

Spring 2024 Course Syllabus
STAT 382 Statistical Methods and Computing
3 Credit Hours
College of Liberal Arts and Sciences, UIC

1 Instructor & Course Details

Course Coordinator / Instructor: Dr. Jennifer Pajda-De La O

Office: SEO 305

Email: jpajda2 AT uic.edu Your email will be answered within 24-48 hours.

In Person Student Drop-in Hours, SEO 305: Wednesday / Friday 12:30 pm – 1:30 pm

Online Student Drop-in Hours, via Zoom: Tuesday 10:00 am – 11:00 am

- See Blackboard for Zoom Links
- You can ask questions on Piazza.
- I will also answer questions via email, or during lectures.

Instructor: Dr. Dale Embers

Office: SEO 309

Email: dembers AT uic.edu Your email will be answered within 24-48 hours.

In Person Student Drop-in Hours, SEO 309:

Monday / Wednesday 1:00 pm – 1:50 pm; Friday 11:00 am – 11:50 am

- You can ask questions on Piazza.
- I will also answer questions via email, or during lectures.

Blackboard Course Site

Students are expected to log into the course site regularly to learn about any developments related to the course. For all technical questions about Blackboard, email the Learning Technology Solutions team at LTS@uic.edu.

It is expected that all students understand how to use Blackboard and any other apps linked inside it (including Gradescope). If you have questions, please come to us within the first three weeks of the course so we can explain how to use and access materials.

For additional assistance, please refer to UIC's Student Tech Support & Resources Website.

Course Modality and Schedule

Course Method of Instruction: Meeting In Person, On Campus

In the event that courses are moved online due to Covid campus precautions, lectures will be given on Zoom during the scheduled lecture time. The link will be posted on Blackboard.

Lectures:

MWF 11:00 – 11:50 am, TH204; CRN 37098 (Jennifer Pajda-De La O)

MWF 12:00 – 12:50 pm, LH205; CRN 42423 (Dale Embers)

Due Dates / Times: All times listed in the syllabus, on Blackboard, and on Gradescope are ***CENTRAL TIME***.

Academic Deadlines

Current academic calendar and the list of deadlines can be found at <https://catalog.uic.edu/ucat/academic-calendar>

Disclaimer

This syllabus is intended to give the student guidance on what may be covered during the semester and will be followed as closely as possible. However, as the course coordinator, I reserve the right to modify, supplement, and make changes as course needs arise. I will communicate such changes in advance through in-class announcements and in writing via Blackboard Announcements.

2 Course Information

2.1 UIC Course Description and Prerequisite Statement

Statistical computation with the SAS and R software packages: data structure, entry, and manipulation; numerical and graphical summaries; basic statistical methods; select advanced methods.

Prerequisite(s): Grade of C or better in STAT 381. Students in the BS in Data Science program may satisfy the prerequisite with IE 342 or ECE 341 instead of STAT 381.

Course materials and assignments can be complex and challenging, but they are crucial to your intellectual and personal growth and development. There are times you may need extra help. Students who attend class consistently, complete all assignments, thoughtfully engage with feedback on work, develop good study strategies, visit the tutoring center, and contact faculty when struggling can develop a thorough understanding of the course material and ultimately succeed in the course.

2.2 Course Goals and Learning Objectives

2.2.1 Goals

Perform data manipulation and statistical analyses in both R and SAS.

2.2.2 Course Objectives

At the end of this course, you should be able to:

- Import and Export data sets into the R environment
- Define and use objects in R.
- Compute descriptive statistics
- Create graphs for a data set including histograms, boxplots, bar charts, Q-Q plots, and scatterplots.
- Manage data sets by aggregating and subsetting the data.
- Create new variables in a data frame.
- Create functions in R.
- Use loops in R.
- Use R to compute probabilities for specific discrete and random variables.
- Use R to simulate sampling.
- Use R to understand and demonstrate the Central Limit Theorem.
- Compute confidence intervals for a variety of parameters.
- Conduct significance tests for a variety of parameters, including ANOVA.
- Compute the correlation coefficient and explain what information it contains.
- Create and evaluate regression models.
- Use SAS to compute descriptive statistics, create graphs, compute confidence intervals, conduct significance tests, and perform regression analysis.

2.2.3 Units and Course Topics

Unit 1) R Basics and R Markdown

- Introduction to R
- Data Structures
- Basic Data Management
- Control Flow
- R Markdown

Unit 2) Descriptive Statistics and Graphics / Probability Distributions / Normality Testing

Unit 3) Sampling Distributions / Confidence Intervals & Hypothesis Testing for Means / OCC

Unit 4) Tabular Data Analysis & Proportions / Independence Testing

Unit 5) Regression and ANOVA

Unit 6) SAS

3 Required and Recommended Course Materials

3.1 Textbooks - Recommended

Kabacoff, *R in Action*, Manning, **2nd** edition; ISBN-13 9781617291388

Dalgaard, *Introductory Statistics with R*, Springer, **2nd** edition; ISBN-13 9780387790534

Elliott, *SAS Essentials: Mastering SAS for Data Analytics*, John Wiley and Sons, **2nd** edition; ISBN-13 9781119042167

All texts can be viewed free online through the UIC library. Links provided in Blackboard.

3.2 Computer / Technology Requirements

Students will need regular access to a personal computer that runs on a broadband Internet connection.

3.3 Gradescope - Required

All assignments and exams will be submitted here. This is integrated with Blackboard. To access, click on the link within Blackboard.

3.3.1 Gradescope Assignment Uploads

- To access Gradescope, click on the link within Blackboard.
- You may use your phone to scan in assignments.
- For assignments that require code submission, you may submit multiple files. You do not need to link to the correct problem.
- For assignments that do not require code submission, you may only submit 1 PDF file or a series of pictures (linked to the correct problem).
- You can overwrite an uploaded file if you submitted the incorrect one. At the bottom right corner, click on “Resubmit” and you can change the file(s) that you uploaded.

