COURSE OUTLINE		
TERM: Fall 2022	**COURSE NO: BIOL 402**	
INSTRUCTOR:	**COURSE TITLE: Applied Ecosystem Ecology**	
OFFICE: **LOCAL:** **E-MAIL:** @capilanou.ca	**SECTION NO(S):**	**CREDITS:** 4.0
OFFICE HOURS:		
COURSE WEBSITE:		

Capilano University acknowledges with respect the Lilwat7úl (Lil'wat), xʷməθkʷəyəm (Musqueam), shíshálh (Sechelt), Sḵwx̱wú7mesh (Squamish), and Səlílwətaʔ/Selilwitulh (Tsleil-Waututh) people on whose territories our campuses are located.

COURSE FORMAT
Each week there are three hours of lab, three hours of class time, plus an additional hour delivered through on-line or other activities for a 15-week semester, which includes two weeks for final exams.

COURSE PREREQUISITES
BIOL 208 (C-)

CALENDAR DESCRIPTION
In this course students will learn fundamental principles of ecosystem ecology and apply them to a variety of issues of global and regional concern. Traditional ecological knowledge systems will be introduced in context to their application to ecosystem ecology. Comparative analysis of terrestrial, freshwater, and marine ecosystems will highlight common themes, as well as ways in which different abiotic environments constrain or shape ecosystem structure and function. Lab exercises will focus on ecosystem characterization and classification in our region.

COURSE NOTE
BIOL 402 is an approved Science and Technology course for Cap Core requirements.
BIOL 402 is an approved Science course.
BIOL 402 is an approved Lab Science course.
BIOL 402 is an approved Experiential course for Cap Core requirements.

REQUIRED TEXTS AND/OR RESOURCES
Readings will be selected from the primary literature, and will vary from year to year.
Example:
Schmitz, O. J. and S. J. Leroux. 2020. Food Webs and Ecosystems: Linking Species Interactions to the Carbon Cycle. Annual Review of Ecology, Evolution, and Systematics. 51: 271-295.

COURSE STUDENT LEARNING OUTCOMES
On successful completion of this course, students will be able to do the following:

- Evaluate and make predictions about anthropogenic impacts on ecosystems
- Analyze and interpret ecological data presented in quantitative or graphical forms
- Identify and analyze factors that influence the dynamics, stability, and persistence of ecosystems
- Apply principles of population dynamics and stability to evaluate how ecosystems respond to harvesting or management
- Communicate complex ideas appropriately to a variety of target audiences
- Perform site assessment of local ecosystems using the Biogeoclimatic Ecosystem Classification system
- Predict community associations in the field based on knowledge of biogeoclimatic zones
- Analyze how ecosystem processes both respond to and can be utilized to mitigate global change
- Articulate the historical and practical value and applications of traditional ecological knowledge systems to ecosystem ecology

Students who complete this Science and Technology course will be able to do the following:

- Assess the impacts of human activity on natural systems and articulate ways in which environmental sustainability may be achieved
- Evaluate scientific information (e.g., distinguish primary and secondary sources, assess credibility and validity of information)
- Demonstrate how a problem, concept, or process can be modelled numerically, graphically, or algorithmically
- Explain how scientific inquiry is based on investigation of evidence and evolves based on new findings
- Participate in scientific inquiry and communicate the elements of the process, including making careful and systematic observations, developing and testing a hypothesis, analyzing evidence, and interpreting results

Students who complete this Experiential course will be able to do the following:

- Critically reflect on their progress and development in the context of the course and assess the utility of the acquired knowledge, skills, and values in the learner's personal, academic, or professional trajectory.
- Apply the skills and knowledge of a given discipline or professional context, including working collaboratively in both leadership and team roles.

