

**Instructors**

We are excited for a great term! The best way to contact us is to come to our office hours or shoot us an e-mail.

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**Course Description**

*Biology Inquiry* is an introduction to potential career paths, an overview of current faculty research in the Biology Department, and a practicum for critical reading, writing, and professional development in science. This course will help you develop answers to question such as: Why are you pursuing a degree in biology? What can you do with your passion in biology?

**Course Details**

- Mondays/Wednesdays 2:00pm-3:20pm, 3 credits
- Prerequisites: Completion of BI 211, BI 212, BI 213 Principles of Biology series
- Structure: each week will contain two components (Featured Labs and Skill-Building), with the exception of 2 weeks dedicated to deliberative democracy pedagogy discourse.

**Reading Material**

*Writing Science* by Josh Schimel

All other required reading and resources will be provided on D2L.

**There are three overarching aims for this course**

1. Building strong writing and communication skills
2. Refining passion, direction, and presentation
3. Learning about the PSU Biology department and careers in science

<b>Aim #1: Writing &amp; Communication</b>		
<i>Learning Goal</i>	<i>Learning Outcome</i>	<i>Activities</i>
Read scientific publications for content and understanding	Identify hypothesis, experimental design & controls, interpret results	<ul style="list-style-type: none"> <li>• Article write-ups</li> <li>• DDP advisory statement</li> <li>• Peer review</li> </ul>
Write clearly, concisely, and on topic	Write about scientific content and ideas	
<b>Aim #2: Refine Passion, Direction, &amp; Presentation</b>		
<i>Learning Goal</i>	<i>Learning Outcome</i>	<i>Activities</i>
Clearly communicate your passion	Identify [an aspect of science] that you are passionate about	<ul style="list-style-type: none"> <li>• Individual development plan</li> <li>• Personal statement</li> <li>• Self-awareness and communication activities</li> </ul>
Develop a professional and intentional presentation	Self-assess level of professionalism and develop skills to come across in the manner desired	
<b>Aim #3: PSU Biology Department and Careers in Science</b>		
<i>Learning Goal</i>	<i>Learning Outcome</i>	<i>Activities</i>
Knowledge of faculty and on-going research in the PSU Biology Department	Recognize faculty and labs, identify their areas of study and/or model organism	<ul style="list-style-type: none"> <li>• Mentor request</li> <li>• Cover letter</li> <li>• PSU Biology research web</li> <li>• Practice interview</li> </ul>
Overview and awareness of career options	Identify personally interesting career paths	

## Course webpage

We will use the PSU online resource “D2L” for posting journal articles, notes, announcements, grades, and other course materials. Log in at <https://d2l.pdx.edu>. Check D2L regularly!

## Grading Breakdown

Primary article reports: 30%

Skill building homework: 20%

DDP activities: 30%

Final assignments: 20%

## Classroom Participation

If you are unable to make it to class for any reason, that day’s in-class activity score will be dropped as your lowest score. Missed in-class work cannot be made up. You must be physically present to receive points for in-class work.

## Online quizzes/activities

Throughout the course there will be online quizzes that are to be taken through D2L. These quizzes must be completed by the announced due date and time to get the points. There will be no make-up quizzes/activities. We will announce these in class and on D2L.

## Assignments

### Featured Lab Article Reports (150 points total)

**Primary Article Report:** A typed report on the assigned primary research article in 100-200 words. Include a formal citation using APA/MLA format. Graded based on *writing and content*. Include:

- i) Briefly summarize using common abstract structure- introduce topic, say what was not known previously, what this study did to fix that, what they found, and why it matters.
- ii) 3 discussion questions

**Group Consensus Question, Hypothesis, and Experimental Design:** After discussing the paper as a group, come up with a follow-up research question, testable hypothesis, and experimental design.

### Skill Building Homework (100 points total)

Weekly homework will be due at the beginning of class and based on the topic introduced the week prior. See schedule for more details.