3.4 R Software - Required and free to download or access via the Virtual Computer Lab

- Download R software from CRAN, <https://cran.r-project.org/> OR <https://www.r-project.org/>
- Download R Studio from <https://posit.co/download/rstudio-desktop/>
- Note: Does NOT work on Chromebooks
- UIC provides R software in their Virtual Computer Lab. You may access R using this resource by following the below instructions. These instructions are to connect to UIC’s Virtual Computer Lab using your web browser. This applies to Mozilla Firefox, Google Chrome, Internet Explorer, and Microsoft Edge (and Edge Chromium). For screenshots of the below instructions, go to <https://help.uillinois.edu/TDCClient/37/uic/KB/ArticleDet?ID=1410>.
 1. Navigate to the windows virtual desktop website: <http://desktop.uic.edu>.

2. Enter your UIC email address then click Next.
 3. Enter your password, then click Sign In.
 4. Select the desktop you would like to access.
 5. Select options as desired, then click allow.
 6. Enter your NetID and password when prompted and click Submit.
 7. When you are finished, log off.
- If you need to connect to UIC's Virtual Computer Lab using a mobile device follow the instructions here:
<https://help.uillinois.edu/TDCClient/37/uic/KB/ArticleDet?ID=1122>.

3.5 SAS Software - Required and free

- Access using SAS OnDemand for Academics. Create a SAS profile to get started.
- Website Login: <https://welcome.oda.sas.com/login>
- Another option is to access SAS using the Virtual Computer Lab. See above for how to access the Virtual Computer Lab and use SAS there.

3.6 Respect for Copyright

Please protect the copyright integrity of all course materials and content. Please do not upload course materials not created by you onto third-party websites or share content with anyone not enrolled in our course. This includes not posting screenshots of the material. This includes not posting questions that we have written on assignments that you have typed out yourself.

3.7 Privacy Notification and Policy for Video Recording

Lecture Capture will be used in case a student is unable to attend class. Recordings will appear on Blackboard approximately 3-6 hours after lecture ends.

In the event that we need to move in-person classes online:

We will be recording the class sessions, or portions of the class, for students who are unable to attend synchronously. The recording feature for others is disabled so that no one else will be able to record this session through Zoom, Webex, or Echo360. Recording by other means is not permitted. The recorded class sessions will be posted on our Blackboard class website unless otherwise notified.

If you have privacy concerns and do not wish to appear in the recording, turn OFF your video and notify me in writing (via email) prior to the next class session. If you prefer to use a pseudonym instead of your name, please let me know what name you will be using, so that I can identify you during the class session. If you would like to ask a question, you may do so privately through the chat feature by addressing your question to me or your TA only (and not to "everyone"), or you may contact me or your TA by another private method, which we will agree upon in advance of class. If you have questions or concerns about this video recording policy, please contact me before the end of the first week of class.

4 Course Policies & Classroom Expectations

4.1 Grading Policy and Point Breakdown of Core Assignments and Assessments

Grading:

Swirl Projects: 3%	Exam 1 (R): 15%
In-Class Worksheets: 9%	R Project 1: 15%
Homework: 5%	R Project 2: 15%
In-Class Quizzes: 15%	Exam 2 (SAS): 15%
Gradescope Quizzes: 8%	

Grades will be assigned according to the following rule:

$$A \geq 90\% > B \geq 80\% > C \geq 70\% > D \geq 60\% > F.$$

We reserve the right to make adjustments to the overall grading policy.

Cheating:

- If caught cheating on ANY assignment / assessment, you will receive a 0% for the particular assignment / assessment, and you will be reported to the Dean of Students.
- Repeat offenders will receive 0's for the assignments. If caught cheating two times, students will also have their overall letter grade for the semester dropped by one. If caught cheating three or more times, students will also have their overall letter grade for the semester dropped by two. Students will be reported to the Dean of Students.
- You will NOT receive an email from the instructor in advance regarding this. All communication regarding any suspected cheating will be through the Dean of Students.

Note the following actions are not permitted.

- Utilizing third-party websites including, but not limited to Chegg, Course Hero, ChatGPT, etc are not acceptable.
- You may not ask for solutions for any assignments / exams / projects related to this course. You may not view solutions for any assignments / exams / projects related to this course.
- If we find that you have either asked for solutions, or viewed solutions, we will consider this cheating.

Policy for Missed or Late Work: We will not accept any late worksheets, homework, quizzes, or Exams; they must be completed by the deadline. We will accept Swirl Projects and R Projects up to 2 days late, but with a 10 percentage point penalty per day late. After that point, no missed or late work will be accepted, unless a student has a letter of accommodation from the DRC or other supporting documentation is provided. *Completed but not submitted work will not be accepted.*

Regrades: Regrade requests for assignments may be submitted through Gradescope. You may submit a regrade request through April 29, 2024 at 11:59 pm. After this time, no regrade requests will be accepted.

Submitting Documentation for Absences or Classroom Accommodation: We require documentation for excused absences or requests for classroom accommodation due to an illness or an emergency situation. A student may redact personal information that they are not comfortable sharing with university staff. For example, a student may redact information like a diagnosis, medication, address, etc.

4.2 Attendance Policy

Attendance is highly encouraged but not required, except on worksheet days. We have seen improvements in student performances in courses with attendance policies. Therefore, the ONLY extra credit opportunity this semester will be based on lecture attendance. Attendance will be counted using Acadly starting the *third week of classes*. Only the statuses of “Present”, “Excused”, and “Late” will be counted as attending class.

