


# Syllabus

 <p><b>POINT LOMA</b> NAZARENE UNIVERSITY</p>	<p><b>Mathematical, Information and Computer Sciences</b></p> <p><b>CSC3031 Data Visualization and Communication in R</b></p> <p><b>1 Unit</b></p> <p><b>Tuesday: 12:25-1:20 PM RS295</b></p>
<p>Spring 2024</p>	

**Instructor: Maria Zack, Ph.D.**

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**Email: mzack@pointloma.edu**

**Office hours:**

On Zoom - [Click here for appointment \(https://calendar.google.com/calendar/selfsched?sstoken=UUphMmZJc2tIVTFKfGRIZmF1bHR8YTE5OTI3YWQxZDFhZDc4MDExZWQ5ZjU3MDRhNmNkNTI\)](https://calendar.google.com/calendar/selfsched?sstoken=UUphMmZJc2tIVTFKfGRIZmF1bHR8YTE5OTI3YWQxZDFhZDc4MDExZWQ5ZjU3MDRhNmNkNTI)

These are the times that I work to hold open for appointments. If none of them work you can email me to see if we can find another time. Please note that some sessions are Zoom only and are shown with the statement "Zoom only" after the time. The others can be Zoom or In-Person (office RS246).

Monday 10:30-11:30 AM

Tuesday 8:00-9:30 AM and 2:00-3:00 PM

Wednesday By appointment only

Thursday 5:00-6:00 PM (Zoom only)

Friday 11:15 AM - 12:00 PM



## **PLNU Mission**

### **To Teach ~ To Shape ~ To Send**

Point Loma Nazarene University exists to provide higher education in a vital Christian community where minds are engaged and challenged, character is modeled and formed, and service is an expression of faith. Being of Wesleyan heritage, we strive to be a learning community where grace is foundational, truth is pursued, and holiness is a way of life.

## **Department Mission**

The Mathematical, Information, and Computer Sciences department at Point Loma Nazarene University is committed to maintaining a curriculum that provides its students with the tools to be productive, the passion to continue learning, and Christian perspectives to provide a basis for making sound value judgments.

## **COURSE DESCRIPTION**

CSC 3031 Data Visualization and Communication with R (1 Unit)

Students will learn to create effective static and dynamic graphics for representing complex data sets. Students will learn to apply the principles of effective storytelling with data, and best practices in data design and communication.

Prerequisite(s): CSC 1043 or EGR 1043 with a grade of C- or better.

## **COURSE LEARNING OUTCOMES**

- Students will be able to apply their mathematical knowledge to solve problems.
- Students will be able to use technology to solve problems.
- Students will be able to write correct and robust software.
- Students will be able to apply their technical knowledge to solve problems.

## **COURSE GOALS**

- Students will be able to construct a dataset, explore the data using basic numerical and visual summaries.
- Students will be able to identify and implement the correct R tool for data analysis
- Students will be able to find new packages and learn to implement new tools in R using the documentation.



## REQUIRED TEXTS AND RECOMMENDED STUDY RESOURCES

R in Action, 3rd ed. Kabacoff, Robert I. 2015. ISBN: 9781935182399

R from R-project.org

R studio from Rstudio.com

## COURSE CREDIT HOUR INFORMATION

In the interest of providing sufficient time to accomplish the stated Course Learning Outcomes, this class meets the PLNU credit hour policy for a 1 unit class delivered over fifteen weeks. Specific details about how the class meets the credit hour requirement can be provided upon request. (Based on 37.5 hours of student engagement per credit hour.)

