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# STATS 140XP Fall 2024 Syllabus

grading + due dates may change due to current events

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## Introduction

The purpose of Statistics 140XP is to prepare you to solve a statistical consulting issue for a client with a team in Statistics 141XP. This quarter we will meet to get to know each other better, develop our skillsets in a consulting framework and share our experiences.

### Course Information

Instructor: Vivian Lew

Contact Info: [vlew@stat.ucla.edu](mailto:vlew@stat.ucla.edu)

Meeting Times and Locations:  
(please attend during your enrolled section only)

Fall 2024 TA: Jose Toledo Luna  
Section & Office Hours Online Only

### More Information

Office: Math Sciences 8923

Office Hours: W 3pm-7pm (my office)  
and you are always welcome to schedule appointment(s), evenings & weekends too

TTh 3:30pm-4:45pm (Lect 1 - Physics and Astronomy 1749)  
TTh 5pm-6:15pm (Lect 2 - Physics and Astronomy 1749)

<https://toledo-luna.com/teaching/stats140xp>  
[Zoom Link](#)

## Proposed Learning Outcomes

Most of our course activities will be focused on refining your consulting-related skill set with an end goal of creating a poster, a report, and a live presentation as part of a final team project. Along the way we will:

- determine appropriate approaches to data management, data visualization and exploratory data analysis

- enhance existing group work skills
- build up existing communication skills
- encourage professional growth and development
- expand on our interdisciplinary skills and interests

## Course Materials

All course related materials are posted to BruinLearn (<https://bruinlearn.ucla.edu/courses/195308>), all assignments are uploaded to that site as well typically in the form of PDF files, photographs or recordings. Official course grades are found online on myUCLA only. Other materials:

- David Salsburg (2002) The Lady Tasting Tea: How Statistics Revolutionized Science in the Twentieth Century <https://www.uclastore.com/adoption-search-results?ccid=170486&itemid=607926>
- (free) Harvard Business Review - Storytelling That Moves People <https://hbr.org/2003/06/storytelling-that-moves-people>
- (purchase optional) Frederick Ruland (2014). Guide for the New Statistical Consultant. <https://www.amazon.com/Guide-New-Statistical-Consultant-Suggestions-ebook/dp/B00JZ1D5NE>

Be prepared to be tested on “The Lady Tasting Tea”. We are using UCLA’s inclusive access and you will be charged for the book unless you opt out by the end of Week 2

## Suggested optional materials

- Nathan Yau. Visualize This! 2nd Edition, John Wiley & Sons, 2024. <https://learning.oreilly.com/library/view/visualize-this-2nd/9781394214860/cover.xhtml>
- T. Hothorn and B.S. Everitt. A Handbook of Statistical Analyses Using R, 3rd edition, Chapman and Hall/CRC. Text and code: <https://cran.r-project.org/web/packages/HSAUR3/>

## Grading

A letter grade is assigned only upon the successful completion of **Statistics 141XP**. At the end of the quarter you will receive an “IP” grade for “in progress.” Your final grade for both courses will be issued by your 141XP instructor next quarter. 140XP is worth 35% of the final two quarter grade awarded in 141XP. The breakdown is:

Percentage (rescaled to conform to letter grade percentages)	Rescaled total mapped to Letter Grade
12% (34.3%) Communication-related activities	A 93% and up A- 90 - 92%
3.5% (10%) Working with your TA	B+ 87% - 89% B 83 - 86% B- 80% - 82%
4% (11.4%) Midterm	C+ 77%-79% C 50% - 76%
3.5% (10%) Teaching Video	No one fails 140XP, everyone receives an “IP” grade.
12% (34.3%) Final Team Project	Final grade for both courses is assigned at the completion of Stats 141XP

The remaining 65% of the two-quarter grade is assigned in Statistics 141XP and the specifics will be discussed by the instructor of that course. There is no final examination in Statistics 140XP, the course ends in 10th week (the final coursework with any and all modifications is due no later than the end of finals week). If you score over 100% in Stats 140XP for whatever reason (instructor error, extra credit) the amount over 100% does not carry to 141XP.

## Course Outline (this is subject to change)

<b>Date</b>	<b>Topic (T ; Th)</b>
Week 1 10/1	First Day business; Team Fundamentals, Storytelling
Week 2 10/8	A of Consulting; Résumés and CVs
Week 3 10/15	Plots; Tables
Week 4 10/22	Z of Consulting; 7D Assessment
Week 5 10/29	Review (on Zoom); Midterm 10/31
Week 6 11/5	Data For Discussion; (lecture canceled but create your final team)
Week 7 11/12	EDA; Check Your List Twice
Week 8 11/19	Start Your Posters; Editing/Inverted Pyramid Writing
Week 9 11/26	Team Check-In (Zoom Only); Thanksgiving Holiday (no meeting)
Week 10 12/3	Team Presentations (both days - attendance is recorded and graded)

## Academic Dishonesty

As Bruins, we uphold the UCLA Student Code of Conduct. Academic dishonesty means activities like plagiarism, unauthorized material used on exams, unauthorized collaborations etc. According to Senate Regulation A-306, if an instructor encounters a problem, the instructor must report it to the Dean of Students.