If you attend

- at least 85% of in-person lecture sessions (34–39 out of 39 sessions), you will receive 5 extra credit percentage points;
- between 75% and 85% of in-person lecture sessions (30–33 out of 39 sessions), you will receive 3 extra credit percentage points;
- between 50% and 75% of in-person lecture sessions (20–29 out of 39 sessions), you will receive 1 extra credit percentage point.

Attendance below 50% will give you 0 extra credit percentage points. Excused absences (with documentation) will count towards attending class.

Extra credit percentage points will be added to the lowest R Project score (percentage-wise).

Please email me if you face an unexpected situation that may impede your attendance, participation in required class and exam sessions, or timely completion of assignments.

4.2.1 Acadly Registration

To access attendance, you must

1. Sign up for Acadly - you should have received an email that enrolled you in the course. If you cannot find this email, try searching your inbox for the phrase “You have been added as a student”, which is a part of the invitation email’s subject.
2. Download the Acadly app through Google Play or the App Store.
3. Log-in to Acadly and click on the course set up by your professor.
4. For In-Person attendance, you should access Acadly through your phone / your tablet (Android or iOS) by using the Acadly app (NOT the website).
5. Make sure that you give Acadly permission to access your device’s location, storage, contacts, microphone and camera.
6. In the event that we need to move in-person classes online, you may also access Acadly through the Google Chrome web browser. Attendance will be taken via activities within Acadly, such as a poll during class. You must answer the in-class activity to be counted as present.

Troubleshooting:

- Troubleshooting: Android Users iOS Users
- If you do not have a smartphone or encounter difficulties in being marked present, make sure to see your instructor after every class so they can manually mark you as present. Students who do not do this after class will automatically be marked as absent.

4.3 Other Course Policies: Course Conduct and Academic Honesty

We are committed to creating a learning environment where diverse perspectives are recognized and valued as a source of strength. We request that all students work with us to create a class culture based on open communication, mutual respect, and inclusion. As a class we will approach all discussions with respect and civility. Disagreements and debates in academic discourse are expected and welcome, but personal attacks are never OK, and will not be tolerated. We strive to ensure an open and welcoming classroom for all students. If we ever miss the mark, please don't hesitate to come and talk to us. We are all learning together.

Academic Integrity Policy

As an academic community, UIC is committed to providing an environment in which research, learning, and scholarship can flourish and in which all endeavors are guided by academic and professional integrity. All members of the campus community – students, staff, faculty, and administrators – share the responsibility of insuring that these standards are upheld so that such an environment exists. You are expected to adhere to the Community Standards of academic integrity, accountability, and respect. Instances of academic misconduct by students will be handled pursuant to the Student Disciplinary Policy. You are capable of meeting expectations for this course. If you are concerned about how well you are doing in this course, please come speak with your instructor instead of considering academic misconduct.

Alternatives to Academic Dishonesty

- Seek out help – meet with your TA or Professor, ask if there is special tutoring or other arrangements available.
- Drop the course – can you take it next semester when you might feel more prepared and less pressured?
- See a counselor at Student Psychological Services, and/or your school, college or department advisor – UIC has many resources for students who are feeling the stresses of academic and personal pressures, see resources below.

Remember, **getting caught cheating affects more than just your GPA**. How will you explain to your parents, family and friends that you have been suspended or dismissed? How will it affect your financial aid award and/or scholarship money? How will it affect your future career plans?

You have worked very hard to get here, so don't cheat! You don't need to. If you would like more information, please see the Dean of Students' Office in 3030 Student Services

Building (SSB), 1200 W. Harrison Street, call at (312) 996-4857, or visit their website at <https://dos.uic.edu/>.

Grievance Procedures

UIC is committed to the most fundamental principles of academic freedom, equality of opportunity, and human dignity involving students and employees. Freedom from discrimination is a foundation for all decision making at UIC. You as students are encouraged to study the University's "Nondiscrimination Statement". You are also urged to read the document "Public Formal Grievance Procedures". Information on these policies and procedures is available on the University web pages of the Office of Access and Equity: <https://oae.uic.edu/>. If you choose to submit an academic grievance, you may find the paperwork here: <https://dos.uic.edu/student-assistance/academic-concerns/academic-grievances/>.

4.4 Other Course Policies: Additional Course Communications

4.4.1 News & Announcements

Any announcements will be posted on Blackboard and is where you may find course- and program-related announcements made by the instructor or teaching assistants. All members of the course will receive an email of each message posted.

4.4.2 Email Expectations

Students are responsible for all information instructors send to your UIC email and Blackboard accounts. Faculty messages should be regularly monitored and read in a timely fashion.

4.4.3 Course Communications using Piazza

This term we will be using Piazza for help from classmates. The system is highly catered to getting you help fast and efficiently from classmates, the TAs, the instructor, and the course coordinator. Rather than emailing questions to the teaching staff, I encourage you to post your questions on Piazza. If you have any problems or feedback for the developers, email team@piazza.com.

Please direct the class questions that are not private to this board. You will get faster answers if you post your questions there. (Your question will be answered within 24 hours except during weekends.)

If you have a really private question, please send an email to your instructor or the course coordinator.

4.4.4 Online Course Communication Guidelines (Netiquette)

- Be mindful of different cultural and linguistic backgrounds, as well as different political ideologies and religious beliefs.
- Use good judgment when composing your written responses. Swearing and profanity should be avoided. Also consider that slang terms can be misunderstood or misinterpreted.
- Be careful using all capital letters when composing your written responses. This can be considered “shouting” on the Internet and is regarded as impolite or aggressive. It can also be stressful on the eye when trying to read your message.
- Be respectful of others’ views and opinions. Avoid “flaming” (publicly attacking or insulting) others.
- Be careful when using acronyms. If you use an acronym it is best to spell out its meaning first, then put the acronym in parentheses afterward, for example: Frequently Asked Questions (FAQs). After that you can use the acronym freely throughout your message.
- Use good grammar and spelling in written communications.
- In emails, always identify yourself and what class and section you are in. It is a good practice to put your course and section in the subject line. This helps your instructor identify course related emails.