## ASSESSMENT AND GRADING

### Graded Components

- **R in the News Discussion:** One of the best ways to learn what can be done in R is to follow R in the media, you may want to subscribe to some community groups in LinkedIn or follow relevant R # in social media. I would suggest finding some that are relevant to your discipline. You should post a short summary of an interesting tool or project you have seen using R. The post should only be about a paragraph long. URLs where you found the original information is helpful. These are shaped as discussions, so you need to post and you should look at and respond to at least one post. These are due on Thursdays at 11:59PM every other week.
- **Homework/Labs:** Learning a programming language requires hands-on experience, so the primary component of your grade will be from weekly labs and homework assignments. The labs will be due at the start of class the week after they are assigned.
- **Final Project:** You will have a final project that you will present either at the last day of class (April 23) or at the final (May 2nd at 1:30). There will be steps for leading up to the project during the semester and the last five weeks will be dedicated to working on the project. The final exam date and time is set by the university at the beginning of the semester and may not be changed by the instructor. This schedule can be found on the university website and in the course calendar. No requests for early examinations will be approved. Only in the case that a student is required to take three exams during the same day of finals week, is an instructor authorized to consider changing the exam date and time for that particular student.
- **No late work will not be accepted** without prior consent or a well-documented emergency.

Point Distribution

Grading Distribution	Percent
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R in the News	10
Homework/Labs	65
Final Project Preparation	5
Final Project	20
Total	100

### Grading Scale

Grades are based on the number of points accumulated throughout the course. Approximate minimal percentages required to obtain a given grade are:

#### Grad Distribution

Standard Grade Scale Based on Percentages					
	A	B	C	D	F
+		87.5- 90	77.5-80	67.5-70	
	92.5 -100	82.5-87.5	72.5-77.5	62.5 -67.5	0-60
-	90-92.5	80-82.5	70-72.5	60-62.5	

### INCOMPLETES AND LATE ASSIGNMENTS

All assignments are to be submitted/turned in by the beginning of the class session when they are due—including assignments posted in Canvas. Incompletes will only be assigned in extremely unusual circumstances.

### CLASS ENROLLMENT



It is the student's responsibility to maintain his/her class schedule. Should the need arise to drop this course (personal emergencies, poor performance, etc.), the student has the responsibility to follow through (provided the drop date meets the stated calendar deadline established by the university), not the instructor. Simply ceasing to attend this course or failing to follow through to arrange for a change of registration (drop/add) may easily result in a grade of F on the official transcript.

## **SPIRITUAL CARE**

Please be aware PLNU strives to be a place where you grow as whole persons. To this end, we provide resources for our students to encounter God and grow in their Christian faith.

If you have questions, a desire to meet with the chaplain or have prayer requests you can contact your professor or the [Office of Spiritual Life and Formation](https://www.pointloma.edu/offices/student-life-formation) (<https://www.pointloma.edu/offices/student-life-formation>).

## **STATE AUTHORIZATION**

State authorization is a formal determination by a state that Point Loma Nazarene University is approved to conduct activities regulated by that state. In certain states outside California, Point Loma Nazarene University is not authorized to enroll online (distance education) students. If a student moves to another state after admission to the program and/or enrollment in an online course, continuation within the program and/or course will depend on whether Point Loma Nazarene University is authorized to offer distance education courses in that state. It is the student's responsibility to notify the institution of any change in his or her physical location. Refer to the map on [State Authorization](https://www.pointloma.edu/offices/office-institutional-effectiveness-research/disclosures) (<https://www.pointloma.edu/offices/office-institutional-effectiveness-research/disclosures>) to view which states allow online (distance education) outside of California.

## **PLNU COPYRIGHT POLICY**

Point Loma Nazarene University, as a non-profit educational institution, is entitled by law to use materials protected by the US Copyright Act for classroom education. Any use of those materials outside the class may violate the law.

## **PLNU ACADEMIC HONESTY POLICY**

Students should demonstrate academic honesty by doing original work and by giving appropriate credit to the ideas of others. Academic dishonesty is the act of presenting information, ideas, and/or concepts as one's own when in reality they are the results of another person's creativity and effort. If a faculty member who believes a situation involving academic dishonesty has been detected may



assign a failing grade for that assignment or examination, or, depending on the seriousness of the offense, for the course. Faculty should follow and students may appeal using the procedure in the university Catalog. See [Academic Policies \(https://pointloma-public.courseleaf.com/tug-catalog/academic-general-policies/\)](https://pointloma-public.courseleaf.com/tug-catalog/academic-general-policies/) for definitions of kinds of academic dishonesty and for further policy information.

