



Course Syllabus

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 Edit

BIO 6011 - Course Schedule (<https://canvas.pointloma.edu/courses/73221/files/7047115?wrap=1>)

- This [table](https://canvas.pointloma.edu/courses/73221/files/7058473?wrap=1) (<https://canvas.pointloma.edu/courses/73221/files/7058473?wrap=1>)  https://canvas.pointloma.edu/courses/73221/files/7058473/download?download_frd=1  displays the weekly topics, assignments, and class meetings for the semester.

DEPARTMENT OF BIOLOGY: BIO 6011 - Learning in Science

3 units

Spring 2024

In-person meeting days/times: FIVE Thursday evenings from 5:30-8:00pm (see below):

- January 11, 2024
- February 1, 2024
- February 29, 2024
- April 4, 2024
- April 25, 2024

Meeting location: Room #201 at the Mission Valley Campus (4007 Camino del Rio S, San Diego, CA 92108). The room is located on the 2nd floor. Turn left when exiting the elevators - and then right when you come to the end of the lobby area.

Final Exam: Take-home exam due Thursday, May 2 by midnight

Instructor title and name:

Dr. Jen Lineback

Phone:

Office: (619) 849-2974

Email:

jenlineback@pointloma.edu

Office location and hours:

TBD at first in-person meeting (and also by appointment via 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 involves discussion and integration of seminal papers in the area of learning theory, with applications in a variety of scientific research, business, and educational settings.

Predominantly online course delivery.

Purpose and Course Learning Outcomes

Learning in Science is intended to provide opportunities for biology graduate students to examine learning theories from a variety of perspectives and explore current trends in educational research. This course is designed for students interested in pursuing all science professions (e.g. health professionals, biotech professionals, college instructors), not just for K-12 educators.

As a Christian university, PLNU approaches this study of God's creation with a sense of reverence and awe that distinguishes this university from others.

COURSE LEARNING OUTCOMES:

- Students will compare and contrast the major learning theories in the field of science education.
- Students will classify both current and seminal papers from top-tier science education journals in terms of their theoretical perspective.
- Students will describe current areas of research in science teaching and learning and identify the theoretical perspectives informing studies in these areas.
- Students will articulate the relevance of learning theory to their own area of study.

Required Texts

Most of the readings for this course are publicly accessible online or are available through our PLNU library databases. The references for and links to these readings will be provided on Canvas each week. Two of our readings, however, are unavailable this way and, instead, have been provided for you through a course reader. This course reader is the only required *textbook* for this course.

- [BIO 6011 – Spring 2024 Course Reader](https://store.cognella.com/25805)  (<https://store.cognella.com/25805>) available through Cognella®

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.

Assessment and Grading

Grades will be determined by:

ARTICLE/BOOK CHAPTER WRITING ASSIGNMENTS (WAs)	20%
DISCUSSION BOARD PARTICIPATION (DBs)	20%
COLLABORATIVE GROUP PROJECT	20%
WRITTEN EXAMS (MIDTERM & FINAL)	40%

ARTICLE/CHAPTER WRITING ASSIGNMENTS (WAs)

Each week, you will have one (or more) writing assignments that will be based upon one or more article or book chapter readings. 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, and I am not expecting that you necessarily understand every detail in the paper, but rather to determine the main ideas that the author is trying to communicate. You will be writing responses to questions that I hope will stimulate thought about ideas in the articles and will encourage you to reflection upon how this new information relates to your prior knowledge. It will be helpful to read the questions before you read the papers. The answers will not be found in the paper, but rather will be constructed by you in response to what you read.

While I will likely make a few comments on your paper, please understand that the majority of your 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.

ONLINE DISCUSSION BOARDS (DBs)

For most weeks, you will have one discussion board in which to participate. The DB assignments will always be posted on Canvas. You are expected to post and respond to each prompt according to the deadlines provided for that week. For example, for a week where the first post is by Thursday and the second is Sunday:



- Do your reading for the week prior to **Thursday**. Go on the discussion board before **Thursday** at midnight and post a response to each prompt.
- Before **Sunday** at midnight, respond to at least two of your fellow students' comments. 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.