- <https://www.deanofstudents.ucla.edu/Student-Conduct#10690514-student-conduct-code>
- <https://ucla.app.box.com/s/8xqljyrvqhs9343e4rzyvporx9lt8u1g>

## ChatGPT policy

Your instructor's belief is ChatGPT should be used – wisely – as if it were an amazingly clever tutor or friend. But copying and pasting the code of the first example's (below) ChatGPT response is not learning and chances are, you will not remember how to do it if you do not do it regularly. Asking ChatGPT questions in the second way gives your mind the opportunity to develop the skills scaffolding and retain the knowledge long after this course is over.

### ChatGPT Question-Response

#### Question

Please write some code in R that splits a dataset into test and training.

#### Response

To split a dataset into training and test sets in R, you commonly use a function like `createDataPartition` from the `caret` package:

#### Using the caret package

First, install and load the `caret` package if you haven't already:

```
install.packages("caret")
library(caret)
```

Next, use the `createDataPartition` function to create a list of indices for the training set, then use these indices to create the training and test sets:

```
# Load the necessary package
library(caret)
```

```
# Load or import your dataset (replace 'your_dataset' with
your actual dataset)
# data <- read.csv("path/to/your/dataset.csv")
```

## Question

Please teach me on how to write code using base R that splits a dataset into training and test with a 70-30 split - but don't write the code for me, I want to learn how to think it through on my own.

## Response

```
# Create the data partition
set.seed(123) # Set seed for reproducibility
trainIndex <-
createDataPartition(data$your_target_variable, p = .8, list =
FALSE, times = 1)
```

```
# Create training and test datasets
```

```
trainData <- data[ trainIndex,]
testData <- data[-trainIndex,]
```

Replace your\_target\_variable with the name of the column that contains the target variable you're interested in, and replace data with your dataset name.

Absolutely, I'd be glad to guide you on how to approach this!

- 1. Understanding the Data:** - Before you begin, familiarize yourself with the dataset. Use functions like `str()`, `head()`, and `summary()` to understand the structure and contents of your data.
- 2. Setting a Seed:** - To ensure that your results are reproducible, you will want to set a seed using the `set.seed()` function. This function controls the random number generator in R.
- 3. Determining the Number of Rows:** - You need to know the total number of rows in your dataset to create the splits. The `nrow()` function can help you determine this.
- 4. Calculating Split Sizes:** - Next, determine how many rows should go into your training and test sets. You'll want 70% of the data to be in the training set and 30% in the test set. Use arithmetic operations to calculate the respective sizes.
- 5. Creating a Random Sample of Indices:** - To create your training set, you'll need to randomly select 70% of the indices (row numbers) from your dataset. You can use the `sample()` function to do this. Remember to use the total number of rows and the size of the training set as parameters in this function.
- 6. Subsetting the Dataset:** - Once you have a vector of random indices, use it to subset your dataset into two parts: one for training and one for testing. In R, you can subset a data frame using square brackets `[]`. You'll use the vector of random indices to select rows for the training set, and the `-` operator to select the remaining rows for the test set.
- 7. Verifying Your Split:** - After creating your training and test sets, verify that you've split the data correctly. Use the `dim()` function to check the dimensions of each set and ensure the split ratio is approximately 70-30. You can also use the `head()` function to quickly view the top rows of each set and ensure they look correct.

Remember to write your code step by step, verifying each part before moving on to the next, to avoid confusion and ensure accuracy. Once you are confident in your

## Question

## Response

understanding of each step, try to write the code on your own. Good luck!

## COVID-19 health and safety

In compliance with Los Angeles County policies effective January 6 2023, UCLA strongly recommends indoor masking, regardless of vaccination status. Testing is also strongly encouraged. See

- <https://covid-19.ucla.edu/covid-protocols-at-a-glance/>
- <http://publichealth.lacounty.gov/phcommon/public/media/mediapubhpdetail.cfm?prid=4220>

Some of us might feel more comfortable wearing masks and continuing to social distance, for example, during small-group work in class or section. All of our preferences are reasonable, and it is important that we treat each others' preferences with respect and care so that we each feel comfortable and prepared to learn in class. You can find the most current policies on campus requirements on the UCLA COVID-19 resources site <https://covid-19.ucla.edu/>.

## Accessible Education

Students with accessibility issues are welcome and encouraged to seek accommodation. Students needing academic accommodations based on a documented disability should contact the Center for Accessible Education (CAE) at (310)825-1501 or in person at Murphy Hall A255. In order to ensure accommodations, students need to contact CAE within the first two weeks of the term.

