

- **PRINCIPLES OF ECOLOGY**
- **BIOLOGY 215 (10365)**
- **Sept 2022**

- **Instructor: Dr. T. E. Reimchen**
 - **reimchen@uvic.ca**
 - **Senior Lab Instructor**
 - **Dr. N. Winchester**
 - **winchest@vic.ca**
- **Lectures MR: 0830-0950**

Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Image Landsat / Copernicus
• Image IBCAO

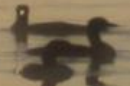
Evolutionary and Ecological Studies in Reimchen's Lab



Dr. T. E. Reimchen
Department of Biology
PO Box 3020
University of Victoria
Victoria, British
Columbia, V8W 3N5,
Canada
reimchen@uvic.ca

1: Brief canoe sequence of Drizzle Lake [\(video\)](#)

2: Underwater video of nesting male stickleback and
curious Common Loons in dystrophic (red-shifted) waters
[\(video\)](#). see [Reimchen 1989](#) and [Marques et al. 2017](#).



Lab Members



Adaptive Radiation &
Functional Morphology



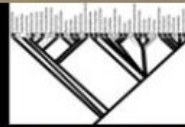
Haida Gwaii
Lake Biophysicals



Loon Research



Salmon Forest
Project



Molecular Studies



Publications



Diving photos

Supporting Agencies

- All lectures and labs are in person
- Course marking scheme
- Lecture mid-term examinations – during classtime
 - Oct 3- 20% of course mk: 0830 hrs (40 minutes, multiple choice questions on lecture content from Sept 8 to Sept 29
 - Nov 3- 20% of course mk: 0830 hrs (40 minutes, multiple choice questions on lecture content from Oct 3 to Oct 31
 - ...not cumulative
- Final Lecture examination (30% of course mk) ...November lectures as well as general ecological principles from the entire course.
 - Date and time TBA
- Labs: (30% of course mk)

- Lecture Text: -purchase suggested but not required
- Ecology Authors: Molles and Laursen 2020- 5th edition (Canadian Edition)
- -E-version available from bookstore

Additional readings to supplement lecture topics: examples- New Scientist, Conservation Biology, Ecology, Trends in Ecology and Evolution, Web of Science, Google Scholar, Google, Wikipedia

- -pdfs and lecture video will be posted on BrightSpaces website within 6 hours following the lecture
- -lecture pdfs limited to personal use and not for redistribution
- -access to 215 website restricted to registered students with a UVic email account.
- Electronic Lab Manual/Modules- available on Biol 215 BrightSpaces

Interesting Documentaries – David Attenborough, Planet Earth I&II, Blue Planet I&II, etc

There will be a 5 minute break half-way through each lecture devoted to a question and answer session concerning any issues from the previous or current lecture.

BIOLOGY 215--LAB SCHEDULE—FALL 2022

DATE (WEEK OF)	LAB #	LAB CONTENT
September 5		NO LABS
September 12	1	Ecological sampling: herbivory and Garry Oak Ecosystems
September 19	2	Morphological variation: Ecological adaptations of <i>Nucella lamellose</i> .
September 26	3	NO LABS – National Day for Truth and Reconciliation on September 30
October 3	4	Predator/Prey: Orb-weaving spiders Quadrat sampling, Transect sampling
October 10	5	Thanksgiving – No Labs
October 17	6	Lab midterm exam
October 24	7	Mark and Recapture <i>Hemigrapsus</i> sp.
October 31	8	Island Biogeography – Beetles and forest patches
November 7	9	Reading Break – No Labs
November 14	10	Exploring principles of community diversity: Soil litter/edge part 1
November 21	11	Soil litter/edge, diversity indices, part 2
November 28	12	Lab final exam

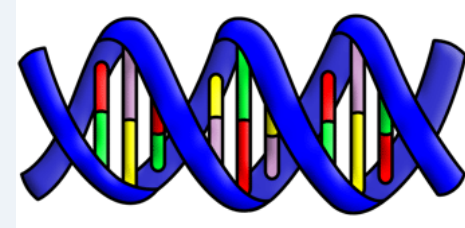
LABORATORY MARK DISTRIBUTION (30% of the course mark)