4.5 Other Course Policies: Caregiver Responsibilities

We have great respect for students who are balancing their pursuit of education with the responsibilities of caring for children or other family members. If you run into challenges that require you to miss a class, or if your caregiving responsibilities are interfering with your ability to engage in remote learning, please contact your instructor. There may be some instances of flexibility we can offer to support your learning.

5 Course Schedule and Assessment Descriptions

Week	Day	Covering Section
1 1/8/24	M 1/8 & W 1/10 W 1/10 F 1/12 & W 1/17 Swirl Project	Syllabus; What are R and R Studio?; R as a Calculator/ Variable Assignments / Vectorized Arithmetic Workspace; Getting Help; Packages Understanding Datasets and Structures; Attach / Detach / With Friday 1/12: Swirl 1 Due
2 1/15/24	M 1/15 W 1/17 & F 1/19 F 1/19 Swirl Project	MLK Jr Day: No Class Setting Directories; Entering Data; Importing and Exporting CSVs Creating New Variables Friday 1/19: Swirl 2 Due
3 1/22/24	M 1/22 W 1/24 F 1/26 Swirl Project Homework Class Quiz	Recoding and Renaming Variables; Missing Values Type Conversions; Sorting Data; Merging Datasets Subsetting; Aggregate; Loops Wednesday 1/24: Swirl 3 Due Wednesday 1/24: Homework 1 (Basic R Pt 1) Due Friday 1/26: Quiz 1 (Basic R Pt 1)
4 1/29/24	M 1/29 W 1/31 F 2/2 F 2/2 & W 2/7 Swirl Project Homework Swirl Project Worksheet	Repetition and Looping; User-Written Functions Worksheet Day 1 Summary Statistics for 1 Group and Graphical Displays; summary() vs fivenum() and quartile() function; Kernels Monday 1/29: Swirl 4 Due Monday 1/29: Homework 2 (Basic R Pt 2) Due Wednesday 1/31: Swirl 5 Due THURSDAY 2/1: Worksheet 1 Due
5 2/5/24	M 2/5 W 2/7 & F 2/9 F 2/9 & M 2/12 GS Quiz GS Quiz Swirl Project	Exam 1: Basic R Summary Statistics by Groups and Graphical Displays Probability and Distributions Review Distributions in R (01) Wednesday 2/7: Histogram / Boxplot Quiz (02) Friday 2/9: Probability and Dist Quiz Friday 2/9: Swirl 6 Due
6 2/12/24	F 2/9 & M 2/12 M 2/12 W 2/14 F 2/16 GS Quiz Homework GS Quiz Class Quiz	Probability and Distributions Review Distributions in R Normal Distribution and Graphics Normal Distribution: QQ Plots; Skew and Kurtosis; Shapiro-Wilk Test Sampling Distributions and CLT for Means and Proportions (03) Monday 2/12: Normal Distribution Quiz Wednesday 2/14: Homework 3 (Summary Stats/Graphics) Due (04) Friday 2/16: CLT Quiz (Means and Proportion) Friday 2/16: Quiz 2 (Summary Stats/ Graphics)

Week 7 2/19/24	Day M 2/19 M 2/19 & W 2/21 W 2/21 & F 2/23 GS Quiz GS Quiz Homework Class Quiz	Covering Section Confidence Intervals / Hypothesis Testing Summary Sheets CI and HT for Means CI and HT for Variances and the F Distribution Full Examples for Difference of Means HT (05) Monday 2/19: Basic CI / HT Quiz (06) Wednesday 2/21: CI / HT for Means and 1 Variance Quiz Wednesday 2/21: Homework 4 (CLT) Due Friday 2/23: Quiz 3 (Normality and CLT)
8 2/26/24	M 2/26 & W 2/28 F 3/1 GS Quiz Homework Class Quiz Project	Errors and Power Operating Characteristic Curve Worksheet Day 2 (07) Monday 2/26: Errors Quiz Monday 2/26: Homework 5 (CI/HT Means/Variance) Due Wednesday 2/28: Quiz 4 (CI/HT Means/Variance) Friday 3/1: Project 1 Due
9 3/4/24	M 3/4 W 3/6 F 3/8 GS Quiz Worksheet GS Quiz Homework	Tables (Frequency and Contingency) Marginal / Conditional Distributions from Tables Graphical Display of Tables HT and CIs for Proportions; K Props, Equality, Trend Contingency Table; Chi-Square Tests of Independence; Odds Ratios; Fisher's Exact Test (08) Monday 3/4: Marginal / Conditional Dist Quiz Monday 3/4: Worksheet 2 due (09) Wednesday 3/6: HT / CI Proportions Quiz Friday 3/8: Homework 6 (Tables) Due
10 3/11/24	M 3/11 M 3/11 & W 3/13 W 3/13 F 3/15 F 3/15 & M 3/25 Homework Class Quiz Homework Class Quiz Homework	Simple Linear Regression – Theory Simple Linear Regression – Examples Multiple Linear Regression – Theory (Model, ANOVA) Multiple Linear Regression – Theory (R^2 , Inference) Multiple Linear Regression – Assumptions Checks Multiple Linear Regression – Examples Monday 3/11: Homework 7 (Proportions) Due Wednesday 3/13: Quiz 5 (Proportions) Wednesday 3/13: Homework 8 (Independence) Due Friday 3/15: Quiz 6 (Independence) Friday 3/15: Homework 9 (SLR) Due
3/18/24	M 3/18 – F 3/22	Spring Break: No Class
11 3/25/24	F 3/15 & M 3/25 M 3/25 & W 3/27 W 3/27 & F 3/29 F 3/29 & M 4/1 Class Quiz Homework Class Quiz Homework	Multiple Linear Regression – Examples Correlation; Intro to Experimental Design; Regression vs ANOVA 1-Way Analysis of Variance - Theory + Example 1-Way ANOVA Pairwise/Multiple Comparisons: Bonferroni/Tukey 1-Way ANOVA Model Checking + Complete Example Monday 3/25 Quiz 7 (SLR) Wednesday 3/27: Homework 10 (MLR) Due Friday 3/29 Quiz 8 (MLR) Friday 3/29: Homework 11 (Correlation) Due

