

# Biology Department BIO 6043, Research Design 3 Units

#### **Fall 2021**

<b>Meeting days:</b> Predominately online, meet in-person selected five Mondays.	Instructor: Lauren Emery, PhD
Meeting times: 6:00-8:00 PM	Email: lemery@pointloma.edu
Meeting location: Main Campus, LA02	<b>Phone:</b> 619-772-5141
<b>Final Exam:</b> Assigned Dec. 13, due Dec. 19, 2021	Office hours: Mondays from 6:00-8:00PM (asynchronous meeting dates), or by appointment.
Link for office hours: https://pointloma.zoom.us/j/99582674701	Office location: Zoom

## 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.

#### **COURSE DESCRIPTION**

This course promotes understanding of both qualitative and quantitative research design in science education with a focus on current trends in the field. The course will promote understanding of both traditional science research as well as science education research, and will also prepare students to design and conduct a pilot study.

#### **COURSE LEARNING OUTCOMES**

By the end of the course, students will be able to...

- Identify the components of quantitative and qualitative methods, similarities and differences, and some of the arguments for the use of each form of research
- Describe mixed methods approaches to research
- Interpret various statistical techniques, including descriptive (mean, median, mode) and inferential (e.g. t-test, correlation) statistics
- Carry out and communicate various types of data analysis (quantitative and qualitative)
- Develop research questions that are based on and build upon a critical appraisal of existing research
- Design a study to address a research problem

#### REQUIRED TEXTS AND RESOURCES

<u>Book:</u> Salkind, N.J. (2012). *Statistics for People Who Think They Hate Statistics: Excel 2010 Edition* [Paperback]. Los Angeles: Sage Publications.

ISBN # 978-1452225234. There are at least 10 editions of this book and **I will use the Excel 2010 version** (around \$20 used on Amazon). This means that my homework assignments will come from this version.

<u>Excel</u>: If you don't have Excel, you can download a free version from here: <a href="https://products.office.com/en-us/student/office-in-education">https://products.office.com/en-us/student/office-in-education</a>

Supplemental articles from other sources will be used as well.

#### **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 3-unit class delivered over 15 weeks. Specific details about how the class meets the credit hour requirement can be provided upon request.

## **SCHEDULE**

The course will include five on-campus meetings during the semester; students are expected to attend all five sessions. During other weeks, students will have assigned readings and will be expected to participate in threaded discussions online. Substantial writing assignments will be due throughout the semester, and a take home final will be due near the last day of the semester. Since this is a 3-unit course, it is expected that students will spend approximately 9 hours each week doing the reading, participating in discussions, and completing assignments.

Assignments and discussion board prompts will be posted each Monday before 6:00PM.

Week	Date	Topic	
1	Aug 30	Introduction to mixed methods research (Meet in-person)	
2	Sept 13	Quantitative methods – Descriptive statistics	
3	Sept 20	Quantitative methods – <i>t-tests</i>	
4	Sept 27	Quantitative methods – ANOVA & chi-square (Meet in-person)	
5	Oct 4	Quantitative methods – Correlation & linear regression	
6	Oct 11	Mix methods revisited	
7	Oct 18	Qualitative methods – Intro to interviews (Meet in-person)	
8	Oct 25	Qualitative methods – Prep for interview protocol	
9	Nov 1	Qualitative methods – Creating an interview protocol	
10	Nov 8	Qualitative methods – Conduct interviews (Meet in-person)	
11	Nov 15	Qualitative methods – Analyzing interview data	
12	Nov 22	Action research & analysis of research papers	
13	Nov 29	Preparation for pilot study – Problem & purpose	
14	Dec 6	Analysis of research papers & Research question (Meet in-person)	
15	Dec 13	Assignment of final exam (due Dec. 19 by midnight)	

<sup>\*</sup>This schedule is subject to change.