### Deliberative Democracy (150 points total)

Remember when labelling GMOs or adding fluoride to the water was on our ballot and all of a sudden many of your friends and family were asking *you*, as a student in biology classes, what you think? By learning about biology you are more able to respond to the challenges our world faces, but with this ability to respond you now have a responsibility to use your science background to think through creative solutions. We will walk you through this process. Two weeks will be spent on this activity. There will be in-class components, D2L quizzes, and homework assignments.

### Final Assignments (100 points)

#### Part 1) Personal Statement

Formatted for NSF Graduate Research Fellowship

Tells an interesting story

Writing content, structure, and flow

Not a chronology of your life

**Part 2) Self-reflective essay about class, due at **DATE/TIME of final on D2L.****

## **Grading Policy**

Grades will be assigned according to the percentage of possible points earned. As a rough guide, the highest cumulative score can be thought of as 100%. If you earn at least 90% you will receive an A or higher; if you earn at least 80% you will receive a B- or higher; if you earn at least 70% you will receive a C- or higher; if you earn at least 60% you will receive a D- or higher. PSU's policy on the temporary grade of Incomplete ("I") is strictly adhered to in this course. Please note, you must be passing the course (with a C- or better) in order to be eligible for an "I" grade. See the PSU Bulletin for more information: <http://www.pdx.edu/oa/psu-bulletin>.

## **Disability**

PSU values diversity and inclusion; we are committed to fostering mutual respect and full participation for all students. Our goal is to create a learning environment that is equitable, useable, inclusive, and welcoming. If any aspects of instruction or course design result in barriers to your inclusion or learning, please notify us. The Disability Resource Center (DRC) provides reasonable accommodations for students who encounter barriers in the learning environment. Accommodations are collaborative efforts between students, faculty and the DRC. Students with accommodations approved through the DRC are responsible for contacting the faculty member in charge of the course prior to or during the first week of the term, or after they receive approval, to discuss accommodations.

If you have, or think you may have, a disability that may affect your work in this class and feel you need accommodations, contact the DRC to schedule an appointment and initiate a conversation about reasonable accommodations. The DRC is located in Smith Memorial Student Union room 116, 503-725-4150, [drc@pdx.edu](mailto:drc@pdx.edu), <https://www.pdx.edu/drc>.

## **Academic Honesty**

Cheating or plagiarism of any kind will not be tolerated. See the PSU Code of Conduct: <http://www.pdx.edu/dos/codeofconduct>. If cheating is observed, the grade for the assignment will be a "0", and cannot be made up. The student will be reported to University officials as described in the Code (577-031-0142: Procedures for Complaints of Academic Dishonesty).

## **Academic Courtesy**

Respect the rights of fellow students during the class period. Please avoid talking and other distracting behavior, and turn phones off. When contacting your instructors by email, be sure to include the essentials of polite written communication: a greeting/salutation of some sort, enough background information to make your request or comment easily understood, a sign-off that includes your name as you wish to be addressed, and correct punctuation, spelling, and grammar. A polite message is much more likely to receive a speedy response.

## **Facilities**

Everyone is expected to help maintain the appearance of the classroom. After class, all trash should be removed and discarded appropriately, and lab benches should be left clean and organized.

## **Safe Campus Module**

Portland State University is committed to creating a safe campus for all students, and as part of this you are required to complete the Safe Campus Module in D2L. Log in to D2L, and under "My Courses," you'll

find a sub-tab titled "Ongoing." Under the "Ongoing" sub-tab, you will see a course titled "Creating a Safe Campus." Click on this course and follow the prompts to complete the module.

