
BI/BB 317

SCIENTIFIC THEORY AND PRACTICE

2020 FALL

CLASSROOM PHILOSOPHY

I am committed to the principle of universal learning. This means that our classroom, our virtual spaces, our practices, and our interactions be as inclusive as possible. Mutual respect, civility, and the ability to listen and observe others carefully are crucial to universal learning. Active, thoughtful, and respectful participation in all aspects of the course will make our time together as productive and engaging as possible.

If you have a particular need (whether that be COVID related, fire related, or any other 2020 mayhem), please arrange a meeting with me so I can best help you learn in this course. I will treat as private and confidential any information that you share.

INSTRUCTOR AND COURSE DETAILS

LECTURES/DISCUSSION: Zoom link is on our Canvas site

CREDIT HOURS: 3

INSTRUCTOR: Dr. Lauren Dalton (Dept. of Biochemistry and Biophysics)

E-MAIL: lauren.dalton@oregonstate.edu

OFFICE HOURS: Zoom (see Canvas for link) Wed 1:00 - 2:00 or by appointment

COMMUNICATION: I will reply to course-related questions within 24 hours except weekends and holidays.

COURSE DESCRIPTION

This course teaches students the practice of biological science. Topics cover scientific theory, communications, ethics and critical evaluation and satisfies the Baccalaureate Core WIC requirement for majors in BB and BI.

In this course, you will have opportunities for professional development including career and financial planning and will learn the nuts and bolts of generating scientific work, science ethics, how to read/analyze scientific work and communicate science to a wide variety of audiences. In this Writing Intensive Curriculum (WIC) course, you will have numerous writing opportunities and assignments during the term.

COURSE FORMAT

BI/BB 317 is primarily a discussion-based course. The class will focus on practicing skills and exploring topics, not on lecture. It will require you to develop and articulate your own ideas and interpretations on topics explored in the class. I will sometimes assign readings which must be read before coming to class and may require a short, written assignment for the reading. Using the readings and your own analysis of the topic, we will have class discussion on the topic. Longer writing assignments will be used to culminate a unit.

COURSE LEARNING GOALS

1. Appropriately assess and select sources based on their trustworthiness and use the information to provide a nuanced view of a scientific topic.
2. Analyze a scientific paper and articulate, to a general scientific audience, the major scientific questions and how they are addressed experimentally.

3. Using multiple methods, articulate the process of science and experimental findings of a paper to a lay audience.
4. Explore the unspoken rules that govern science and how this maintains the integrity of scientific findings.
5. Reflect on your personal strengths and use this reflection to develop a 10-year career plan.
6. Actively participate in a learning community.

The outcomes below fall under the WIC requirements of the Baccalaureate Core Curriculum

7. Develop and articulate content knowledge and critical thinking in the discipline through frequent practice of informal and formal writing
8. Demonstrate knowledge/understanding of audience expectations, genres, and conventions appropriate to communicating in the discipline
9. Demonstrate the ability to compose a document of at least 2000 words through multiple aspects of writing, including brainstorming, drafting, using sources appropriately, and revising comprehensively after receiving feedback on a draft.

COURSE SCHEDULE OF TOPICS

The schedule we will use will follow the progression listed below

- The investigative approach/the nature of science
- How to find and assess trustworthy sources
- Reading and analyzing a scientific paper
- Science communication: Communicating with other scientists
- Science communication: Communicating with a lay audience
- Ethics/Intellectual Property/Standards and Practices

COURSE MATERIALS

COURSE WEBSITE

You will link to the course via Canvas, where you will join Zoom meetings to interact with your classmates and with your instructor. Within the course Canvas site, you will access additional learning materials, such as the syllabus, class discussions, assignments, projects, and readings.

EVALUATION OF STUDENT PERFORMANCE

The course grade is based upon the following. Each component is described below.