Week 12 4/1/24	Day F 3/29 & M 4/1 W 4/3 F 4/5 F 4/5 & M 4/8	Covering Section 1-Way ANOVA Pairwise/Multiple Comparisons: Bonferroni/Tukey 1-Way ANOVA Model Checking + Complete Example 2-Way ANOVA – Theory and Interaction Plots 2-Way ANOVA – Examples Elliott: Chapter 1 – Getting Started
	Homework Homework	Wednesday 4/3: Homework 12 (1-Way ANOVA Pt 1) Due Friday 4/5: Homework 13 (1-Way ANOVA Pt 2) Due
13 4/8/24	F 4/5 & M 4/8 W 4/10 F 4/12	Elliott: Chapter 1 – Getting Started Elliott: Chapter 2 – Getting Data Into SAS; Sections 3.7-3.8 – Importing Data Elliott: Chapter 4 – Preparing Data for Analysis
	Class Quiz Homework	Monday 4/8 Quiz 9 (ANOVA / Tukey / Bonferroni) Wednesday 4/10: Homework 14 (2-Way ANOVA) Due
14 4/15/24	M 4/15 W 4/17 F 4/19	Elliott: Chapter 5 – Preparing to Use Procedures Elliott: Chapter 10 – Analyzing Counts and Tables Elliott: Chapter 9 – Evaluating Quantitative Data
	Class Quiz Project	Monday 4/15 Quiz 10 (2-Way ANOVA) Monday 4/15: Project 2 Due
15 4/22/24	M 4/22 M 4/22 & W 4/24 F 4/26	Elliott: Chapter 11 – Comparing Means with T-Tests Elliott: Chapter 12 – Correlation and Regression
	Homework Class Quiz Worksheet	Worksheet Day 3 Monday 4/22: Homework 15 (SAS) Due Wednesday 4/24 Quiz 11 (SAS) SATURDAY 4/27: Worksheet 3 Due
16 4/29/24		Final Exam Week Exam 2: SAS See Section 5.6.4 for Dates / Times

*GS = Gradescope

5.1 Core Assignment Description: Swirl Projects

5.1.1 Purpose of Swirl Projects

Swirl projects will help you get started using R. They walk you through some of the R basics so you can get some hands-on practice using R. There is immediate feedback if you are correct or if you need to modify something.

5.1.2 Details

- You will be working with the “R Programming” course.
- Instructions on how to access modules will be in the first Swirl assignment.
- No Swirl projects will be dropped.
- Each module will be worth 10 points.
- All Swirl Projects will be weighted proportionally to each other.
- You may submit assignments up to 2 days late. Each day late will drop your overall score by 10 percentage points. Submission date / time determined by Gradescope.
 - Example: If you score 87% and submitted 1 day late, your score drops to 77%.
 - Example: If you score 87% and submitted 2 days late, your score drops to 66%.

5.1.3 Completing Swirl Modules

When you complete the Swirl module, it will ask you “Would you like to receive credit for completing this course on Coursera.org?”

- At this time, type your name into R and hit “Enter”.
- Take a screenshot of your screen. Submit the screenshot to Gradescope.
If you forget to do this step, you will have to do the entire Swirl module again.
- The next line that shows up is “Enter an item from the menu, or 0 to exit”.
Type 0 and hit “Enter” to exit out of the current module.

5.1.4 Swirl Module Due Dates

- Swirl 1: Complete Swirl Modules 1, 2, 3
Due January 12, 2024 @ 11:59 pm on Gradescope.
- Swirl 2: Complete Swirl Modules 4, 12.
Due January 19, 2024 @ 11:59 pm on Gradescope.
- Swirl 3: Complete Swirl Modules 5, 6, 7.
Due January 24, 2024 @ 11:59 pm on Gradescope.
- Swirl 4: Complete Swirl Modules 8, 10, 11.
Note: Swirl Module 8 has an error. You will only be able to get to about 43% complete and this is acceptable for Module 8 only.
Due January 29, 2024 @ 11:59 pm on Gradescope.
- Swirl 5: Complete Swirl Module 9.
Due January 31, 2024 @ 11:59 pm on Gradescope.
- Swirl 6: Complete Swirl Modules 13, 14, 15.
Due February 9, 2024 @ 11:59 pm on Gradescope.

5.2 Core Assignment Description: Classroom Performance / In-Class Worksheets

5.2.1 Purpose of In-Class Worksheets

The best way to learn how to code in any language is to actually do it. In-Class Worksheets give you the opportunity to work on some coding during class, where you can seek immediate help from Instructors, your TA, and your classmates.