Since we 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 the grade for this course should be at least 100 words but less than 350 words. This policy applies to all three of your required responses per week (one initial post, two peer responses) in the discussion forum. Shorter comments to other students are welcome for the benefit of your learning and theirs. A rubric for scoring your discussion board participation is available on Canvas and is based upon the following four dimensions: (1) promptness and initiative, relevance, mechanics, appropriate *netiquette* (no inappropriate or inflammatory content, respectful interactions, etc.).

The discussions, both online and in person, will focus on the main ideas in the papers as they relate to your own teaching practice. 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."

EXAMS

You will have one midterm and one final exam. These take-home exams will consist of several prompts that require you to synthesize information across multiple readings and to connect your new understandings with your prior experiences.

At the end of the semester, a letter grade for the course will be based on the following scale:

A	A-	B+	B	B-	C+	C	C-	D	F
93-100%	90-92%	87-89%	83-86%	80-82%	77-79%	73-76%	70-72%	60-69%	Below 59%

Content Warning



I acknowledge that each of you comes to PLNU with your own unique life experiences. This contributes to the way you perceive various types of information. In BIO 6011 - Learning in Science, all of the class content, including that which may be intellectually or emotionally challenging, has been intentionally curated to achieve the learning goals for this course. The decision to include such material is not taken lightly. These topics include reflecting upon your own learning and past educational history. If you encounter a topic that is intellectually challenging for you, it can manifest in feelings of discomfort and upset. In response, I encourage you to come talk to me or your friends or family about it. Class topics are discussed for the sole purpose of expanding your intellectual engagement in the area of Biology and other STEM subjects, and I will support you throughout your learning in this course.

Trigger Warning

I acknowledge that each of you comes to PLNU with your own unique life experiences. This contributes to the way you perceive several types of information. In BIO 6011, we will cover a variety of topics, some of which you may find triggering. These topics include reflecting upon your own learning and past educational history. Each time this topic appears in a reading or unit, it may be marked on the syllabus.

The experience of being triggered versus intellectually challenged are different. The main difference is that an individual must have experienced trauma to experience being triggered, whereas an intellectual challenge has nothing to do with trauma. If you are a trauma survivor and encounter a topic in this class that is triggering for you, you may feel overwhelmed or panicked and find it difficult to concentrate. In response, I encourage you to take the necessary steps for your emotional safety. This may include leaving class while the topic is discussed or talking to a therapist at the Counseling Center. Should you choose to sit out on discussion of a certain topic, know that you are still responsible for the material; but we can discuss if there are other methods for accessing that material and for assessing your learning on that material. Class topics are discussed for the sole purpose of expanding your intellectual engagement in the area of biology, and I will support you throughout your learning in this course.

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. Assignments more than 48 hours late will automatically be scored as a C or lower.

Incompletes will only be assigned in extremely unusual circumstances.

PLNU Spiritual Care

Mission Valley:

PLNU strives to be a place where you grow as a whole person. To this end, we provide resources for our Graduate students to encounter God and grow in their Christian faith. At the Mission Valley (MV) campus



we have an onsite chaplain who is available during class break times across the week. If you have questions for, a desire to meet or share any prayer requests with the onsite chaplain, you may email them at mcvhaplain@pointloma.edu.

In addition, on the MV campus there is a prayer chapel on the third floor. It is open for use as a space set apart for quiet reflection and prayer.

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 [Graduate Academic and General Policies](https://pointloma-public.courseleaf.com/grad-catalog/academic-general-policies/#text) [\(https://pointloma-public.courseleaf.com/grad-catalog/academic-general-policies/#text\)](https://pointloma-public.courseleaf.com/grad-catalog/academic-general-policies/#text) 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) 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>) 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 want 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://docs.google.com/forms/d/e/1FAIpQLSdhFae3GVngMvffg9m6AIPfJWr-4URhv9FeM9FShr9-aaK1_Q/viewform)  (https://docs.google.com/forms/d/e/1FAIpQLSdhFae3GVngMvffg9m6AIPfJWr-4URhv9FeM9FShr9-aaK1_Q/viewform).