• Class Professionalism	10%
• Informal Writing Assignments	15%
• Formal Writing Assignments (4)	50%
• Research Ethics Training	5%
• Final Paper	20%
Total	100%

LETTER GRADE

Grade	Percent Range
A	93-100
A-	90-92
B+	87-89
B	83-86

Grade	Percent Range
B-	80-82
C+	77-79
C	73-76
C-	70-72

Grade	Percent Range
D+	67-69
D	63-66
D-	60-62
F	<60

PROFESSIONALISM (ATTENDANCE, PREPAREDNESS)

One of the aims of this class is to prepare you for your chosen career, so you will be assessed on your ability to act in a professional manner during class activities. This includes, but is not limited to, being punctual and prepared for class. Attendance will be taken at each class period. Preparedness will be evaluated primarily by the nature of your contributions to the class discussion. In addition, I may require you to prepare materials for class (e.g. summaries of readings) which will also be assessed for completeness and contribute to this overall score.

SEMINAR WRITING ASSIGNMENTS

Scientists often communicate their scientific findings through a research seminar. The expertise of the audience often varies from a completely non-expert audience, to a very narrow topical subgroup at a conference, to a more general seminar hosted by a university department. To gain experience with this type of science communication, you will attend 4 over the course of the term and write a reflection about how the science was communicated.

INFORMAL WRITING PROMPTS

In addition to becoming scientists, you are also informed citizens and denizens of our planet. One of the values of a college education is to learn how to learn and a great way to do this is via reflection. An added benefit is that this technique can help you overcome writer's block and "blank-page phobia," making you a more productive writer. This is a free-response assignment to answer 1 prompt each week, in any order (10 total). There are 17 total prompts, which means 7 will require no response. There are no right answers; the prompts are only to stimulate thought. These will be due on Canvas every Friday for 5 points. These assignments assess learning outcome 7, part of the WIC-specific requirements.

FORMAL WRITING ASSIGNMENTS

These assignments will be posted on a regular basis, 4 in total throughout the term. You will be provided with detailed and explicit instructions for each assignment. Each of these will be turned in on Canvas.

One of the expectations of a Writing Intensive Course (WIC) is that students learn to improve their writing skills by revisiting their work based on feedback from instructors and/or peers. Thus, you are required to write a draft of a personal statement as one of your formal writing assignments. This will then be peer reviewed, revised, and submitted to me. Finally, you will revise again before you submit it with your final paper.

You also may choose to resubmit one other formal writing assignments, which will then be regraded. These will be due one week after the initial work has been returned and will be graded based on the quality of the work (e.g. scientific thinking, clarity, accuracy, readability, completeness) and how the instructor's feedback is

incorporated into the revised work. These assignments assess learning outcome 8, part of the WIC-specific requirements.

FINAL TERM PAPER

Instead of a final exam, you will have a take-home paper to write. I will post the instructions for the final paper at the beginning of the term. You may consult with me anytime thereafter about the paper ***until 1 week prior to the due date***. I will gladly look over section drafts and give you feedback.

This assignment assesses learning outcome 9, part of the WIC-specific requirements.

POLICY FOR WRITING HELP

HELP WITH WRITING SKILLS, SYNTAX, GRAMMAR, ETC.

Do you need help with the basics of your writing? Contact the **Undergrad Research & Writing Studio**. Studio consultants are able to give support on everything from research papers and lab write-ups to resumes and digital media projects. You'll receive feedback and step-by-step strategies to help you overcome writer's block and develop your skills as a writer and a scholar. In addition, they also offer specialized support for English Language Learners through individual consultations with the English Language Learning Coordinator. Come visit online at writingcenter.oregonstate.edu/undergrad-writing-studio.

HELP WITH WHETHER YOU ARE MEETING THE ASSIGNMENT GOALS

Connect with me during office hours or by appointment and we'll evaluate your progress together. You can email me documents to evaluate with the expectation that we will discuss them over Zoom/phone.

ADDITIONAL COURSE POLICIES

LATE WORK

Late work incurs a 10% penalty per day and will not be accepted more than 5 days late.

INCOMPLETES

Incomplete (I) grades will be granted only in emergency cases (usually only for a death in the family, major illness or injury, or birth of your child), and if the student has turned in at least half of the coursework and has a passing grade at the time of the request. If you are having any difficulty that might prevent you completing the coursework, please don't wait until the end of the term; let me know right away.

STATEMENT REGARDING STUDENTS WITH DISABILITIES

Accommodations for students with disabilities are determined and approved by Disability Access Services (DAS). If you, as a student, believe you are eligible for accommodations but have not obtained approval please contact DAS immediately at 541-737-4098 or at <http://ds.oregonstate.edu>. DAS notifies students and faculty members of approved academic accommodations and coordinates implementation of those accommodations. While not required, students and faculty members are encouraged to discuss details of the implementation of individual accommodations.

