

Introduction to Data Science

CSCI 385/MATH 385

Course Description

Data Science is the science of learning from data in order to gain useful predictions and insights. The course will provide an overview of the wide area of data science, with a particular focus on the tools required to store, clean, manipulate, visualize, model, and ultimately extract information from various sources of data. Topics include: The analytics life cycle, data integration and modeling in R/Python, relational databases and SQL, text processing and sentiment analysis and data visualization. Emphasis is placed on reproducible research, code sharing, version control and communicating results to a non-technical audience. This is a 3 hour discussion. CSCI 385 and MATH 385 will be cross listed courses.

Course Objectives

After successful completion of this course, you will be able to

1. Use R and other tools to scrape, clean, and process data.
2. Use data management techniques to store data locally and in cloud infrastructures.
3. Use statistical methods and visualization to quickly explore data.
4. Effectively communicate the outcome of data analysis using descriptive statistics and visualizations.
5. Communication of results through visualization, stories, and interpretable summaries
6. Create a data product such as a report or a dashboard to communicate information to stakeholders.
7. Work in groups

Course Prerequisites

Prereq: MATH 109 or MATH 120, and CSCI 111 or MATH 130 or MATH 230.

Academic Evaluation

You will be graded based on: labs, projects, exams/quizzes and a final.

Academic Integrity

You will be held to high academic standards. Any academic misconduct, intentional or through negligence, may be reported to Student Judicial Affairs (SJD). A first offense (in any course) may result in a negative score equal to the assignment value. Further offenses result in a failing grade and referral to SJD. Egregious incidents of academic dishonesty may result in immediately failing the course and referral to SJD. If you have any doubts or questions about academic integrity, please see the Student Judicial Affairs website. If you have any doubts or questions about academic integrity, please see the Student Judicial Affairs website¹.

Academic dishonesty includes, but is not limited to:

- Copying work from another student

¹<http://www.csuchico.edu/sjd/integrity.shtml>

- Providing work for another student to copy
- Copying work from unapproved sources (e.g., the Internet, a book)
- Failing to protect your work from copying (e.g., leaving your work in a public place, poor file permissions on shared systems)
- Receiving so much help that your work does not represent your efforts

Acceptable Behavior

You must act in accordance with university guidelines and refrain from disrupting the learning environment. Any behavior that diminishes the learning opportunities of fellow students may result in eviction from the class, removal from the course, immediate failure of the course, or referral to Student Judicial Affairs.

Religious Holidays

I will work with you so this class and its assignments, exams, and activities do not interfere with religious holidays. However, you must notify me ahead of time so we can make appropriate arrangements.

Americans with Disabilities Act

If you need course adaptations or accommodations because of a disability or chronic illness, or if you need to make special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible, or see me during office hours. Please also contact Accessibility Resource Center (ARC) as they are the designated department responsible for approving and coordinating reasonable accommodations and services for students with disabilities. ARC will help you understand your rights and responsibilities under the Americans with Disabilities Act and provide you further assistance with requesting and arranging accommodations.

Accessibility Resource Center
530-898-5959
Student Services Center 170
arcdept@csuchico.edu

Confidentiality and Mandatory Reporting

As an instructor, one of my responsibilities is to help create a safe learning environment on our campus. I may also have a mandatory reporting responsibility related to my role. It is my goal that you feel able to share information related to your life experiences in classroom discussions, in your written work, and in our one-on-one meetings. I will seek to keep information you share private to the greatest extent possible. However, I am required to share information regarding sexual misconduct with the University. You may speak to someone confidentially by contacting the Counseling and Wellness Center (898-6345) or Safe Place (898-3030). Information on campus reporting obligations and other Title IX related resources are available here:<http://www.csuchico.edu/title-ix>.