### **Emergency Information**

PSU 24 hour Campus Safety: emergency 503-725-4404, non-emergency 503-725-4407

### **Other PSU Resources**

Student Health and Counseling: 503-725-2800, <https://www.pdx.edu/shac/>

Women's Resource Center: 503-725-5672, <http://www.pdx.edu/wrc/>

Global Diversity and Inclusion, 503-725-5919, <http://www.pdx.edu/diversity/>

C.A.R.E Team: <http://www.pdx.edu/dos/care-team>

Queer Resource Center: 503-725-9742, <https://www.pdx.edu/queer/>

Cultural Resource Centers: 503-725-5351, <https://www.pdx.edu/cultural-resource-centers/crc>

Services for Students with Children: 503-725-9878, <https://www.pdx.edu/students-with-children/>

Student Legal Services: 503-725-4556, <https://www.pdx.edu/sls/>

Tutoring at the Learning Center: <https://www.pdx.edu/tutoring/>

Writing Center: 503-725-3570, <https://www.pdx.edu/writing-center/>

Veteran's Resource Center: 503-725-9807, <https://www.pdx.edu/veterans/vrc>

## Tips For Success

- 1. Be an active learner.** Read the book or assigned articles ahead of class. Attend all classes. We expect you to be an active participant in your education. This means that coming to class, paying attention, and collaborating with the instructors and your peers is fully expected.
  - Take notes during class – do not rely on the printed-out class notes. Write down questions that come to mind during the lecture. Identify points in the lecture that you think are the main points. Review your notes after class, incorporating details that you remember but didn't get written down.
  - When you are asked to talk with your neighbors – talk with them, more heads together may come up with get the right (or a better!) answer – if you don't understand your peer's reasoning – ask them. Further, taking the time to explain your thoughts or a concept to others is a great way to learn.
  - Small group work activities are important opportunities to experience interacting and working collaboratively with your peers.
  - While you are reading for class, take the time needed to really think about what you are reading. How does it fit with what you know already? If it is not clear, consult an additional source; sometimes just seeing the same information in a different way helps immensely. Combine the information from class and your reading into one set of complete notes to review and study. Consider using the simple and powerful Cornell System of note-taking and review: <http://tinyurl.com/27yt64g>
- 2. Figure out and use your learning strengths.** Learning styles vary from person to person. You might do your best studying through reading, writing, making or drawing models, or through discussion with fellow students. Most likely, it will take some of each of these to be most successful. Experiment, reflect on the outcomes, and use the techniques that work best for you. We will also do our best to diversify the ways in which we offer information to you.
- 3. Spend time on this course.** Schedule and spend time reading and reflecting on course materials ahead of class. During class, take careful, organized notes. After class, revisit your notes, and think about the logical structures underlying the subjects. Plan on spending an appropriate amount of time (3-6 hours/week) working on this course outside of our scheduled classtime. This class is meant to benefit you and help you develop your future career trajectory.
- 4. Ask for help if you need it.** Come to our office hours, find a study partner or study group, use the Discussions board on D2L, etc. You'll make the best progress when you work to identify the areas you need to work on, and are active about seeking guidance.
- 5. Use the University resources.** Campus services are available to help you with all aspects of your education, see <http://www.pdx.edu/studentaffairs>. PSU's undergraduate advising website is <http://www.pdx.edu/advising>. The Undergraduate Advising and Support Center (UASC), 425 Smith Center, <http://www.pdx.edu/advising/academic-resources-and-services>, offers academic advising and referral, academic support programs, community college relations, disability resource center, athletics advising, study skills workshops, tutorial programs, and student veteran services. The Peer Tutoring and Learning Center offers tutoring in many subjects (including Biology), as well as various workshops, see <http://www.pdx.edu/tutoring/>.

