BIOL 346 Freshwater Ecosystems: September-December 2016
Course Schedule: Mondays and Thursdays 11:30 – 12:50 AM; Room COR B111
Instructor: Asit Mazumder, Office: 028a Cunningham, Email: mazumder@uvic.ca

Course Summary:
This course will provide the basic understanding of the geological, physical, chemical, and biological processes that form and maintain freshwater ecosystems. Both theoretical and applied aspects of freshwater ecology will be covered, and the studies and experiments that have been used to test important theories and applications will be discussed. This course will also cover anthropogenic and environmental threats to and impacts on freshwater ecosystems.

Course Outline and Schedule:

Sept 6, 2018	Describe course outline, marking scheme, introduction to the course, distribution of course materials
Sept 10, 2018	Lecture-1 Parts 1-3: Inland waters and their catchments; Development of Limnology: Freshwater as a unique and important substance
Sept 13, 2018	Lecture-2 Parts 4-6: Hydrology and Climate; Origin and Age of Lakes.
Sept 17, 2018	Lecture 3 Parts 7-9: Lakes and Catchment Morphometry; Rivers and Export of Materials from drainage basins and the atmosphere; Aquatic Systems and their catchments.
Sept 20, 2018	Lecture-4 Part 10: Light in Freshwater Ecosystems; Part 11: Temperature Cycles, Lake Stratification, and Heat Budget.
Sept 24, 2018	Lecture -5 Part 12: Water movements in lakes and reservoirs; Part 13: Salinity and Ionic compositions in freshwater ecosystems
Sept 27, 2018	Lecture-6 Part 14: Variability of inorganic carbon and pH in freshwater ecosystems and their implications. Parts 15-16: Variability in dissolved oxygen concentrations and their implications for organisms in freshwater ecosystems.
Oct 01, 2018	Lecture-7 Parts 17-18: Nutrients (P and N) in freshwater ecosystems: loading and cycling and their implications.
Oct 04, 2018	**Mid-term exam**
Oct 8, 2018	**Thanks Giving**
Oct 11, 2018	Lecture-8 Parts 19-20: Trace metals in freshwater ecosystems and their implications for ecosystem and human health; Sedimentations of materials in lake ecosystems.
Oct 15, 2018	Lecture-9 Part 21: Phytoplankton in lake ecosystems: their composition, size-distribution, seasonality, sedimentation, and implications for the health of lake ecosystems
Oct 18, 2018	Lecture-10 Part 22: Bacteria: their role and importance in FW ecosystems
Oct 22, 2018	Lecture-11 Part 23: Zooplankton: their composition and variability in FW ecosystems and their implications for the structure and function of lake ecosystems
Oct 25, 2018	Lecture-12: Parts 24-25: Benthic plants and zoobenthos in Lake ecosystems: their importance in wetlands, their distribution, composition and implications for ecosystem health, eutrophication and health of ecosystems
Oct 29, 2018	Lecture 13 Part 26: Fish and water birds in freshwater ecosystem.
Nov 1, 2018	Lecture 14 Part 27: Acid rain and acidification of lake ecosystems
Nov 5, 2018	Lecture-15 Part 28: Contaminants in freshwater ecosystems: implications for

	ecosystem and human health
Nov 8, 2018	Lecture-16 Part 29: Reservoir formation for drinking water and hydroelectric production: their implications for reservoir and downstream ecosystems
Nov 12, 2018	**Reading Break**
Nov 15, 2018	Lecture-17 Moss: Chapter 8 - Uses, abuses and restoration of headwater streams and rivers
Nov 20, 2018	Lecture 18 Moss: Chapter 15 - Uses, abuses and restoration of standing water
Nov 22, 2018	Lecture 19 Moss: Chapter 16 – Climate Change and the future of freshwaters
Nov 26, 2017	Lecture 20 Integration of physical, chemical and biological processes (not from the text book)
Nov 29, 2017	Lecture 21 Sustainable clean and healthy freshwater ecosystems (not from text books)

Course evaluation and distribution of marks:

A) Mid-term exam (October 4th, 2018; 1:50 Hrs; will cover lecture materials, assigned reading materials if any covered during the 1-6 lectures) – Mid-term exam will emphasize on the understanding of concepts, theories and definitions as well as factual information. **Total marks: 35%**

B) Final exam (To be scheduled by UVic; will cover lecture materials, assigned reading materials, oral presentations by guest lecturers (if any) during the 2nd half of the course) – Final Exam will emphasize on the understanding of concepts, theories and definitions as well as factual information. **Total marks: 65%**