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>). 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>) or find a list of campus pastors at 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. Therefore, regular attendance and participation in each course are minimal requirements.



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 withdrawal date or, after that date, receive an “F” grade.

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. Acceptance of late work is at the discretion of the instructor and does not waive attendance requirements.

Refer to [Academic Policies](https://pointloma-public.courseleaf.com/grad-catalog/academic-general-policies/)  (<https://pointloma-public.courseleaf.com/grad-catalog/academic-general-policies/>) for additional detail.

- NOTE: As a hybrid course, there are both in-person and asynchronous (online) expectations of your class participation.

Synchronous Attendance/Participation Definition

For synchronous courses that have specific scheduled meeting times (including in-person, **hybrid**, and synchronous online courses), absences are counted from the first official meeting of the class regardless of the date of the student’s enrollment. For courses with specific attendance requirements, those requirements are outlined in the course syllabus.

Online Asynchronous Attendance/Participation Definition

Students taking online courses with no specific scheduled meeting times are expected to actively engage throughout each week of the course. Attendance is defined as participating in an academic activity within the online classroom which includes, but is not limited to:

- Engaging in an online discussion
- Submitting an assignment
- Taking an exam
- Participating in online labs
- Initiating contact with faculty member within the learning management system to discuss course content

Note: Logging into the course does not qualify as participation and will not be counted as meeting the attendance requirement.

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 the





computer available to use. Please note that any course with online proctored exams requires 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.

GPS Academic Resources

PLNU offers the following free academic resources virtually for Graduate Professional Studies (GPS) Students. Visit myPLNU through the links below for more information.

- **[The GPS Writing Center \(https://my.pointloma.edu/pages/writing-center-gps\)](https://my.pointloma.edu/pages/writing-center-gps) offers:**
 - **Zoom Writers Workshops** offered each quad on a variety of helpful topics
 - **One-to-one appointments** with the Writing Coach
 - **Microlearning YouTube Video Library** for helpful tips anytime
- **[Research Help Guide \(https://my.pointloma.edu/pages/research-help\)](https://my.pointloma.edu/pages/research-help)** to help you start your research
 - The physical office is located on the third floor of the **[Mission Valley Regional Center](https://maps.app.goo.gl/CRXui8PJUnSkvokC9)**  [\(https://maps.app.goo.gl/CRXui8PJUnSkvokC9\)](https://maps.app.goo.gl/CRXui8PJUnSkvokC9) off the student lounge
- **[Academic Writing Resources Course \(https://canvas.pointloma.edu/courses/64301\)](https://canvas.pointloma.edu/courses/64301)**: Found on your Canvas Dashboard, this course is non-credit with 24/7 access, no time limits, and self-paced content. **[Watch a quick video run-through](https://youtu.be/JB8MmVPznFI)**  [\(https://youtu.be/JB8MmVPznFI\)](https://youtu.be/JB8MmVPznFI)



[\(https://youtu.be/JB8MmVPznFI\)](https://youtu.be/JB8MmVPznFI)

and take time now to explore!

- **[Tutoring \(https://my.pointloma.edu/pages/tutoring-gps\)](https://my.pointloma.edu/pages/tutoring-gps)**: Students have access to 24/7 live or scheduled subject tutoring through Tutor.com, including a Paper Drop-Off Service with feedback within 12 hours.







We are here to support you! Contact us anytime: GPSWritingCenter@pointloma.edu (<mailto:GPSWritingCenter@pointloma.edu>)

Assignments At-A-Glance











The course summary below lists our assignments and their due dates. Click on any assignment to review it.