## **ARTIFICIAL INTELLIGENCE (AI) POLICY**

Use of Artificial Intelligence (AI) tools (e.g, ChatGPT, iA Writer, Marmot, Botowski) in creating written work for this class is not permitted, and use of these tools will be treated as plagiarism.

## **PLNU ACADEMIC ACCOMMODATIONS POLICY**

PLNU is committed to providing equal opportunity for participation in all its programs, services, and activities. Students with disabilities may request course-related accommodations by contacting the Educational Access Center (EAC), located in the Bond Academic Center ([EAC@pointloma.edu](mailto:EAC@pointloma.edu) (<mailto:EAC@pointloma.edu>) or 619-849-2486). Once a student's eligibility for an accommodation has been determined, the EAC will issue an academic accommodation plan ("AP") to all faculty who teach courses in which the student is enrolled each semester.

PLNU highly recommends that students speak with their professors during the first two weeks of each semester/term about the implementation of their AP in that particular course and/or if they do not wish to utilize some or all of the elements of their AP in that course.

Students who need accommodations for a disability should contact the EAC as early as possible (i.e., ideally before the beginning of the semester) to assure appropriate accommodations can be provided. It is the student's responsibility to make the first contact with the EAC.

## **LANGUAGE AND BELONGING**

Point Loma Nazarene University faculty are committed to helping create a safe and hospitable learning environment for all students. As Christian scholars we are keenly aware of the power of language and believe in treating others with dignity. As such, it is important that our language be equitable, inclusive, and prejudice free. Inclusive/Bias-free language is the standard outlined by all major academic style guides, including MLA, APA, and Chicago, and it is the expected norm in university-level work. Good writing and speaking do not use unsubstantiated or irrelevant generalizations about personal qualities such as age, disability, economic class, ethnicity, marital status, parentage, political or religious beliefs, race, gender, sex, or sexual orientation. Inclusive language also avoids using stereotypes or terminology that demeans persons or groups based on age, disability, class, ethnicity, gender, race, language, or national origin. Respectful use of language



is particularly important when referring to those outside of the religious and lifestyle commitments of those in the PLNU community. By working toward precision and clarity of language, we mark ourselves as serious and respectful scholars, and we model the Christ-like quality of hospitality.

You may report an incident(s) using the [Bias Incident Reporting Form](https://cm.maxient.com/reportingform.php?PointLoma&layout_id=5) ([https://cm.maxient.com/reportingform.php?PointLoma&layout\\_id=5](https://cm.maxient.com/reportingform.php?PointLoma&layout_id=5)).

## **SEXUAL MISCONDUCT AND DISCRIMINATION**

In support of a safe learning environment, if you (or someone you know) have experienced any form of sexual discrimination or misconduct, including sexual assault, dating or domestic violence, or stalking, know that accommodations and resources are available through the Title IX Office at [pointloma.edu/Title-IX](http://pointloma.edu/Title-IX) (<http://pointloma.edu/Title-IX>). Please be aware that under Title IX of the Education Amendments of 1972, faculty and staff are required to disclose information about such misconduct to the Title IX Office.

If you wish to speak to a confidential employee who does not have this reporting responsibility, you can contact Counseling Services at [counselingservices@pointloma.edu](mailto:counselingservices@pointloma.edu) (<mailto:counselingservices@pointloma.edu>) or find a list of campus pastors at [pointloma.edu/title-ix](http://pointloma.edu/title-ix) (<http://pointloma.edu/title-ix>).