5.2.2 Details

- Includes attendance and participation on lab days. The first worksheet day will be January 31 (Wednesday of the fourth week of classes). See schedule in Section 5.2.6 for specific worksheet days. Worksheets 2 and 3 will be on a Friday.
- There are 3 worksheets that will be counted towards your grade and due on the due date at 11:59 pm.
- All worksheets will be weighted equally to each other.
- No worksheets will be dropped.
- If you need to miss class on a worksheet day, a doctor's note or other supporting documentation may be provided. Missing class because of work is not an acceptable excuse.
- **No late worksheets will be accepted** because solutions are posted the next day after it is due.
- If you do not turn in a worksheet and still attended class, you will not receive credit.

5.2.3 Completing Worksheets

- On Worksheet Days, please bring a personal laptop or tablet so that you may access R or SAS during class. If you not have access to technology during class, you may work with one of your fellow students to complete your worksheet (help to suggest coding ideas so the other student can test it out on their computer, and then type up your own solutions later).
- You may work individually or in small groups to complete the worksheets. You may receive assistance from your classmates and the instructor to complete worksheets. In the event that courses are moved online due to Covid campus precautions, we will create Breakout Rooms within Zoom so you can discuss the worksheets with other members of the class and receive assistance from your classmates and the instructor.
- You are each responsible for writing down your own answers. Everyone submits their own assignment.
- If you do not complete the assignment during class, it will be **due at 11:59 pm by the due date**. There is no penalty for finishing it after class, with the exception of attendance points. You must attend class to receive attendance points, unless you can provide documentation for your absence.
- Work needs to be completed and submitted by the due date. Failure to do so will result in a 0% on the assignment. *Completed but not submitted work will not be accepted.*
- Worksheets will be available on Blackboard on a worksheet day.

5.2.4 Grading of Worksheets - Attendance / Participation and Answers

- 70% of points come from attendance / participation, and 30% of points come from worksheet answers.
- Arriving in class within the first 10 minutes will earn you 70% for attendance / participation on each worksheet.
- Arriving in class between 11 and 30 minutes into the class will earn you 35% for attendance / participation on each worksheet.
- Arriving in class after 30 minutes of class have passed will earn you 10% for attendance / participation.
- If you do not turn in a worksheet and still attended class, you will not receive any credit for the worksheet.
- If you leave class significantly early, you will lose attendance points, unless you have turned in your worksheet and notified the instructor.
- If you miss class and provide an acceptable excuse you will earn 70% for attendance / participation on each worksheet. Absences without documentation will earn 0% for attendance / participation.
- The other 30% of your grade on the worksheet will come from correctness of your answers. Answers provided without code (where specified) will not earn you all the points.
- If you are unable to attend and cannot provide documentation for your absence, you may still earn up to 30% on the worksheet for completing all questions correctly. Documentation must be provided for each absence, even if documentation has been provided for a previous absence.
- Attendance / Participation will be broken down into 5 points from participation, and the rest of the points from attending class. You will earn 5 participation points if we see you actively working in class or writing down code by hand to be typed later. You will earn 0 participation points if you are not actively working.

5.2.5 Acceptable and Unacceptable Resources

When completing Worksheets or Homework, the below outlines what are acceptable resources and unacceptable resources. When discussing essay questions with peers, you should write up your answers independently and in your own words.

- Acceptable Resources: Piazza / Instructors / Teaching Assistant / Lecture Notes / Textbook / Peers
- Unacceptable Resources: Asking or viewing solutions on third-party websites / copying solutions from solution manuals. See Section 4.1 for consequences.
- Copying solutions from the solution manual is not permitted.

5.2.6 Worksheet Dates and Topics

- Worksheet 1 (R Basics): January 31, 2024, due February 1, 2024
- Worksheet 2 (Operating Characteristic Curves and Power): March 1, 2024, due March 2, 2024
- Worksheet 3 (SAS): April 26, 2024, due April 27, 2024

5.3 Core Assignment Description: Homework

5.3.1 Purpose of Homework

Homework enables you to practice the concepts and code presented during class. The more you practice coding, the easier it will become. This will help you prepare for exams and projects and quizzes. Homework will become more frequent when we cover topics that you may not be as familiar with so that you can practice right away. Homework will be due shortly after we finish covering the topic.

5.3.2 Details

- Homework will be assigned regularly and due by the due date. Problems will be posted on Blackboard.
- Homework will be submitted via Gradescope.
- Due on the due date by **11:59 PM**.
- All homework assignments will be weighted equally to each other.
- Homework # 15 (SAS) may not be dropped from your grade. From the Homeworks #1-14, the lowest 2 homework scores will be dropped.
- **No late homework will be accepted.**
- Work needs to be completed and submitted by the late due date. Failure to do so will result in a 0% on the assignment. *Completed but not submitted work will not be accepted.*
- You may discuss homework problems with your fellow students, but you must write your answers up independently, and in your own words. Asking for assistance or viewing solutions through third-party websites (like Chegg or ChatGPT) is not permitted.

5.3.3 Grading

- All problems will be graded for completion only.
- We will select a random subset of questions that will be graded for each homework. You will not know in advance which or how many questions will be graded.

5.4 Core Assessment Description: In-Class Quizzes

5.4.1 Purpose of In-Class Quizzes

We want you to keep up with the material we are covering in classes. Quizzes will supplement the code you will be writing on your homework.

5.4.2 Details

- Quizzes will occur regularly and quiz days are indicated on the tentative schedule.
- Quizzes will occur during your regularly scheduled lecture and must be turned in before you leave.
- All quizzes will be weighted equally to each other.
- The lowest 3 quizzes will be dropped.
- On each quiz, you will be asked to write / interpret code / interpret results.
- Quizzes are to be completed by yourself. Notes and references are NOT allowed during a quiz. Technology is not allowed.
- If you have a **valid** excuse for missing a quiz let us know in advance. In case you are ill on the day of a quiz, give written evidence/explanation of your absence (e.g. doctor's notes) upon returning to class.