Laboratory midterm exam:	Week of October 17	Mark 15.0%
Laboratory final lab exam:	Week of November 28	Mark 15.0%
Total laboratory mark:		Total 30.0%

Note: Details of the laboratory exam will be covered in your labs. **The laboratory final exam is cumulative.**

- Course Outline

- Ecological genetics –genetic variability, natural selection, evolution, geological timetable

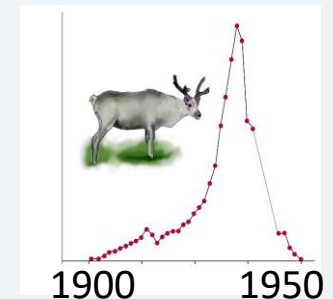


- Behavioral ecology- optimal foraging, territoriality, sex & mating systems, group living, life histories



- Population ecology- movement, estimating population size, life tables, mortality and survivorship curves, population growth and population regulation

$$\frac{dN}{dt} = rN \frac{(K - N)}{K}$$



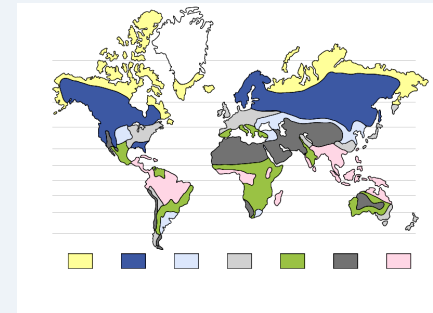
Ecological interactions- competition, niche, predation, defenses



Community ecology- succession, trophic levels, keystone species, nutrient cycling



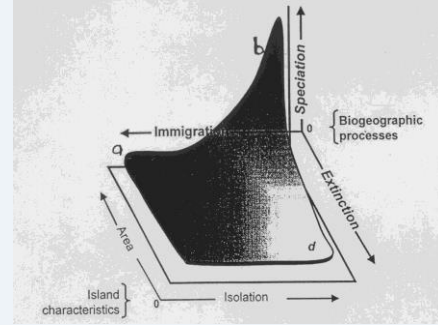
Major ecological communities- estuaries, intertidal, kelp forests, pelagic, deep sea, coral reefs, lakes, tundra, taiga, temperate forests, grasslands, deserts, tropical forests



Global biodiversity- latitude, elevation, ocean depth causes: evapotranspiration, spatial heterogeneity, geological history, complexity, stability



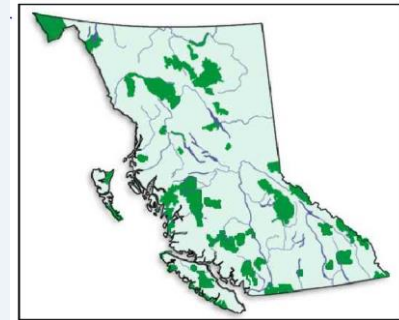
Island biogeography – island size, distance, species turnover, equilibrium & tripartite theory



Human impact on ecosystems – population growth, habitat loss, fragmentation, atmospheric pollutants, global warming, marine and freshwater pollution, overhunting, overfishing, introduced species, extinctions



Conservation ecology- history, ecological footprint, IUCN categories, protected areas, SLOSS, minimum viable population (MVP), minimum viable area (MVA), critical habitats, endemic species, park design, restoration, de-extinction, re-wilding



Overview

Important Dates

Sept 08: First day of classes

Sept 20: last day for 100% reduction of tuition fees for standard first term and full year courses. 50% of tuition fees will be assessed for courses dropped after this date

Sept 23: Last day for adding courses that begin in the first term

Sept 30: Last day for paying first term fees without penalty

Oct 3: First lecture midterm exam

Oct 11: Last day for 50% reduction of tuition fees. 100% of tuition fees will be assessed for courses dropped after this date

Oct 31: Last day for withdrawing from first term courses without penalty of failure

Nov 3: Second lecture midterm exam

Nov 9-11: Reading break

Dec 05: Last lecture

Dec 07: Examinations begin for all faculties

Get vaxed

Learn lots, study hard, and enjoy the course