This syllabus is a general representation of the course as previously offered and is subject to change.

BIOL 180 - Thinking Like a Life Scientist

General Course Syllabus (as of February 2023)

About the Course:

Course Description: BIOL 180 aims to teach you to think scientifically about the research process, communicate science to a general audience, and work collaboratively to reach a shared goal. Using scientific literature, we will dive into the process of science as we explore a current research topic together. Your instructors will take you on a scientific journey that illuminates the influence humans have on science and engages you in the excitement of scientific endeavors.

Course Format:

- This course offers both online and in-person sections
- Lectures

Credits: 2 credits
Prerequisites: One of BIOL 11, BIOL 12, BIOL 111.

Course Learning Objectives:

- Make an observation, ask a question, write a research hypothesis and generate predictions based on your hypothesis
- Build a concept map; Define relationships between key terms and concepts; Describe the structure of a scientific paper
- Understand what random sampling is and how to achieve that; identify confirmation bias; Analyze and interpret data
- Question claims or conclusions; Define controls and determine their role; Evaluate sampling protocols
- Appreciate the value of diversity in science
- Conduct a literature search; Evaluate sources for credibility
- Use appropriate language to present and communicate science visually to a target audience

Resources:

All learning material for this course will be provided on Canvas or accessible online.

Evaluation:

Assessments	Weight
Assignments and quizzes	30%
Engagement in the course	25%
Midterm	20%
Final group project	25%

Details on Assessments:

Assignments and quizzes
Each week you will complete various assignments and quizzes that regularly assess your understanding of course material. Assignments and quizzes also prepare you for class discussions and activities and give you a chance to practice thinking about the material in the course.

Engagement in the course
You will be expected to attend and actively engage in discussions, polls, group work, and activities with your instructor and TA each week. Outside of class, your instructors may ask you to engage in additional learning activities.

Midterm
The midterm will assess your understanding of material presented in the first six weeks of the term. In addition, because you will have worked hard to cultivate the scientific thinking, this exam will assess your ability to think critically about science. Questions will stem from material you cover with your instructor, TA, groups, and any asynchronous activities, assignment, and discussions in the course.

Final project
In lieu of a final exam, you will build and present a final project. The goal of this project is to synthesize and communicate the science in the field of your course focal topic to a general audience. The project will be a collaborative effort as you will work to build this in your long-term group. Your group will also present the project together at the end of the term.

Course Policies:

Academic integrity is essential to the functioning of the University of British Columbia as an institution of higher learning. All UBC students are expected to behave as honest, responsible members of our community and to follow the appropriate policies, principles, rules, and guidelines of the University with respect to academic integrity. Cheating on exams or projects, plagiarizing or any other form of academic dishonesty are clear violations of academic integrity and will result in disciplinary action.
https://learningcommons.ubc.ca/resource-guides/understand-academic-integrity/

Schedule of Topics (may vary slightly between semesters):

Week	Assignments and activities
1	Introduction: Take welcome surveys, a quiz and read a popular press article on current research and the course focal topic
2	Watch videos and answer questions on “How Science Works” and annotate popular press pieces on focal topic
3	Process of Science: Watch videos to learn about hypothesis construction and generating predictions, take a quiz to assess your understanding
4	Concept Mapping: Watch a video and take a quiz on the structure of scientific papers, read an introduction section of a scientific paper, and build a concept map using the contents in the introduction
5	Data Display: Watch videos on basic statistical concepts, how to unpack a figure, and cartoon the methods of an experiment or study based on data presented
6	Design a follow up study, applying all that students have learned to date
7	Diversity in Science: Watch a film and review for the midterm
8	MIDTERM Exam and introducing a second paper
9	Literature: Search the literature for credible sources and complete project summaries
10	Science Communication: Watch videos on science communication and think creatively about how to tell a story about science to non-scientists
11	Give Feedback: Give and receive feedback on final projects
12	Use Feedback: Present final projects

University Policies:

UBC provides resources to support student learning and to maintain healthy lifestyles but recognizes that sometimes crises arise and so there are additional resources to access including those for survivors of sexual violence.

UBC values respect for the person and ideas of all members of the academic community. Harassment and discrimination are not tolerated nor is suppression of academic freedom.

UBC provides appropriate accommodation for students with disabilities and for religious, spiritual and cultural observances.

UBC values academic honesty and students ae expected to acknowledge the ideas generated by others and to uphold the highest academic standards in all of their actions.

Details of the policies and how to access support are available on the UBC Senate website.