CARLSON SCHOOL
OF MANAGEMENT
UNIVERSITY OF MINNESOTA

IDSC 4110
Data Engineering
for
Business Analytics

Instructor: Vedran Lelas

Course Motivation

- Data to be analyzed everywhere
  - Company financials, government census, online purchases, GPS navigation, sensors, …..
- Why learn data engineering skills?
  - Most MIS majors do not become data engineers
  - Communicate and work effectively with analysts
  - Valued and respected skill in today's technological world
  - It teaches you patience, perseverance and grit

Course Objectives

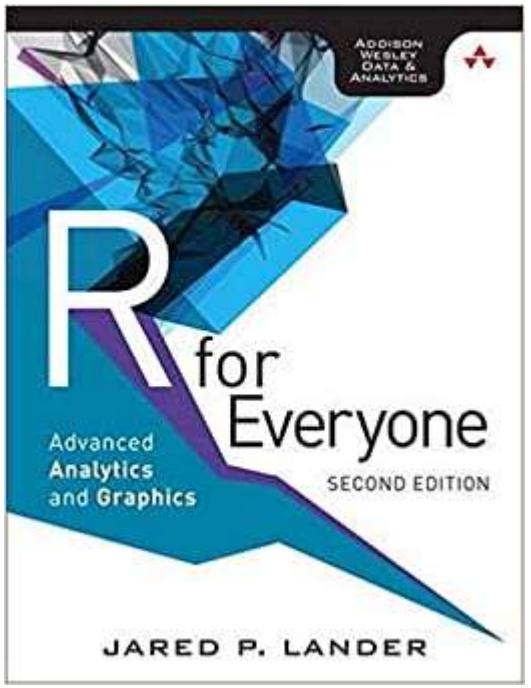
- Demonstrate understanding of basic data engineering concepts
- Use R to build scripts designed to perform simple to moderately complex data engineering tasks
- Lay foundation for becoming a better IT manager in the future
  - Develop an appreciation for data engineers
  - Understand the challenges in data analytics projects through personal experience

Course Expectations

- Be prepared to work both in and out of the class
  - About 10 hours per week (including 3+ hours in-class)
- A lot of help in class and out
  - Assistance during class time and 1-1 help during office hours
- Hands-on experience
  - Heavy computer use
  - Learning by doing
  - Problem solving

Textbook

- Jared Lander, "R for Everyone", any affordable edition is fine
- **Optional but recommended**
  - Most of the class time will be spent working on examples and problems similar to those in the text
- ***Come to class prepared to work***
  - Significant portion of the class time will be spent working on the computer and typing R code



Grading

- Grade scale listed on the syllabus
- The class is not graded on the curve
  - Borderline grade adjustments at discretion of instructor
  - Always in student favor
- "C" grade – meets all expectations
- "A" – demonstrates exceptional skill
- "B+" – median target grade

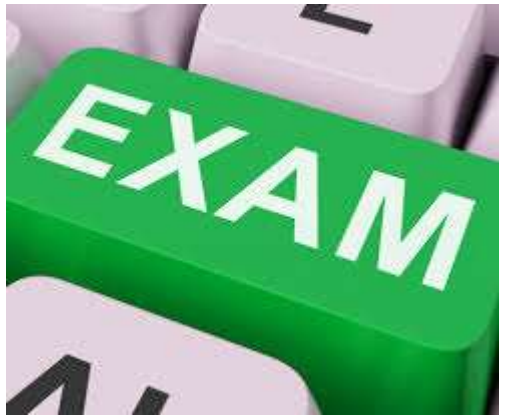
Grade Breakdown

- Assignments
  - 3 homework assignments (30 points, at 10 each)
  - Due by midnight on designated dates
- Group Project
  - Final group project (10 points)
- Exams
  - 2 midterm and final exams (60 points, at 20 each)
  - All exams during regularly scheduled class periods
  - Midterms roughly 3rd and 5th week
  - Final exam on the last class date

Assignments

- Students expected to
  - Work through the assigned problems on their own
  - Collaborate and discuss assignments with the instructor, TA's and classmates
  - Utilize class time to get help with the homework
- Assignments
  - Primary purpose is learning R by doing it
  - Serve as a main practice / preparation for exams
  - Worth a significant portion of the grade
  - Flex days allow you to submit assignments late if necessary

Exams



- Students expected to
  - Work through exams on their own
- Exams
  - Designed to measure data engineering concepts and skills learned in class
  - Consist of multiple choice and a hands on R projects
  - Two midterm exams during regularly scheduled classes
  - Final exam during the last regularly scheduled class
- Group Project
  - Fairly open-ended R-project selected by students
  - Presentations during the next to the last class of the term

Class Attendance

- Students expected to
  - Attend class and participate in class projects / assignments
  - Make use of extensive class time devoted to
    - Learning the concepts through in-class projects
    - Getting help with homework assignments
- Attendance
  - Does not count towards the grade
  - You will know what to expect
- Absence
  - You can expect to spend 2x – 5x as much time on your own
  - You will not know what to expect

Accountability & Responsibility

- Accountability
  - No excuses!
    - None will be tolerated in your professional life
- Responsibility
  - Start early (use flex days wisely)
  - Clarify assumptions
  - Backup your work
  - Use UM's computing resources
  - Keep documentation
  - If in doubt about anything, come and talk to me!

Getting Help

- Email and office hours
  - Info on top of the syllabus
  - Instructor (CSOM 4-133 / Zoom)
  - TA's (L-108 MIS Lab / Zoom)
  - Please copy/paste code sections and error messages
- Tech support
  - help@umn.edu

Academic Integrity & Scholastic Dishonesty

- Integrity of your work is essential
- Students are expected to be
  - Familiar with UM's Student Conduct Code
    - https://communitystandards.umn.edu/know-code/consequences
  - Syllabus policy and specific integrity issues (next slide)
- Scholastic dishonesty can result in
  - Report filed with Office for Community Standards
  - Up to and including an "F" in the course (not allowed to drop)
- If you don't know what's permissible, ASK !!!

All Work = Individual Work

- All work in this class is individual work
  - Except for the final group project
- Collaboration on homework assignments is encouraged
- What is allowed
  - Showing another student how you approached a problem
  - Post or use sample code from discussion forum
  - Search and use code found on the Internet
- Typed-by-my-own hands standard
  - Do not send or receive an electronic copies of work
  - Be careful when copy/pasting code you did not write
- Protect your own work

Makeup Exams

- In general, makeup exams are rare
- Scheduled in accordance with UM's policy
- Students are expected to
  - Provide all required documentation
  - Let me know as soon as possible
- All makeup exam can occur prior or after the regularly scheduled exam
- Absences known in advance do not merit a makeup exam

Disability Services

- Disability Resource Center
  - https://diversity.umn.edu/disability/
- Students needing special accommodation are expected to
  - Send an electronic copy of the letter as soon as possible
  - File the exam taking request with DRC 7+ days in advance
- If you don't request DRC exam in time, you will be expected to take the exam with the rest of the class

Summary

- Basic data engineering class
- Come to class and be prepared to work
- Earn a good grade by
  - Completing assignments on time
  - Being prepared for exams on a scheduled date
- Get help when you need it
- Do your work with integrity and honesty