COURSE CONTENT

Weeks	Topics
1	Introduction
2-4	Ecosystem Classification and Geography • Global biomes • Biogeoclimatic Ecosystem Classification in British Columbia
5-7	Production, Energy Flow, and Food Webs • Measuring primary production: Remote sensing and ground-based methods • Secondary production and trophic efficiency • Food web models in ecosystem management: Ecopath
8-10	Biogeochemical Cycles • Ecosystem stoichiometry • Carbon storage: Standing biomass and soils • Ecosystem responses to nitrogen deposition • Fate of xenobiotic chemicals
11-13	Disturbance and Landscape Ecology • Natural disturbance regimes and alternative stable states • Fire ecology • Disturbance ecology in landscape management: Forests and rangelands
14-15	Final Exam Period

EVALUATION PROFILE

Term Work	30-35%
Field & Laboratory Work	30-35%
Final Exam	30-35%
TOTAL	**100%**

Term work will include written assignments, oral presentations, and exams.

Laboratory work will include an independent research project.

A graded assessment will be returned to students prior to the withdrawal date.

No individual exam or assignment will be worth more than 35%.

Students must receive at least 50% in both lecture and laboratory portions of the course in order to pass.

Specific dates and details regarding individual evaluation components will be provided by the instructor.

GRADING PROFILE

A+ = 90-100	B+ = 77-79	C+ = 67-69	D = 50-59
A = 85-89	B = 73-76	C = 63-66	F = 0-49
A- = 80-84	B- = 70-72	C- = 60-62	

Incomplete Grades
Grades of Incomplete "I" are assigned only in exceptional circumstances when a student requests extra time to complete their coursework. Such agreements are made only at the request of the student, who is responsible to determine from the instructor the outstanding requirements of the course.

Late Assignments
Assignments are due at the beginning of the class on the due date listed. If you anticipate handing in an assignment late, please consult with your instructor beforehand.

Missed Exams/Quizzes/Labs etc.
Make-up work is given at the discretion of the instructor. Normally, a score of zero will be given for a missed exam, test, quiz, lab, etc. In certain exceptional situations, the student will be permitted to write a make-up test, defer the lab to a later date or to replace the score by other marks (see below). The date and timing of any make-up option is at the discretion of the instructor. It may not be possible to reschedule certain labs, tests or other activities.

A score of zero may be avoided when the student meets all of the following conditions:

1. Circumstances are beyond the control of the student which resulted in the exam, test, quiz, lab, etc. to be missed. Such circumstances include serious illness or injury or severe personal crises. They do not include forgetting about the test, lack of preparation for the test, or work-related or social obligations.

2. The student has notified the instructor (or the School of STEM office staff, if the instructor is not available) about the missed exam, test, quiz, lab, etc. Such notification must occur in advance or, at the latest, on the day of the exam, test, quiz, lab, etc.

3. Evidence of the circumstances may be requested. Proper medical documentation of illness or injury may be required from a doctor.

4. The student has been fully participating in the course up until the circumstances that prevented the writing of the exam, test, quiz, lab, etc. Fully participating means regularly attending labs and lectures and turning in assignments in the course.

Attendance
Students are expected to attend all classes and associated activities.

English Usage
Students are expected to proofread all written work for any grammatical, spelling and stylistic errors. Instructors may deduct marks for incorrect grammar and spelling in written assignments.

Electronic Devices
Students may use their own electronic devices during class for note-taking only.

On-line Communication
Outside of the classroom, instructors will (if necessary) communicate with students using either their official Capilano University email or eLearn; please check both regularly. Official communication between Capilano University and students is delivered to students' Capilano University email addresses only.

UNIVERSITY OPERATIONAL DETAILS

Tools for Success
Many services are available to support student success for Capilano University students. A central navigation point for all services can be found at: https://www.capilanou.ca/student-life/

Capilano University Security: download the CapU Mobile Safety App

Policy Statement (S2009-06)
Capilano University has policies on Academic Appeals (including appeal of final grade), Student Conduct, Academic Integrity, Academic Probation and other educational issues. These and other policies are available on the University website.

Academic Integrity (S2017-05)
Any instance of academic dishonesty or breach of the standards of academic integrity is serious and students will be held accountable for their actions, whether acting alone or in a group. See policy and procedures S2017-05 Academic Integrity for more information: https://www.capilanou.ca/about-capu/governance/policies/

Violations of academic integrity, including dishonesty in assignments, examinations, or other academic performances, are prohibited and will be handled in accordance with the Student Academic Integrity Procedures.