## Tentative schedule

Schedule may be adjusted by the discretion of the instructors at any time

Week	Date	Scheduled topics
1	Jan 10	<b>Skills Building Topic: Your Course Instructors + Syllabus</b> Why are we in graduate school, teaching you this course? Where can we go next?
	Jan 12	<b>Featured Biology Labs: How do we learn biology?</b> Shortlidge and DBER team. <i>Remember all of those small group activities from Principles? We did them for a reason.</i> <b>Assignment due:</b> Week 1 Article Review
2	Jan 17	<b>Skills Building Topic: What can I do with a degree in biology?</b> Science career overview and structural differences pertinent in various careers. <b>Assignment due:</b> Independent Development Plan (IDP) self-assessment
	Jan 19	<b>Featured Biology Labs: Genes and Evolution</b> Podrabsky, Estes, Brown. <i>Denim and Darwin (jeans aka genes...get it?).</i> <b>Assignment due:</b> Week 2 Article Review
3	Jan 24	<b>Skills Building Topic: As a scientist, you are a writer.</b> Writing structure: storytelling, hourglass structure, flow between concepts, style. <b>Assignment due:</b> Read Schimel chapters 1, 4, and 20.
	Jan 26	<b>Featured Biology Labs: Adorable Megafauna</b> Murphy, Duffield, Ruedas, Masta. <i>How do we know which organisms are more closely related to each other? How do we protect them?</i> <b>Assignment due:</b> Week 3 Article Review
4	Jan 31	<b>Skills Building Topic: Communication - How do you want to come across?</b> Reaching out for help & mentorship, how to carry yourself in meetings, how to write a proper email to a professor, how to look professional from a google search. <b>Assignment due:</b> Curriculum vitae
	Feb 2	<b>Featured Biology Lab: Not Easy Being Green</b> Ballhorn, Eppley/Rosenstiel, Cruzan. <i>Some say plants are just slow-moving animals. Do you agree? Why or why not?</i> <b>Assignment due:</b> Week 4 Article Review
5	Feb 7	<b>Skills Building Topic: Science literacy</b> How to decipher legitimate science? Scholastic vs. popular science. Sample size, p values, controls, why some sources are more reliable. Is Wikipedia a good source to learn science? <b>Assignment due:</b> Mentor request
	Feb 9	<b>Featured Biology Labs: The Central Dogma</b> Courcelle, Raghavan, Singer. <i>Western blots, Northern blots, and Southern blots. What biomolecule would you be testing with an Eastern blot?</i> <b>Assignment due:</b> Week 5 Article Review
6	Feb 14	<b>Deliberative Democracy Day 1: Initial</b> Brainstorm missing information and form initial group stance on issue. <b>Assignment due:</b> DDP quiz 1
	Feb 16	<b>Checkpoint for DDP</b> Who are the regulators and what does an advisory statement look like? <b>Assignment due:</b> DDP quiz 2

7	Feb 21	<b>Deliberative Democracy Day 2: Final</b> Bring information together and form group consensus science advisory policy recommendation. <b>Assignment due:</b> DDP quiz 3
	Feb 23	<b>Peer-review day for brief science advisory statement</b> <b>Assignment due:</b> Draft of DDP science advisory statement.
8	Feb 28	<b>Skills Building Topic: Communication - How to tell your story</b> Interviewing, personal statement introduction. <b>Assignment due:</b> DDP science advisory statement.
	Mar 2	<b>Featured Biology Labs: Life in Extreme Environments</b> Reysenbach, Stedman, Bartlett. <i>When keepin' it real goes right!</i> <b>Assignment due:</b> Week 8 Article Review
9	Mar 7	<b>Skills Building Topic: Amazing RESOURCES-scavenger hunt</b> Get out-n-about on campus to find STEM related resources here at PSU
	Mar 9	<b>Featured Biology Labs: Fizzy-ology</b> Lutterschmidt, Zelick, Buckley. <i>A snake, a cold-water fish, and an electric eel walk into a bar...</i> <b>Assignment due:</b> Week 9 Article Review
10	Mar 14	<b>Skills Building Topic: Peer-editing Personal Statements</b> <b>Assignment due:</b> Draft of Personal statement.
	Mar 16	<b>Featured Biology Lab: Pick your favorite!</b> Biology department bingo and science web, potluck <b>Assignment due:</b> Week 10 Article Review
Final	TBD	Parts 1 and 2 due via e-mail submission

6.