

# AGRON 590RD - R for Data Science

## Spring 2018

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**Class Time:** T 2:10-3:00 in Agronomy G541

**Instructor:** Ranae Dietzel ([rdietzel@iastate.edu](mailto:rdietzel@iastate.edu), 3403 Agronomy Hall)

**Office Hours:** By appointment in Agronomy 3403.

**Web:** <http://agron590rd.trydiscourse.com>

### Class Format

We will follow a flipped-classroom approach where students are responsible for reading assigned materials outside of class and practicing new methods by actively coding in the classroom.

### Textbook:

- Golemund, Garrett, and Hadley Wickham. *R for Data Science*. O'Reilly, 2017. <http://r4ds.had.co.nz>

### Course Objectives

This course will closely follow the textbook *R for Data Science* with the objectives of introducing students to the R language through methods meant for R beginners or those not needing an in-depth understanding of the language. Students will learn data visualization, transformation, and analysis as well as how to move data around into workable structures. We will cover basic R programming and modeling and great ways to become better at data organization and communicating results.

### Tentative Course Outline:

1. Introduction, Context, and Set-up .....	Week 1
2. R4DS Section 1-3.4 Intro and Data Viz .....	Week 2
3. R4DS Section 3.4-3.10 Data Viz .....	Week 3
4. R4DS Section 6, 3.4-3.10 RStudio and more Data Viz .....	Week 4
5. R4DS Section 4, 5-5.4 .....	Week 5
6. R4DS Section 5.5-5.7 .....	Week 6
7. R4DS Section 7 EDA .....	Week 7
8. R4DS Sections 8,9,10 Projects and Tibbles .....	Week 8
9. R4DS Section 11 Data Import .....	Week 9
10. R4DS Section 12 Tidy Data .....	Week 10
11. R4DS Section 13 Relational Data .....	Week 11
12. R4DS Sections 14-15 Strings .....	Week 12
13. R4DS Section 16 Dates and Times .....	Week 13
14. R4DS Section 17-18 Programming and Pipes .....	Week 14
15. R4DS Section 19 Functions .....	Week 15

### Assessment:

A 1-credit lecture course requires 50 minutes in the classroom and 2 hours outside of the classroom. Weeks will be designed to include ~2 hours of reading and practice outside of the classroom and

50 minutes of actively writing code in the classroom. Assessment will be based on attendance and participation.

### **Attendance**

I have found that research schedule demands of graduate school are a real impediment to learning new skills and taking non-required courses. This course will aim to keep a flexible attendance policy. However, inability to attend a class must be made up with in-kind time. Instructor and student must agree on what makes up for a class absence, which will be dependent upon the week.

### **Participation**

Participation will occur through working on exercises during class time. If required reading is not performed, it will not be possible to work on the exercises during the short, 50 min period. Code produced during class will be turned in at the end of each class and degree of participation will be determined.

### **Academic Honesty:**

As an Iowa State University student, you have agreed to abide by the University's academic honesty policy (<http://www.dso.iastate.edu/ja/academic/misconduct.html>). Academic misconduct is a serious matter and student's suspected of academic dishonesty will be reported to the Dean of Students Office. Questions related to course assignments and the academic honesty policy should be directed to the instructor.

### **Disability Accommodation:**

Iowa State University complies with the Americans with Disabilities Act and Sect 504 of the Rehabilitation Act. If you have a disability and anticipate needing accommodations in this course, please contact your instructor (in this case, Ian Mouzon) to set up a meeting within the first two weeks of the semester or as soon as you become aware of your need. Before meeting with the instructor, you will need to obtain a SAAR form with recommendations for accommodations from the Disability Resources Office, located in Room 1076 on the main floor of the Student Services Building. Their telephone number is 515-294-7220 or email [disabilityresources@iastate.edu](mailto:disabilityresources@iastate.edu). Retroactive requests for accommodations will not be honored.

### **Harassment and Discrimination:**

Iowa State University strives to maintain our campus as a place of work and study for faculty, staff, and students that is free of all forms of prohibited discrimination and harassment based upon race, ethnicity, sex (including sexual assault), pregnancy, color, religion, national origin, physical or mental disability, age, marital status, sexual orientation, gender identity, genetic information, or status as a U.S. veteran. Any student who has concerns about such behavior should contact his/her instructor, Student Assistance at 515-294-1020 or email [dso-sas@iastate.edu](mailto:dso-sas@iastate.edu), or the Office of Equal Opportunity and Compliance at 515-294-7612.

### **Contact Information:**

If you are experiencing, or have experienced, a problem with any of the above issues, email [academicissues@iastate.edu](mailto:academicissues@iastate.edu).