#### **Course Grade**

Grades will be determined as follows:

Discussion Board – Meaningful and relevant	A = 90%
comments in online discussions30%	B = 80%
• Writing assignments40%	C = 70%
• Final exam	D = 60% $E = Polony  60%$
Total: 100%	1 - Below 00/0
<ul> <li>Writing assignments</li></ul>	F = Below 60%

#### **Assignment Details**

*Reading materials*. Some of the readings chosen for this course, in addition to the textbook, may be posted on Canvas or you will need to access via the PLNU library website.

Writing assignments. Since this is a graduate class, it is essential that you take responsibility for your own learning. Keep in mind that some of the readings are long, but you are not expected to understand every detail, but rather to identify and understand the main ideas that the author is trying to communicate. You will be writing responses to questions that we hope will stimulate thought about ideas in the articles, or thoughts on how to use the methodologies that you will be learning. It will be helpful to read the questions before you do the reading. The answers will not be found in the paper, but rather will be constructed by you in response to what you read.

I will read your written responses, but will make minimal comments, because the learning occurs in the process of your production of the document. I expect that all written assignments be of graduate-level quality (no typos, no grammatical errors, no sentence fragments, thoughtful development of ideas, etc.). To earn full credit on written assignments, you must answer every part of each question in a well-written answer that demonstrates thought and integration of ideas.

Late assignments. Assignments must be submitted to Canvas by the due date indicated on the assignment. Assignments more than 48 hours late will automatically be scored as a C or lower. If any assignments are missing on the "last date to drop the course", you will be automatically dropped from the course, and you will have to retake it next fall. For this semester, the drop date is Oct. 24, 2021.

#### **Final Exam Policy**

Successful completion of this class requires taking the final examination **on its scheduled day**. No requests for early examinations or alternative days will be approved.

#### **Discussion Board (asynchronous)**

Each Monday, discussion questions on the assigned reading will be posted online. You are expected to post and respond to each prompt according to the following deadlines:

First deadline: Fridays by midnight

Second deadline: Mondays by midnight

For example: Go on the discussion board before Friday at midnight, post a response to each prompt. Before Monday at midnight, respond to at least two of your peers. This should help to ensure that there is healthy, active discussion going on each week. Feel free to respond as frequently as you like, these guidelines are minimum requirements.

The discussions, both online and in person, will focus on the main ideas we are learning each week. I am looking for thoughtful, reflective responses that demonstrate evaluation of ideas. It is essential to the success of the class that each class member contributes valuable content and responds to others students' valuable content frequently. It is important that all participants stay on-topic. This means bringing up personal experience that helps to provide examples, comparisons, etc., but the discussions should not become a forum for "venting" about school districts, state standards, etc.

<u>Discussion Board Scoring:</u> Since I will have limited opportunities to interact in person, the quality of the online discussion is very important. Responses should reflect an understanding of the material, as well as thoughtful consideration of the importance, validity, and value of the content being discussed. Various viewpoints are valued and encouraged. Discussion question responses that you would like me to count toward your grade should be at least 100 words. This policy applies to all three of your required responses per week in the discussion forum (Sunday night response, and two replies to other students). Other shorter comments to

students are welcome for the benefit of your learning and theirs. A rubric for scoring your discussion board participation is below. Each discussion board week is worth 10 points.

**Weekly Online Discussion Rubric** 

	Initial (1 pt)	Emerging (2 pt)	Developed (3 pt)
Promptness and initiative	Posts 1 <sup>st</sup> response late AND responds late to others' posts. Responses are extremely short.	Posts 1st response to prompt(s) on time, OR posts 2nd response to at least two students on time. Minimum of 100 words each time.	Posts 1st response on time AND responds to at least 2 others' posts on time. Exceeds 100 words most of the time.
Relevance of post	Posts responses that slightly relate to the discussion topic; makes short or irrelevant remarks that do not prompt further discussion.	Posts responses that are related to discussion content and connects to reading material; often prompts further discussion.	Posts relevant responses that show <i>integration</i> and <i>application</i> of course material. May pose additional relevant questions.
Mechanics	Posts/responses contain several errors in grammar, spelling, and/or sentence structure that make the posts/responses difficult to read and understand.	Posts/responses contain some errors in grammar, spelling, and sentence structure, but responses are still easy to read and understand.	Posts/responses contain very few, if any, minor errors in grammar, spelling, and sentence structure. Posts/responses are easy to read and understand.
Observation of "netiquette": not using ALL CAPS, slang or potentially inflammatory or		Does not observe 'Netiquette" guidelines <b>0 pts</b>	Observes 'Netiquette' guidelines  1 pt

#### **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 using the below link to view which states allow online (distance education) outside of California. https://www.pointloma.edu/offices/office-institutional-effectiveness-research/disclosures

#### PLNU 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 Graduate students to encounter God and grow in their Christian faith.