5.5 Core Assessment Description: Gradescope Quizzes

5.5.1 Purpose of Gradescope Quizzes

During the semester, we will ask you to review certain sections from Stat 381 / IE 342 / ECE 341 before we talk about coding the material. This way we can focus more on coding than on concepts for the relevant sections.

5.5.2 Details

- Associated notes / videos from Stat 381 will be provided on Blackboard.
- After skimming notes (reviewing videos if further detail needed), you will complete a short quiz on the material through Gradescope.
- Quizzes must be completed **30 minutes before** the associated lecture by the due date / time. During lecture, we will assume that you understand the concepts and we will start going over code / examples unless specific questions are asked.
- All quizzes will be weighted equally.
- The lowest 2 quizzes will be dropped.
- Quizzes are to be completed by yourself. Notes and references are allowed during the quiz. Asking for assistance or viewing solutions through third-party websites (like Chegg or ChatGPT) is not permitted.
- You will have 1 attempt. Quizzes will be timed and must be completed within the time limit. You will have 30 minutes to complete the quiz.

5.6 Core Assessment Description: Exams

5.6.1 Purpose of Exams

We give tests for several reasons. One reason is to show how well students are understanding the material, whether there are some students who are not there yet, and whether we need to review certain concepts with the class. Another reason is to let you assess how well you are understanding the concepts and where you need to focus more of your efforts to learn the course material. If you are struggling on the tests, it means that you need to seek help from the instructor, one of the TAs, or your peers, so that we can help you learn the material.

The first exam will cover R Basics. We want to make sure that you are manipulate data before we get into any statistical analyses. The second exam will cover SAS.

5.6.2 Description

- There will be two exams that must be completed by yourself (no collaboration - verbal or written).
- Exam 1 will be given during class time on the scheduled date.
- Exam 2 will be given during finals week, and will be in person.
- If you have a **valid** excuse for missing an exam let us know in advance. In case you are ill on the day of a exam, give written evidence/explanation of your absence (e.g. doctor's notes) upon returning to class.
- In the event that an exam needs to be moved online due to Covid campus precautions, we will communicate an alternative plan on Blackboard as soon as we are notified of the course modality change.
- Students should bring and display their UIC ID cards during exams. (Academic dishonesty: Cheating on exams typically results in disciplinary procedures, up to expulsion from the university.)

5.6.3 Academic Honesty Statement

- Unacceptable resources during an Exam (including, but not limited to):
 - Discussing with peers, family members, teaching assistants or similar, either written or verbal.
 - Chegg; Course Hero; ChatGPT; and other third-party websites (either asking for or viewing solutions)
 - Groupme; Discord; etc.

5.6.4 Material Covered on Exams

R Exam: R Basics (In Class on February 5, 2024)

SAS Exam: During Finals Week following the Registrar's general final exam schedule.

- 11 AM Section: Thursday May 2 from 10:30 - 12:30 pm
- 12 PM Section: Tuesday April 30 from 8:00 - 10:00 am

5.6.5 Missing the Final (Exam 2)

- There will be **NO** make ups for the final exam. Exceptions will be made only for emergencies, e.g., hospitalization or conflicts in final exam scheduling. In case you are ill, provide written evidence/explanation of your absence (e.g. doctor's notes). Otherwise it counts as zero. No exam replacements / substitutions are permitted.
- If you schedule travel during the final exam date/time, you may not make up the final, unless the travel is due to a documented family emergency or approved university travel. Otherwise, you will receive 0% for the final exam.
- If you qualify for a make-up final exam, it will take place on Monday May 6.

5.7 Core Assignment Description: R Projects

5.7.1 Purpose of the Projects

We want to give you experience of analyzing a real dataset, as well as writing up your findings. Outside of school, you might be expected to write up a report on some sort of statistical analysis, and we want to prepare you for having to do this. As a part of the project, we would like you to write your report using R Markdown, which is a way to typeset a document inside of R instead of having to copy and paste results into Microsoft Word or other word processing software.

5.7.2 Description

- There will be two projects during the course.
- You will be given a data set and series of questions to be answered using R.
- In addition to writing R code, you will be expected to write a report on your findings using R Markdown.
- Projects will be submitted on Gradescope.
- You may discuss projects with your fellow students, but you must write your answers up independently, and in your own words. Asking for assistance or viewing solutions on third-party websites (like Chegg or ChatGPT) is not permitted. If you use outside references, they must be properly cited.
- You may submit assignments up to 2 days late. Each day late will drop your overall score by 10 percentage points. Submission date / time determined by Gradescope.
- Work needs to be completed and submitted by the late due date. Failure to do so will result in a 0% on the assignment. *Completed but not submitted work will not be accepted.*

5.7.3 Project Due Dates and Tentative Topics

- R Project 1: Data Cleaning, Descriptive Statistics, Graphics, and Hypothesis Testing
Due March 1, 2024 @ 11:59 pm on Gradescope.
- R Project 2: Hypothesis Testing, Regression, and ANOVA
Due April 15, 2024 @ 11:59 pm on Gradescope.

6 Accommodations

Disability Accommodation Procedures

- UIC is committed to full inclusion and participation of people with disabilities in all aspects of university life. If you face or anticipate disability-related barriers while at UIC, please connect with the Disability Resource Center (DRC) at <http://drc.uic.edu>, via email at drc@uic.edu, or call (312) 413-2183 to create a plan for reasonable accommodations.
- In order to receive accommodations, you will need to disclose the disability to the DRC, complete an interactive registration process with the DRC, and provide their course instructor with a Letter of Accommodation (LOA). Upon receipt of an LOA, course instructors will gladly work with you and the DRC to implement approved accommodations.
- If you need to book a room with DRC to take an exam, you must submit the online form to DRC no later than a week and a half before the scheduled date of the exam.
- The Disability Resource Center (DRC)'s guide to accommodations may be found here: <http://drc.uic.edu/guide-to-accommodations>.