Academic dishonesty is any act that breaches one or more of the principles of academic integrity. Acts of academic dishonesty may include but are not limited to the following types:

Cheating: Using or providing unauthorized aids, assistance or materials while preparing or completing assessments, or when completing practical work (in clinical, practicum, or lab settings), including but not limited to the following:

- Copying or attempting to copy the work of another during an assessment;

- Communicating work to another student during an examination;
- Using unauthorized aids, notes, or electronic devices or means during an examination;
- Unauthorized possession of an assessment or answer key; and/or,
- Submitting of a substantially similar assessment by two or more students, except in the case where such submission is specifically authorized by the instructor.

Fraud: Creation or use of falsified documents.

Misuse or misrepresentation of sources: Presenting source material in such a way as to distort its original purpose or implication(s); misattributing words, ideas, etc. to someone other than the original source; misrepresenting or manipulating research findings or data; and/or suppressing aspects of findings or data in order to present conclusions in a light other than the research, taken as a whole, would support.

Plagiarism: Presenting or submitting, as one's own work, the research, words, ideas, artistic imagery, arguments, calculations, illustrations, or diagrams of another person or persons without explicit or accurate citation or credit.

Self-Plagiarism: Submitting one's own work for credit in more than one course without the permission of the instructors, or re-submitting work, in whole or in part, for which credit has already been granted without permission of the instructors.

Prohibited Conduct: The following are examples of other conduct specifically prohibited:

- Taking unauthorized possession of the work of another student (for example, intercepting and removing such work from a photocopier or printer, or collecting the graded work of another student from a stack of papers);
- Falsifying one's own and/or other students' attendance in a course;
- Impersonating or allowing the impersonation of an individual;
- Modifying a graded assessment then submitting it for re-grading; or,
- Assisting or attempting to assist another person to commit any breach of academic integrity.

Sexual Violence and Misconduct

All Members of the University Community have the right to work, teach and study in an environment that is free from all forms of sexual violence and misconduct. Policy B401 defines sexual assault as follows:

> Sexual assault is any form of sexual contact that occurs without ongoing and freely given consent, including the threat of sexual contact without consent. Sexual assault can be committed by a stranger, someone known to the survivor or an intimate partner.

Safety and security at the University are a priority and any form of sexual violence and misconduct will not be tolerated or condoned. The University expects all Students and Members of the University Community to abide by all laws and University policies, including B.401 Sexual Violence and

Misconduct Policy and B.401.1 Sexual Violence and Misconduct Procedure (found on Policy page https://www.capilanou.ca/about-capu/governance/policies/)

Emergencies: Students are expected to familiarise themselves with the emergency policies where appropriate and the emergency procedures posted on the wall of the classroom.

DEPARTMENT OR PROGRAM OPERATIONAL DETAILS

Professionalism

Students should be able to demonstrate a professional attitude and behaviour: reliability, respect for and cooperation with colleagues, willingness to work calmly and courteously, respect for equipment and systems, and constructive response to criticism. The use of cellphones for non-academic purposes during lecture and lab sessions is prohibited. Students using cell phones inappropriately could be asked to leave the lecture hall or laboratory room by the instructor.

Lab Exemption Policy for Students Repeating Course

If a student repeating the course has received 65% or better for the laboratory component of the course within the past three terms, they may apply for exemption from the lab. Students must obtain an exemption form from the Biology Laboratory Convenor or from the Coordinator of Biology. The exemption form should be completed with appropriate signatures and returned to the Biology Laboratory Convenor within the first week of classes. If students are exempted, their previous lab mark will be carried over in calculating their final mark for the course in the current term.

Expectations of Students

For success in this course, students are expected to attend all lectures and laboratory sessions; come prepared to address topics presented; pre-read laboratory exercises; and complete assigned text book readings. For every one hour of lecture material presented, students should expect to spend at least two hours reviewing material and engaging with the study tools provided.