Welcome to Programming for Data Science

Welcome to the course manual for CSC310 at URI.

About your instructor

Dr. Brown is a new Assistant Professor of Computer Science, who does research on how social context changes machine learning. Dr. Brown earned a PhD in Electrical Engineering from Northeastern University, completed a postdoctoral fellowship at University of California Berkeley, and worked as a postdoctoral research associate at Brown University before joining URI. At Brown university, Dr. Brown taught the Data and Society course for the Master's in Data Science Program.

Tools

We will use a variety of tools to conduct class online.

BrightSpace

This will be the central location from which you can access other materials. This is also where your grades will appear.

Course Manual

The course manual at FIXME will have content

Zoom

This is where we will meet for synchronous class sessions. You will find the link to class zoom sessions on Brightspace.

Prismia chat

Our class link: We will use this for chatting and in-class understanding checks.

GitHub Classroom

GradeScope

Grading

This course will be graded on a basis of progression of mastery of a set of *skills*. This is in contrast to more common grading on a basis of points earned through assignments. This section of the syllabus describes the priniciples and mechanics of the grading for the course.

Principles of Grading

Learning happens through practice and feedback. My goal as a teacher is for you to learn. The grading in this course is based on your learning of the material, rather than your completion of the activities that are assigned.

Earning a C in this class is intended to be easier than typical grading. I expect everyone to get at least a C. Earning a B in this class is intended to be very accessible, you can make a lot of mistakes along the way as you learn, but if you learn by the end. Earning an A in this class will be challenging, but is possible even with making mistakes while you learn.

This course is designed to encourage you to work steadily at learning the material and demonstrating your new knowledge. There are no single points of failure, where you lose points that cannot be recovered. Also, you cannot cram anything one time and then forget it. The material will build and you have to demonstrate that you retained things

Grading this way also is more ammenable to the fact that there are correct and incorrect ways to do things, but there is not always a single correct answer to a realistic data science problem. Your work will be assessed on the degree to which it demonstrates your learning and you will also receive feedback on how to improve.

How it works

There are FIXME skills that we will cover in this course. While learning these skills, you will work through a progression of learning. Your grade will be based on earning FIXME achievements that are organized into XX skill groups with 3 levels for each. If you achieve level 1 in all of the skills, you will earn at least a C in the course. To earn level 1 achievements, you will need to demonstrate basic awareness of the required concepts and know approximately what to do, but you may need specific instructions of which things to do or to look up examples to modify every step of the way. You can earn level 1 achievements in class, assignments, or portfolio submissions. To earn a B, you must earn all of the level 1 and level 2 achievements. To earn level 2 achievements you will need to demonstrate understanding of the concepts and the ability to apply them with minimal instruction after earning the level 1 achievement for that skill. You can earn level 2 achievements in assignments or portfolio submissions. To get an A, you must earn all of the achievements. To do that you will be required to consistently execute each skill and demonstrate deep understanding of the course material, after achieving level 2 in that skill. You can earn level 3 achievements only through your portfolio submissions.

You will have at least three opportunities to earn every level 2 achievement. You will have at least two opportunities to earn every level 3 achievement.

You will have three *types* of opportunities to demonstrate your current skill level.

Participation

While attending synchronous class sessions, there will be understanding checks and in class exercises. Completing all in class exercises and correctly answering questions in class can earn level 1 achievements. In class questions will be administered through the classroom chat platform Prismia.chat; these records will be used to update your skill progression.

Assignments

For your learning to progress and earn level 2 achievements, you must practice with the skills outside of class time.

Assignments will each evaluate certain skills. After your assignment is reviewed, you will get qualitative feedback on your work, and an assessment of your demonstration of the targeted skills.

Portfolio Checks

To demonstrate mastery, you will build a portfolio consisting of reflections, challenge problems, and longer analyses over the course of the semester. You will submit your portfolio for review 4 times. The first portfolio check will cover skills FIXME. The second portfolio check will cover skills FIXME. The third and fourth portfolio checks will cover all of the skills. The third portfolio check will be due one week before the end of classes and the fourth will be due during finals. This means that, if you have achieved mastery of all of the skills by the 3rd portfolio check, you do not need to submit the fourth one.

Portfolio prompts will be given throughout the class, some will be strucutred questions, others may be questions that arise in class, for which there is not time to answer.

TLDR

You *could* earn a C through in class participation alone, if you make nearly zero mistakes. To earn a B, you must complete assignments and participate in class. To earn an A you must participate, complete assignments, and submit a portfolio for review FIXME times.

Detailed mechanics

You will be able to check your progress by keeping a chart and monitoring the course rubric.

To calculate final grades, you can consider each skill as an item, so there are FIXME equally weighted items in this course. The table below shows the minimum number of skills at each level (mastery, competency, awareness) to earn each letter grade equivalents.

letter grade	Level 3	Level 2	Level 1
A	15	15	15
A-	10	15	15
B+	5	15	15
B	0	15	15
B-	0	10	15
C+	0	5	15
C	0	0	15
C-	0	0	10
D+	0	0	5
D	0	0	3

For example, to get a B+ you must master at least 5 skills and achieve competency at at least 10, so if you reach mastery at 7 and competency at 8 that is still a B+ because mastery requires exceeding competency. An alternative way to account for these in-betweens is to assign points to the mastery levels as (mastery = 3; competency = 2; aware = 1) and compute the total points earned. The minimum skill points for each grade is also shown in the table. If you are monitoring your progress with points, it is important to remember that these points are cumulative; they will not be averaged. If an assignment only demonstrates awareness of a skill, that does not mean you have "lost" points, you can improve that to competent, or mastered.

By Professor Sarah M Brown