EXPECTATIONS FOR STUDENT CONDUCT IN THE CLASSROOM

Student conduct is governed by the university's policies, as explained in the **Office of Student Conduct: Information and Regulations** (<http://studentlife.oregonstate.edu/code>).

Students are expected to conduct themselves in the course (e.g., on discussion boards, email, in-class) in compliance with the university's regulations regarding civility. Civility is an essential ingredient for academic discourse. All communications for this course should be conducted constructively, civilly, and respectfully. Differences in beliefs, opinions, and approaches are to be expected. In all you say and do for this course, be professional. Please bring any communications you believe to be in violation of this class policy to the attention of your instructor.

Active interaction with peers and your instructor is essential to success in this course, paying particular attention to the following:

- Unless indicated otherwise, please complete the readings and view other instructional materials for each week before participating in the discussion board.
- Read your posts carefully before submitting them.
- Be respectful of others and their opinions, valuing diversity in backgrounds, abilities, and experiences.
- Challenging the ideas held by others is an integral aspect of critical thinking and the academic process. Please word your responses carefully, and recognize that others are expected to challenge your ideas. A positive atmosphere of healthy debate is encouraged.

ACADEMIC INTEGRITY

Students are expected to comply with all regulations pertaining to academic honesty. For further information, visit [Avoiding Academic Dishonesty](#), or contact the office of Student Conduct and Mediation at 541-737-3656.

OAR 576-015-0020 (2) Academic or Scholarly Dishonesty:

a) Academic or Scholarly Dishonesty is defined as an act of deception in which a Student seeks to claim credit for the work or effort of another person, or uses unauthorized materials or fabricated information in any academic work or research, either through the Student's own efforts or the efforts of another.

b) It includes:

- (i) CHEATING - use or attempted use of unauthorized materials, information or study aids, or an act of deceit by which a Student attempts to misrepresent mastery of academic effort or information. This includes but is not limited to unauthorized copying or collaboration on a test or assignment, using prohibited materials and texts, any misuse of an electronic device, or using any deceptive means to gain academic credit.
- (ii) FABRICATION - falsification or invention of any information including but not limited to falsifying research, inventing or exaggerating data, or listing incorrect or fictitious references.
- (iii) ASSISTING - helping another commit an act of academic dishonesty. This includes but is not limited to paying or bribing someone to acquire a test or assignment, changing someone's grades or academic records, taking a test/doing an assignment for someone else by any means, including misuse of an electronic device. It is a violation of Oregon state law to create and offer to sell part or all of an educational assignment to another person (ORS 165.114).
- (iv) TAMPERING - altering or interfering with evaluation instruments or documents.
- (v) PLAGIARISM - representing the words or ideas of another person or presenting someone else's words, ideas, artistry or data as one's own, or using one's own previously submitted work. Plagiarism includes but is not limited to copying another person's work (including unpublished material) without

appropriate referencing, presenting someone else's opinions and theories as one's own, or working jointly on a project and then submitting it as one's own.

c) Academic Dishonesty cases are handled initially by the academic units, following the process outlined in the University's Academic Dishonesty Report Form, and will also be referred to SCCS for action under these rules.

OSU STUDENT EVALUATION OF TEACHING

Course evaluation results are extremely important and are used to help me improve this course and the learning experience of future students. Results from the multiple choice questions are tabulated anonymously and go directly to instructors and department heads. Student comments on the open-ended questions are compiled and confidentially forwarded to each instructor, per OSU procedures. The online Student Evaluation of Teaching form will be available toward the end of each term, and you will be sent instructions via ONID by the Office of Academic Programs, Assessment, and Accreditation. You will log in to "Student Online Services" to respond to the online questionnaire. The results on the form are anonymous and are not tabulated until after grades are posted.

Reach Out for Success: University students encounter setbacks from time to time. If you encounter difficulties and need assistance, it's important to reach out. Consider discussing the situation with an instructor or academic advisor. Learn about resources that assist with wellness and academic success at oregonstate.edu/ReachOut. If you are in immediate crisis, please contact the Crisis Text Line by texting OREGON to 741-741 or call the National Suicide Prevention Lifeline at 1-800-273-TALK (8255)