## Resources for Students Dealing with Financial Stress

Life is unpredictable and can create financial emergencies. If you find yourself in this situation, please seek assistance:

- Bruin Shelter: <http://www.bruinshelter.org/> Provides a safe, supportive environment for fellow college students experiencing homelessness by fostering a collaborative effort between universities, community-based organizations, and service providers.
- The CPO Food Shelter: <https://basicneeds.ucla.edu/services/cpo-food-closet> Provides free food for any UCLA student who may be experiencing hunger and/or struggling to attain food due to financial hardships.

## Title IX Resources

UCLA prohibits gender discrimination, including sexual harassment, domestic and dating violence, sexual assault, and stalking. If you have experienced sexual harassment or sexual violence, there are a variety of resources to assist you.

- CONFIDENTIAL RESOURCES: You can receive confidential support and advocacy at the CARE Advocacy Office for Sexual and Gender-Based Violence, 1st Floor Wooden Center West, (310) 206-2465. Counseling and Psychological Services (CAPS) also provides confidential counseling to all students and can be reached 24/7 at (310) 825-0768.
- NON-CONFIDENTIAL RESOURCES: You can also report sexual violence or sexual harassment directly to the University's Title IX Coordinator, 2241 Murphy Hall, [titleix@conet.ucla.edu](mailto:titleix@conet.ucla.edu), (310) 206-3417. Reports to law enforcement can be made to UCPD at (310) 825-1491. These offices may be required to pursue an official investigation.

## Plan for the Unexpected

## Question

How will our class meet if we are unable to meet in person?

How will instruction be delivered if we are unable to meet in person?

How often do I need to login to BruinLearn?

How will I turn in my homework if we don't meet in person?

How will I take my exams?

How will I see my Grades?

If I am ill or cannot attend class for some reason, how can I participate in class?

What if I'm experiencing symptoms, tested positive, or have had contact with a person who has tested positive for COVID-19?

What if I'm having personal problems unrelated to illness? Where can I go for help?

## Response

If we are unable to meet on campus for class, there will be an announcement on BruinLearn about how we will be meeting going forward.

In lieu of in-person meetings, we will hold online meetings using Zoom and post a mix of videos on BruinLearn, covering the content. In order to ensure accountability we will embed quizzes within the videos and require participation for credit if you are unable to attend live online.

It is expected that you visit the course site daily. If we experience an emergency or if there is another wave of the pandemic, you are expected to participate in the online activities for as long as we are unable to meet on campus.

Homework and other assignments will be turned in through the assignments link within BruinLearn. Instructions for submission can be found within the assignment.

In an emergency, exams will be delivered through BruinLearn. It is expected that you will not collaborate with others on exams unless it is allowed. Please see the academic integrity section of the syllabus for details about what is considered cheating and the associated consequences.

All official grades are posted on MyUCLA. BruinLearn posted grades are subject to change.

Please contact me directly for more details if you must be absent or have changing situations so that I can understand how we can best help you.

Please stay home and do not return to campus or leave your on-campus residence. Complete a Reporting COVID-19 Diagnosis/Symptom form. The Campus Health Officer will follow up with you for next steps. If applicable, the Campus Health Officer will notify faculty members that the student is prohibited from returning to campus until they are cleared by Health Services. Please review UCLA's COVID-19 protocols <https://covid-19.ucla.edu/ucla-covid-protocols/>.

There are resources listed throughout this document and you are also encouraged to speak, privately, with your professor(s), your TA, or department advisors during your time of difficulty.

## Psychological Health, Well-Being and Resilience

UCLA is renowned for academic excellence, and yet we know that many students feel overwhelmed at times by demands to succeed academically, socially and personally. Our campus community is committed to helping all students thrive, learn to cope with stress, and build resilience. Remember, self-care is a skill that is critical to your long-term success. Here are some of the many resources available at UCLA to support you:

- Counseling and Psychological Services (CAPS): <https://www.counseling.ucla.edu/> Provides counseling and other psychological/mental health services to students. Walk-in hours are Monday-Thursday 8am-4:30pm and Friday 9am-4:30pm in John Wooden Center West. Crisis counseling is also available 24 hours/day at (310) 825-0768.

- Ashe Student Health and Wellness Center: <http://www.studenthealth.ucla.edu> Provides high quality and accessible ambulatory healthcare and education by caring professionals to support the academic success and personal development of all UCLA students.
- Healthy Campus Initiative (HCI): <https://healthy.ucla.edu> Provides links to a wide variety of resources for enhancing physical and psychological well-being, positive social interactions, healthy sleep, healthy eating, healthy physical activity and more.
- Campus and Student Resilience: <https://risecenter.ucla.edu/> Provides programs to promote resilience and trains students to help support their peers.
- UCLA Recreation: <https://www.recreation.ucla.edu/> Offers a broad array of services and programs including fitness, yoga, dance, martial arts, meditation, sports, and much more.
- Equity, Diversity and Inclusion: <https://equity.ucla.edu/> Committed to providing an equal learning, working and living environment at UCLA and supports a range of programs to promote these goals campus-wide.