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

BIOL 320 – Survey of Algae

General Course Syllabus (as of September 2019)

About the Course:

Course Description: A survey of the algae, considering their morphology, life history, classification, and ecology. The broad objective for this course is for students to become familiar with the unifying and distinguishing characteristics of the photosynthetic protists (the algae), their relationship to other protists and eukaryotes, and their role in Earth's ecosystems. Lectures will present and discuss current knowledge and some speculations, and laboratories will demonstrate concepts with live and preserved organisms, enabling students to recognize many photosynthetic protists at the level of Phylum and, in some cases, Class and beyond.

Course Format: Lecture and Laboratory
Credits: 4
Pre-requisites: BIOL 121

Course Learning Objectives:

By the end of this course, students should be able to:

- Describe the unifying characteristics of the algae (e.g. common pigments, storage products, reproductive features)
- Differentiate the major groups of algae by
    - Structure (e.g. unicellular or multicellular, number and appearance of flagella, chloroplast structure and number of chloroplast membranes).
    - Reproduction (e.g. sexual or not, gamete and spore production, means of facilitating fertilization).
    - Biochemistry (e.g. major pigments, storage products, products of economic importance).
    - Ecology (Productivity, formation of habitat, production of toxic substances, interaction with other algae and with animals).
    - Economic Uses (e.g. methods of farming algae, problems and objectives).
- Explain the current paradigm of algal evolution (e.g. the role of endosymbiosis in the evolution of photosynthetic protists, the significance of endosymbiosis in interpreting the unity of the algae, and the relationship of the algae to each other and to higher (drier) plants.

Textbooks and Additional Resources:

The total fee for the course is $50. There is no required textbook. However, a laboratory fee of $20 helps defray the cost of lab manuals, slides, cover slips, and handouts, and a field trip fee of $30 will help defray the cost of ferry travel, bus rental, and lots of fun with classmates in Victoria, BC.

Evaluation:

Assessment	Weight
Algae in Everyday Life	2%
Lecture Midterm	18%
Lecture Final Exam	30%
Field trip report	8%
Laboratory quizzes	5%
Laboratory Midterm	15%
Laboratory Final Exam	22%

Please Note: It is a university regulation, and a requirement of this course, that **to pass the course students must have a passing grade in the laboratory portion of the course**. A high lecture grade will not compensate for a failing laboratory grade.

To pass the laboratory or lecture students must pass the various quizzes/ examinations/ assignments as they are due, unless they make arrangements at the time one of these is missed. Requests for "extra work" to obtain a higher grade will not be entertained.

Schedule of Topics:

Below is a sample schedule of lecture and lab topics from 2018W (subject to change):

Week	Lecture Topic	Lab Topic
1	Introductions / What are algae? Photosynthesis / pigments	No labs
2	Endosymbiosis / algal evolution Seaweed identification / taxonomy Introduction to algal life histories	LAB 1: Introduction to Algal Biodiversity
3	Cyanophyta / Glaucophyta Nutrients and primary production Drivers of intertidal zonation	LAB 2: Cyanobacteria, Glaucophyta, & Primary Production
4	Rhodophyta Rhodophyta Reproduction Calcification	LAB 3: Rhodophyta
5	Ochrophyta: Phaeophyceae Cues for Reproduction / Dispersal	LAB 4: Phaeophyceae
6	Ochrophyta: Bacillariophyceae Ochrophyta: Chrysophyceae Ochrophyta: Synurophyceae	**Lab Midterm**
7	Epiphytism / Endophytism Current research on algae **Lecture Midterm**	LAB 5: Phytoplankton I
8	Cryptophyta / Dinophyta Algal blooms Haptophyta	LAB 6: Phytoplankton II

9	Euglenophyta Chlorophyta Herbivory	LAB 7: Chlorophyta
10	Biomechanics: Flow Biomechanics: Biomaterials Current research on algae	-
11	Introduced algae Climate Change Biodiversity / Field survey techniques	LAB 8: Synthesis **Victoria Field Trip**
12	Algae in everyday life Nutrition and Aquaculture Economic uses of algae	**Final Lab Examination**
13	Biofuels Lecture review	Lab 10: Analyze field trip reports

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.