## **PLNU ATTENDANCE AND PARTICIPATION POLICY**

Regular and punctual attendance at all class sessions is considered essential to optimum academic achievement. If the student is absent for more than 10 percent of class sessions, the faculty member will issue a written warning of de-enrollment. If the absences exceed 20 percent, the student may be de-enrolled without notice until the university drop date or, after that date, receive the appropriate grade for their work and participation. See [Academic Policies](https://catalog.pointloma.edu/content.php?catoid=52&navoid=2919#Class_Attendance) ([https://catalog.pointloma.edu/content.php?catoid=52&navoid=2919#Class\\_Attendance](https://catalog.pointloma.edu/content.php?catoid=52&navoid=2919#Class_Attendance)) in the Undergraduate Academic Catalog. If absences exceed these limits but are due to university excused health issues, an exception will be granted.

## **USE OF TECHNOLOGY**

In order to be successful in the online or hybrid environment, you'll need to meet the minimum technology and system requirements; please refer to the [Technology and System Requirements](https://help.pointloma.edu/TDClient/1808/Portal/KB/ArticleDet?ID=108349) (<https://help.pointloma.edu/TDClient/1808/Portal/KB/ArticleDet?ID=108349>) information. Additionally, students are required to have headphone speakers, microphone, or webcams compatible with their computer available to use. Please note that any course with online proctored exams require a computer with a camera (tablets are not compatible) to complete exams online.



Problems with technology do not relieve you of the responsibility of participating, turning in your assignments, or completing your class work.

## **LOMA WRITING CENTER**

The Loma Writing Center exists to help all members of the PLNU community cultivate transferable writing skills to engage their academic, professional, personal, and spiritual communities. We work toward this goal by conducting one-on-one consultation sessions, supporting writing education across the PLNU community, and participating in ongoing writing center research.

Getting feedback from the Loma Writing Center while you're in the process of working on an assignment is a great way to improve the quality of your writing and develop as a writer. You are encouraged to talk with a trained writing consultant about getting started on an assignment, organizing your ideas, finding and citing sources, revising, editing for grammar and polishing final drafts, and more. For information about how to make in-person or online appointments, see [Loma Writing Center webpage \(https://www.pointloma.edu/centers-institutes/loma-writing-center\)](https://www.pointloma.edu/centers-institutes/loma-writing-center) or visit the Loma Writer Center on the first floor of the Ryan Library, room 221.





Monday	Tuesday	Wednesday	Thursday	Friday
8-Jan	9-Jan Stats Labs 1 and 2	10-Jan	11-Jan	12-Jan
15-Jan <b>MLK DAY</b>	16-Jan Stats Labs 3 and 4	17-Jan	18-Jan	19-Jan
22-Jan	23-Jan Stats Labs 5 and 6	24-Jan	25-Jan	26-Jan
29-Jan	30-Jan R Book Lab 2	31-Jan	1-Feb	2-Feb
5-Feb	6-Feb R Book Lab 3	7-Feb	8-Feb	9-Feb
12-Feb	13-Feb R Book Lab 4	14-Feb	15-Feb	16-Feb
19-Feb	20-Feb R Book Lab 5	21-Feb	22-Feb	23-Feb
26-Feb	27-Feb R Book Lab 6	28-Feb	29-Feb	1-Mar
4-Mar <b>SPRING BREAK</b>	5-Mar <b>SPRING BREAK</b>	6-Mar <b>SPRING BREAK</b>	5-Mar <b>SPRING BREAK</b>	6-Mar <b>SPRING BREAK</b>
11-Mar	12-Mar R Book Lab 7	13-Mar	14-Mar	15-Mar
18-Mar	19-Mar R Book Lab 8	20-Mar	21-Mar	22-Mar
25-Mar	26-Mar Project Meeting #1	27-Mar	28-Mar <b>EASTER BREAK</b>	29-Mar <b>EASTER BREAK</b>
1-Apr <b>EASTER BREAK</b>	2-Apr Project Meeting #1	3-Apr	4-Apr Project Meeting #1	5-Apr
8-Apr	9-Apr Project Meeting #2	10-Apr	11-Apr Project Meeting #2	12-Apr
15-Apr	16-Apr Project Meeting #2	17-Apr	18-Apr	19-Apr
22-Apr	23-Apr <b>PROJECT PRESENTATIONS (4-5)</b>	24-Apr	25-Apr	26-Apr
29-Apr	30-Apr	1-May	2-May <b>1:30-4:00 PROJECT PRESENTATIONS (9-10)</b> <b>1:30 R CODE DUE</b>	3-May