If students have questions, a desire to meet with the chaplain or have prayer requests you can contact the <u>Office of Spiritual Development.</u>

#### 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. 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 the <u>Academic Honesty Policy</u> in the Graduate and Professional Studies Catalog for definitions of kinds of academic dishonesty and for further policy information.

#### 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 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.

#### PLNU ATTENDANCE AND PARTICIPATION POLICY

Regular and punctual attendance at all **synchronous** class sessions is considered essential to optimum academic achievement. If the student is absent for more than 10 percent of class sessions (virtual or face-to-face), 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. In some courses, a portion of the credit hour content will be delivered **asynchronously** and attendance will be determined by submitting the assignments by the posted due dates. See <u>Academic Policies</u> in the Graduate and Professional Studies Catalog. If absences exceed these limits but are due to university excused health issues, an exception will be granted.

#### Face-to-face Portion of the Hybrid course

In blended or hybrid courses, if a student misses one face-to-face class then the faculty member will send an email to the student and the Director of Student Success warning of attendance jeopardy. There are no exceptions to this policy.

If a student misses two face-to-face classes, the faculty member or Vice Provost for Academic Administration (VPAA) will initiate the student's de-enrollment from the course without further advanced notice to the student. If the date of de-enrollment is past the last date to withdraw from a class, the student will be assigned a grade of "F" and there will be no refund of tuition for that course.

# Online Portion of the Hybrid Course

If a student misses two online classes (fails to contribute to a discussion board) during the course, then the faculty member will send an email to the student and the Director of Student Success warning of attendance jeopardy. There are no exceptions to this policy.

If a student misses three online classes (fails to contribute to a discussion board by the due date) during the course, then the faculty member or Vice Provost for Academic Administration (VPAA) will initiate the student's de-enrollment from the course without further advanced notice to the student. If the date of de-enrollment is past the last date to withdraw from a class, the student will be assigned a grade of "F" and there will be no refund of tuition for that course.

1 missed F2F class = warning

2 missed F2F classes = de-enrollment

2 missed online classes = warning

3 missed online classes = de-enrollment

Students taking hybrid/blended courses lasting over 14 weeks are expected to attend each week of the course. Attendance is defined as logging into the course each calendar week to check on updates and announcements. In addition, students must participate in the academic graded activities during the calendar week the assignments/activities are due. Students must also attend all scheduled face-to-face meetings. Students who do not attend at least once in any given calendar week will be issued an attendance warning. Students who do not attend at least once in any two consecutive weeks in the online will be dropped from the course retroactive to the last date of recorded attendance.

Students who anticipate being absent for an entire week of a course should contact the instructor in advance for approval and make arrangements to complete the required coursework and/or alternative assignments assigned at the discretion of the instructor.

## **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 <u>Technology and System Requirements</u> 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.

#### PLNU CANVAS & TECH SUPPORT

If you have questions about the content you find in my Canvas course or need clarification on assignment instructions please let me know. If you are unsure how to use any given feature in Canvas you will find the <u>Canvas Guides</u> to be a very helpful resource. If you cannot access something in my Canvas course or it appears that some part of the course is not working properly, please contact the Office of Instructional Technology for support at <u>oit@pointloma.edu</u>. Include specific information in the request (course ID, section, assignment or module name, etc.) to expedite the troubleshooting process. Screenshots are super helpful!

PLNU Technical Support: Contact the Help Desk by emailing <a href="mailto:helpdesk@pointloma.edu">helpdesk@pointloma.edu</a>, calling (619) 849-2222, or dialing extension 2222.