Introduction to Data Science (LING/MATH/DSST 289) — Fall 2021

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Description:

Data science is an interdisciplinary field concerned with creating knowledge from data and communicating those results. Data science needs to be learned *by doing* data science. We will focus in this course on collecting data and creating data-driven stories within a variety of different domains. We will use a mix of manual techniques—including creating hand-drawn graphics—and digital methods using freely-available programming languages. At the end of the semester, students will be able to collect and use data in order to address important social, cultural, and scientific questions.

Books and Materials:

The following texts and materials, all available in the UR bookstore, are required for the course:

- *Storytelling with Data*, by Cole Nussbaumer Knaflic (2015), ISBN-13: 978-1119002253.
- *Dear Data*, by Giorgia Lupi and Stefanie Posavec (2016), ISBN-13: 978-1616895327.
- One 8.5"x11" (or slightly larger) spiral-bound, unlined sketchbook, with 80+ pages.
- A small set of colored pencils and ruler; these may shared with other students.

We will also use several different computer programs for creating data and visualizations. All of these are free to use and can be accessed through any modern web browser.

Course Format:

Most class meetings will have an assigned homework task, such as a reading or data collection activity, that should be completed before class. These will not be formally graded, but their completion is part of the participation expectations (see below). During class, most of our time will be devoted to actively working on tasks individually or in small groups.

Students will also complete a number of longer projects focused on different forms of data storytelling. The projects will give a chance to deepen and extend the techniques presented during the in-class activities. Time permitting, students will have a chance to present their projects during class. Projects will be given a grade of either Satisfactory or Unsatisfactory. There will be a possibility to resubmit one unsatisfactory project during the semester.

Course Engagement:

All students enrolled in the course are expected to be fully engaged in class meetings. Engagement includes arriving on time, bringing required materials, completing any assigned homework, and being attentive and engaged with all class activities. While attendence at all class meetings is preferable, in the understanding that unavoidable conflicts and circumstances (job interviews, illness, etc.) arise from time to time, students will not be penalized for their first two absences.

Learning Objectives, Self Evaluation, and Final Grades:

Students will be asked to reflect on their own learning objectives and expectations for the course during the first few weeks of the semester. During the last week of the course, a self evaluation describing the extent to which these objectives have been achieved through the semester will be submitted.

All students who have earned satisfactory grades on of the projects, attended and fully engaged with all but at most two classes, and have completed the learning objects and self evaluation will be awarded a minimum grade of a B. Grades of B, B+, A-, A, and A+ will be given according to each student's self-assessment in light of their learning objects, projects and course participation. Students failing to achieve these minimum course expectations may result in a lower grade, up to an including a failing grade.

Other Resources:

Other resources, including information about office hours and a full list of campus offices offering support to UR students, as well as more detailed instructions for each of the course components are posted and kept updated on the class website.