# Course Summary:

Date	Details	Due
	Assignment <a href="#">FINAL PROJECT: Meeting Sign Ups</a>	due by 12:25pm
Tue Jan 16, 2024	Assignment <a href="#">Week 1: Homework - Lab 1</a>	due by 12:25pm
	Assignment <a href="#">Week 1: Homework - Lab 2</a>	due by 12:25pm
Thu Jan 18, 2024	Discussion Topic <a href="#">Week 1: R in the news</a>	due by 11:59pm
	Assignment <a href="#">Week 2: Homework - Lab 3</a>	due by 12:25pm
Tue Jan 23, 2024	Assignment <a href="#">Week 2: Homework - Lab 4</a>	due by 12:25pm
	Assignment <a href="#">Week 3: Homework- Lab 5</a>	due by 12:25pm
Tue Jan 30, 2024	Assignment <a href="#">Week 3: Homework- Lab 6</a>	due by 12:25pm
Thu Feb 1, 2024	Discussion Topic <a href="#">Week 3: R in the news</a>	due by 11:59pm
Tue Feb 6, 2024	Assignment <a href="#">Week 4: Homework</a>	due by 12:25pm
Tue Feb 13, 2024	Assignment <a href="#">Week 5: Homework</a>	due by 12:25pm
Thu Feb 15, 2024	Discussion Topic <a href="#">Week 5: R in the news</a>	due by 11:59pm

<b>Date</b>	<b>Details</b>	<b>Due</b>
Tue Feb 20, 2024	Assignment <a href="#">Week 6: Homework</a>	due by 12:25pm
Tue Feb 27, 2024	Assignment <a href="#">FINAL PROJECT: Identifying the Question</a>	due by 12:25pm
	Assignment <a href="#">Week 7: Homework</a>	due by 12:25pm
Thu Feb 29, 2024	Discussion Topic <a href="#">Week 7: R in the news</a>	due by 11:59pm
Tue Mar 12, 2024	Assignment <a href="#">Week 8: Homework</a>	due by 12:25pm
Tue Mar 19, 2024	Assignment <a href="#">Week 10: Homework</a>	due by 12:25pm
Thu Mar 21, 2024	Discussion Topic <a href="#">Week 10: R in the news</a>	due by 11:59pm
Mon Mar 25, 2024	Assignment <a href="#">FINAL PROJECT: Getting and Loading the Data</a>	due by 11:59pm
Tue Apr 2, 2024	Assignment <a href="#">Week 11: Homework</a>	due by 12pm
Fri Apr 5, 2024	Assignment <a href="#">Project Check-In Meeting #1</a>	due by 4pm
Mon Apr 8, 2024	Assignment <a href="#">FINAL PROJECT: Questions and Draft Slides</a>	due by 11:59pm
Wed Apr 17, 2024	Assignment <a href="#">Project Check-In Meeting #2</a>	due by 5pm
Thu Apr 18, 2024	Discussion Topic <a href="#">Week 12: R in the news</a>	due by 11:59pm

<b>Date</b>	<b>Details</b>	<b>Due</b>
Tue Apr 23, 2024	Assignment <a href="#">Final Project Slide Deck</a>	due by 12:25pm
Thu May 2, 2024	Assignment <a href="#">Final Project R Code</a>	due by 1:30pm