Course Summary:










Date	Details	Due
Tue Jan 9, 2024	 WA #1A - Personal Learning Philosophy https://canvas.pointloma.edu/courses/73221/assignments/996451	due by 11:59pm
Wed Jan 10, 2024	 DB #1 - YOUR learning theory https://canvas.pointloma.edu/courses/73221/assignments/996441	due by 11:59pm
Thu Jan 11, 2024	 BIO 6011 - Week 1 https://canvas.pointloma.edu/calendar?event_id=150570&include_contexts=course_73221	5:30pm to 8pm
Sun Jan 14, 2024	 WA #1B - Response to Bransford et al. (1999) chapter https://canvas.pointloma.edu/courses/73221/assignments/996452	due by 11:59pm
Thu Jan 18, 2024	 DB#2 - Piaget's concept of equilibration https://canvas.pointloma.edu/courses/73221/assignments/996442	due by 11:59pm
Sun Jan 21, 2024	 WA #2 - Behaviorism vs. Constructivism https://canvas.pointloma.edu/courses/73221/assignments/996453	due by 11:59pm
Thu Jan 25, 2024	 DB #3 - What's new in constructivism? https://canvas.pointloma.edu/courses/73221/assignments/996443	due by 11:59pm
Sun Jan 28, 2024	 WA #3 - Neo-Piagetian constructivism https://canvas.pointloma.edu/courses/73221/assignments/996454	due by 11:59pm
Thu Feb 1, 2024	 BIO 6011 - Meeting https://canvas.pointloma.edu/calendar?event_id=150943&include_contexts=course_73221	5:30pm to 8pm



Date	Details	Due
Sun Feb 4, 2024	 WA #4 - "Mis-conceptions" as useful tools https://canvas.pointloma.edu/courses/73221/assignments/996455 	due by 11:59pm
Sun Feb 11, 2024	 WA #5 - What is Situated Cognition? https://canvas.pointloma.edu/courses/73221/assignments/996456 	due by 11:59pm
Thu Feb 15, 2024	 DB #6 - Comparing Piaget and Vygotsky https://canvas.pointloma.edu/courses/73221/assignments/996444 	due by 11:59pm
Sun Feb 18, 2024	 WA #6 - Considering Social-cultural Theory https://canvas.pointloma.edu/courses/73221/assignments/996457 	due by 11:59pm
Sun Feb 25, 2024	 WA #7 - Choosing a theory https://canvas.pointloma.edu/courses/73221/assignments/996458 	due by 5:30pm
Thu Feb 29, 2024	 BIO 6011 Meeting https://canvas.pointloma.edu/calendar?event_id=150944&include_contexts=course_73221	5:30pm to 8pm
Sun Mar 10, 2024	 Midterm Assignment https://canvas.pointloma.edu/courses/73221/assignments/996446 	due by 11:59pm
Thu Mar 14, 2024	 DB #9 - The concept of self-efficacy https://canvas.pointloma.edu/courses/73221/assignments/996437 	due by 11:59pm
Sun Mar 17, 2024	 WA #9 - Adult Learning Theories https://canvas.pointloma.edu/courses/73221/assignments/996449 	due by 11:59pm



Date	Details	Due
Sun Mar 24, 2024	 WA #10 - Adult Learning (continued) https://canvas.pointloma.edu/courses/73221/assignments/996450	due by 11:59pm
Thu Apr 4, 2024	 BIO 6011 Meeting https://canvas.pointloma.edu/calendar?event_id=150946&include_contexts=course_73221	5:30pm to 8pm
Sun Apr 14, 2024	 Project Update #1 https://canvas.pointloma.edu/courses/73221/assignments/996447	due by 11:59pm
Sun Apr 21, 2024	 Project Update #2 https://canvas.pointloma.edu/courses/73221/assignments/996448	due by 11:59pm
Wed Apr 24, 2024	 Project submission https://canvas.pointloma.edu/courses/73221/assignments/1000133	due by 8pm
Thu Apr 25, 2024	 BIO 6011 Meeting https://canvas.pointloma.edu/calendar?event_id=150945&include_contexts=course_73221	5:30pm to 11:59pm
Thu May 2, 2024	 BIO 6011 - Final Exam https://canvas.pointloma.edu/courses/73221/assignments/996445	due by 11:59pm

