slack is not working for you, or there is privacy concern, please email mlhess@umich.edu directly. If you have a VISA form please send it to mlhess@umich.edu in the first week of classes.

Textbook Information

Ameisen, E. (2020). Building machine learning powered applications: Going from idea to product. Sebastopol, CA: O'Reilly Media.

You can search for this textbook on lib.umich.edu and find a copy of it online. Please seek out the help of a librarian if you have access issues.

Learning Outcomes

- Describe the flow of data within an enterprise.
- Explain software best practices for pipeline steps.

- Describe functions of and use Git.
- Build an end to end pipeline for supervised machine learning tasks.
- Listen to industry experts on machine learning pipelines.
- Build and troubleshoot a machine learning pipeline.
- Run an end to end pipeline.
- Recognize common mistakes made in machine learning pipelines.

Course Schedule

- **This course begins on Monday, October 25 at 3AM EDT and ends on Sunday, November 21 at 2:59 AM EST.** ● Weekly assignments will be **due on Sundays at 11:59 pm** (Ann Arbor, Michigan time-Eastern Time).

Weekly Office Hours via Zoom (Ann Arbor, Michigan time):

The schedule of office hours can be found by clicking on the **Live Events** link in the left-hand navigation menu. Additionally, most office hours will be recorded and archived so that you can retrieve them at a later date. Office hours recordings can be found in the respective week/module of the course. Passcode to join all office hours is **643**. Office hours schedule is below.

Michael Hess: Every Tuesday 8-9 PM

Kris Steinhoff: Every Thursday 9-9 PM

Grading

Course Item	Percentage of Final Grade	Due
Week 1	20% (25% Quiz: Theia, 25% Test your git knowledge, 50% Re-usable Code)	Sunday 10/31 11:59pm
Week 2	25% (Creating the cleaning step of a pipeline, Quiz: Pipelines)	Sunday 11/7 11:59pm
Week 3	25% (Building a pipeline)	Sunday 11/14 11:59pm
Week 4	30% (Final project)	Sunday 11/21 11:59pm
Total	**100%**	

Note: All assignments are required to earn credit for this course.

Letter Grades, Course Grades, and Late Submission Policy

If an assignment is submitted late, the assignment grade will be docked 10%.

The grading scale for this course is as follows:

A	95%+
A-	90%

B+	87%
B	83%
B-	80%
C+	77%
C	73%
C-	70%
D+	67%
D	63%
D-	60%
F	0%

Academic Integrity/Code of Conduct

Refer to the Academic and Professional Integrity section of the UMSI Student Handbook (access to Student Orientation course required).

Accommodations

Refer to the Accommodations for Students with Disabilities section of the UMSI Student Handbook (access to the Student Orientation course required). Use the Student Intake Form to begin the process of working with the University's Office of Services for Students with Disabilities.

Accessibility

If you have accessibility issues with the material in this class, please reach out to the instructional team.

Student Mental Health

Refer to the University's Resources for Stress and Mental Health website for a listing of resources for students.

Student Services

Refer to the [Introduction to UMSI Student Life](#) section of the UMSI Student Handbook (access to the Student Orientation course required).

Technology Tips

- Working Offline
  - If you have an issue with ongoing access to the coursera platform, and have docker running on your local computer, please reach out to the instructional team for help getting setup offline.