Course Syllabus
Course Overview and Prerequisites

This course will introduce data manipulation and cleaning techniques using the popular python pandas data science library and introduce the abstraction of the Series and DataFrame as the central data structures for data analysis, along with an understanding of how to use functions such as groupby, merge, and pivot tables effectively. By the end of this course, students will be able to take tabular data, clean it, manipulate it, and run basic inferential statistical analyses.

There are no course prerequisites.

Instructors

- Lead Instructor: Christopher Brooks (brooksch@umich.edu)
- Supporting Instructors: Ryan Maley, Naga Sanka, Anthony Giove, Amanda Hardy

Contacting instructors: Please only use the course channel in Slack. Please ask all questions in public if possible so others can learn from your question. If you need to ask a private question please direct message the entire instructional team.

Email response time: 48 hours

Slack response time: 48 hours

Office hours: as noted in the Coursera platform

Required Textbook

[Python for Data Analysis: Data Wrangling with Pandas, NumPy, and iPython](link) 2nd edition by Wes McKinney (O'Reilly). Copyright 2017 Wes McKinney, 978-1-491-95766-0.

Textbook link provided above allows free usage through the University of Michigan Library. University credentials required.

Learning Outcomes

1. Create and use pandas DataFrames to represent raw data
2. Extract information from text data using regular expressions
3. Understand high level patterns of data cleaning and how they are realized in python
4. Understand how other formats embed semantics in data and how one can approach representing them in tabular formats
5. Understand the issues of replication in data science and how it starts with data manipulation

6. Have an awareness of other kinds of structured data such as networks, graphs, natural language

Course Schedule

This course **begins on Tuesday August 29th, 2023,** and **ends on Monday September 25th, 2023**.

Assignments will be due as noted in the Coursera platform.

Grading

Course Assignment	Percentage of Final Grade
Week 1 Jupyter Notebook Assignment	20%
Week 1 Reflection Activity	5%
Week 2 Jupyter Notebook Assignment	20%
Week 2 Reflection Activity	5%
Week 3 Jupyter Notebook Assignment	20%
Week 3 Reflection Activity	5%
Week 4 Jupyter Notebook Assignment	20%
Course Skills Quiz	5%
Bonus Assignment	Released mid-course, up to bonus of 5%

All Jupyter assignments can be resubmitted **as many times as you like** up until the **assignment deadline** with the best submission counting towards your grade. The reflection activities can be submitted **only once each**, and are **hand graded** by the instructional team and are awarded either 5% (full grade) or 0% (no grade) each.

Letter Grades, Course Grades, and Late Submission Policy

Refer to the [MADS Assignment Submission and Grading Policies](#) section of the UMSI Student Handbook (access to Student Orientation course required)

For this course, no late assignments will be accepted (0%). Extenuating circumstances will be considered (please reach out to the instructor as soon as possible).

You will have the opportunity to complete bonus activities so that you might improve your grade or achieve an A+ in the course. All bonus activities are optional, and some are just to help you expand your knowledge.

Percentage grades will be converted to letter grades using the following formula (**Note that an A+ is only awarded by doing bonus assignment!**):

Total Assignment Scores	Letter Equivalent
>100	A+
95-100	A
90-95	A-
85-90	B+
80-85	B
75-80	B-
70-75	C+
65-70	C
60-65	C-
55-60	D+
50-55	D
<50	E

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 Application Form [in Accommodate](#) to begin the process of working with the University's Office of Services for Students with Disabilities.

Accessibility

[Screen reader configuration for Jupyter Notebook Content](#)

Help Desk(s): How to get Help

- Degree program questions or general help - umsimadshelp@umich.edu
- Coursera's Technical Support (24/7) - https://learner.coursera.help/

Library Access

Refer to the [U-M Library's information sheet](#) on accessing library resources from off-campus. For more information regarding library support services, please refer to the [U-M Library Resources](#) section of the UMSI Student Handbook (access to the Student Orientation course required).

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).

Data

University instructors, administrators, and researchers use course- and program-based about your interactions with learning tools to support the U-M teaching and learning mission. Data is used by U-M and its vendors to both support your immediate learning as well as to improve the teaching and learning environment through research and innovation. Data may include, but is not limited to, activity within the Coursera environment, use of learning tools such as Jupyter, Slack, and Zoom, and use of business, research, and learning tools developed by U-M. More information about how the University of Michigan protects your privacy, as well as instructions on how to learn more about data and privacy at the university, can be found in the [U-M Privacy Statement](#).