

BIOLOGY 446 (January – April 2018)**Advanced Aquatic Ecology (Mondays 2:30-5:20 PM; Lecture Room: COR A128,****Professor: Dr. Asit Mazumder; Office: Cunn 034b, E-mail: <mazumder@uvic.ca>**

Lecture Topics	Student projects
Monday Jan 7th <ul style="list-style-type: none">• Course outline and organization• Course Overview – State of Aquatic ecosystems: need for integrated and inter-disciplinary knowledge	Selection and assignment of research topic for individual student
Monday Jan 14th Lecture-1 Aquatic Ecosystems: Functioning under interactions among physical, chemical and biological factors and processes	Lecture-2 Nutrients, Eutrophication, Water Quality and Harmful Algae
Monday Jan 21st Lecture-3 Aquatic Foodwebs, trophic interactions and fisheries	Project Presentation: Project Paper # 1, 3, and 4
Monday Jan 28th Lecture-4 Nutrient-Foodweb Ecology of salmon	Project Presentation: Project Paper # 5, 6 and 7
Monday Feb 4th Lecture-5 Aquaculture and fisheries Management.	Project Presentation: Project Paper # 9, 10 and 11
Monday Feb 11th Guest Lecture	
Monday Feb 18th Reading Break	
Monday Feb 25th Mid-term Exam	Project Presentation: Project Paper # 12, 13 and 14
Monday March 4th Lecture-6 Isotope Ecology, application to foodweb structure, energy transfer, and contaminant transport along aquatic foodwebs	Project Presentation Project Paper # 15, 16, 17
Monday March 11th Lecture-7 Water Diversion, Water Quantity and implications for aquatic systems; Marine Protected Areas	Project Presentation: Project Paper # 18, 19 and 20
Monday March 18th Lecture-8 Invasive species and biodiversity implications for aquatic ecosystems	Project Presentation: Project Paper # 21, 22 and 23
Monday March 25th Lecture-9 Global challenges of sustaining clean and healthy water. Lecture-10 Emerging Tools to detect sources of chemical and microbial contamination of water	Project Presentation: Project Paper # 24, 25 and 28
Monday April 1st Project presentations: Project Paper # 29, 30, 31	
Final Examination (will be scheduled by UVic)	

Course evaluation and distribution of marks:

A) Each student will pick a project paper from the list of papers published in top journals like Science and Nature.

1. Each Student will make an oral presentation (**critical synthesis**) using the selected paper in terms of the *issue or concept addressed, hypothesis or objectives tested, methods used and robustness of results and interpretation*. The student will use this paper as a starting point to develop a critical synthesis presentation on the topic. Note that your presentation is not on the paper you selected, but on the topic and approach. Students will need to review at least 10 published papers related to the topic, either supporting or contradicting the issues addressed in the papers. Use figures and tables from the selected and other reviewed papers to support your critical synthesis. When one student presents her/his synthesis, the remaining students are expected to read up on the topic and participate in Q/A period in a very interactive discussion.

Structure of Project presentation (15 min plus 5 min Q/A:

1. Title Page

- Title Page: Make sure that your title reflects the context of the synthesis (not the title of the selected project paper). Title of your presentation can be as provocative or creative as you want.
- Author (student name)

2. Main body of the presentation. Present the structure of your presentation in bullet form.

- **Introduction of the topic:** describe the issue, or topic or concept addressed in the project paper and other related papers, its importance as an emerging ecological issue, identify the needs for further research or development in the area. See if there are contradictory views on the topic.
- **Objectives of your synthesis:** Tell us what you address in your synthesis of the topic, and how you plan to advance the topic
- **Discussion:** Critical evaluation of existing concepts, theories and models and your opinion on the current state of knowledge on the topic. Make an effort to synthesize results from the other published papers in the area of selected paper, and generate your own way of looking at the results from other papers. You need to use graphs and tables from published papers to support your views.
- **Conclusion:** Overall findings and ideas for new directions.

3. Bibliography: following standard journal format (use the format of the paper selected, but present the full title of the paper).

Total marks: 25%.

B) **Mid-term exam (Feb. 25th 2019)** will cover lecture materials, assigned reading materials if any covered until **Feb 4th, 2019** – Mid-term exam will emphasize on the understanding of concepts as well as factual information presented in the lectures. **Total marks: 25%**

C) **Final exam** (To be scheduled by UVic; will cover lecture materials and assigned reading materials covered after the mid-term exam) – Final Exam will emphasize on understanding of concepts as well as factual information. **Total marks: 50%**