Religious Accommodations

- Following campus policy, if you wish to observe religious holidays, you must notify the faculty member by the **tenth day of the semester** of the date(s) when they will be absent unless the religious holiday is observed on or before the tenth day of the semester. In such cases, the student shall notify the faculty member at least five days in advance of the date when they will be absent.
- Please submit this form by email with the subject heading: **“YOUR NAME: Requesting Religious Accommodation.”**
- The faculty member shall make every reasonable effort to honor the request, not penalize the student for missing the class, and if an examination or project is due during the absence, give the student an exam or assignment equivalent to the one completed by those students in attendance.
- If the student feels aggrieved, they may request remedy through the campus grievance procedure.
- UIC religious holiday calendar: <http://oae.uic.edu/religious-calendar>

Student Athlete Accommodations

- During the first week of class, you should provide the instructor with your missed class letter.
- It is the students' responsibility to attend all of their classes. If an athlete knows beforehand that they will be absent on a certain day (i.e. due to a contest), notify the instructor in advance. It is the student-athlete's responsibility to arrange to complete any missed work.

7 Classroom Environment

Inclusive Community

UIC values diversity and inclusion. Regardless of age, disability, ethnicity, race, gender, gender identity, sexual orientation, socioeconomic status, geographic background, religion, political ideology, language, or culture, we expect all members of this class to contribute to a respectful, welcoming, and inclusive environment for every other member of our class. If aspects of this course result in barriers to your inclusion, engagement, accurate assessment, or achievement, please notify me as soon as possible.

Name and Pronoun Use

If your name does not match the name on my class roster, please let me know as soon as possible. Prof. Pajda-De La O's pronouns are she/her, and Prof. Embers' pronouns are he/him. We welcome your pronouns if you would like to share them with us. For more information about pronouns, see this page: <https://www.mypronouns.org/what-and-why>.

Community Agreement / Classroom Conduct Policy

- Be present by turning off cell phones and removing yourself from other distractions.
- Be respectful of the learning space and community. For example, no side conversations or unnecessary disruptions.
- Use preferred names and gender pronouns.
- Assume goodwill in all interactions, even in disagreement.
- Facilitate dialogue and value the free and safe exchange of ideas.
- Try not to make assumptions, have an open mind, seek to understand, and not judge.
- Approach discussion, challenges, and different perspectives as an opportunity to “think out loud,” learn something new, and understand the concepts or experiences that guide other people’s thinking.
- Debate the concepts, not the person.
- Be gracious and open to change when your ideas, arguments, or positions do not work or are proven wrong.
- Be willing to work together and share helpful study strategies.
- Be mindful of one another’s privacy, and do not invite outsiders into our classroom.

8 Resources: Academic Success, Wellness, and Safety

We all need the help and the support of our UIC community. Please visit my drop-in hours for course consultation and other academic or research topics. For additional assistance, please contact your assigned college advisor and visit the support services available to all UIC students.

Academic Success

- UIC Tutoring Resources
- UIC Library and UIC Library Research Guides.
- Offices supporting the UIC Undergraduate Experience and Academic Programs.
- Student Guide for Information Technology
- First-at-LAS Academic Success Program, focusing on LAS first-generation students.
- The Math and Science Learning Center (MSLC)
The Math and Science Learning Center, located in the Science and Engineering South Building (SES) at 845 W. Taylor St. 3rd Floor, Room 247, is a meeting place for students in Math, Biological Sciences, Chemistry, Earth and Environmental Sciences, and Physics. At the MSLC, students can meet with graduate teaching assistants for tutoring in 100-level courses, arrange informal group study sessions with other students, or meet up with friends to attend one of the workshops, seminars, or other activities sponsored by the SLC during the semester. Visit the website, call 312-355-4900 or email at mslc@uic.edu.
- Academic Center for Excellence
The Academic Center for Excellence can help if you feel you need more individualized instruction in reading and/or writing, study skills, time management, etc. Phone: (312) 413-0031.

Academic Success: School-Life Conflict

Many students face obstacles to their education because of work or family obligations or unforeseen personal difficulties. If you are experiencing challenges throughout the term that are impacting your ability to succeed in this course, or in your undergraduate career more broadly, please reach out to your instructor immediately so that we can work together to form a plan for your academic success. Please do not wait until the semester is almost over. It is extremely difficult to catch up at the end of the semester.

Wellness

- **Counseling Services:** You may seek free and confidential services from the Counseling Center at <https://counseling.uic.edu/>. The Counseling Center is located in the Student Services Building; you may contact them at (312) 996-3490. In addition to offering counseling services, the Counseling Center also operates the 24/7 Crisis Hotline. They offer support and referrals to callers, as well as telephone crisis interventions; please call (312) 996-3490.
- Access U&I Care Program for assistance with personal hardships.

- **Campus Advocacy Network:** Under Title IX, you have the right to an education free from any form of gender-based violence or discrimination. Crimes of sexual assault, domestic violence, sexual harassment, and stalking are against the law and can be prevented. To make a report, email TitleIX@uic.edu or call (312) 996-8670. For more information or confidential victim services and advocacy, visit UIC's Campus Advocacy Network at <https://can.uic.edu/> or call (312) 413-1025.

Safety

- UIC Safe App – PLEASE DOWNLOAD FOR YOUR SAFETY
- UIC Safety Tips and Resources
- Night Ride
- Emergency Communications: By dialing 5-5555 from a campus phone, you can summon the Police or Fire for any on-campus emergency. You may also set up the complete number, (312) 355-5555, on speed dial on your cell phone.