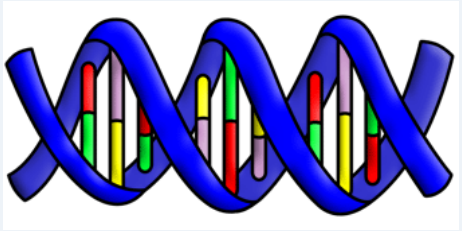
• PRINCIPLES OF ECOLOGY
• BIOLOGY 215 (10310)
• Sept 2019

- INSTRUCTOR: Dr. T. E. Reimchen
- Office: Cunn 056, Ph 721-7101
- SENIOR LAB INSTRUCTOR
- Alicia Rippington

Office : Cun 234a Ph. 721-7133, aliciad@uvic.ca

- Lectures MR: 0830-0950, David Turpin Building A120
- Labs: Cunn 245

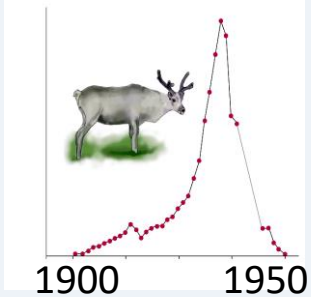
- **Course Outline**
- **Ecological genetics –genetic variability, natural selection, evolution, geological timetable**



- **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**

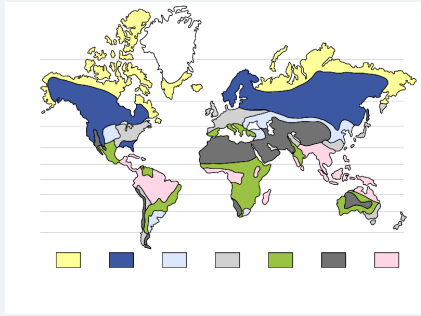
$$\frac{dN}{dt} = rN\frac{(K-N)}{K}$$



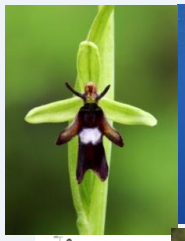
Ecological interactions- competition, niche, predation, defenses

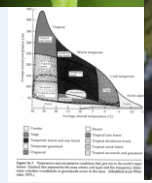
Community ecology- succession, trophic levels, , keystone species, nutrient cycling

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

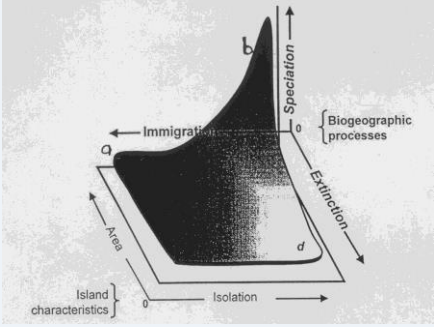


Global biodiversity- latitude, elevation, ocean depth causes: evapotranspiration, spatial heterogeneity, geological history, complexity, stability



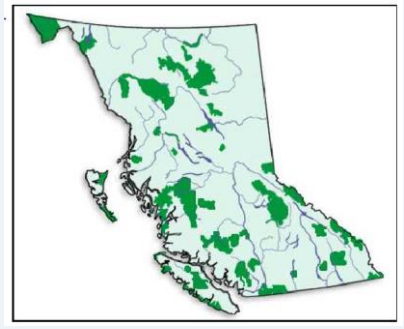


Island biogeography – island size, distance, species turnover, equilibrium & tripartite theory



Human impact on ecosystems – population growth, habitat loss, fragmentation, atmospheric pollutants, global warming, freshwater and marine 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, hotspots, endemic species, park design, restoration



Overview

- **Lectures**
- **Introduction**
- **Ecological genetics**
- **Behavioral ecology**
- **Population ecology**
- **Ecological interactions**
- **Community ecology**
- **Major ecological communities**
- **Global biodiversity**
- **Island biogeography**
- **Human impact on ecosystems**
- **Conservation ecology**
- **The future**

Lectures- 60% of course mark

Midterm exam*: 25% Oct 17

Final*: 35% (not cumulative)

Labs-40% of course mark

BIOLOGY 215--LAB SCHEDULE—FALL 2019

DATE (WEEK OF)	LAB #	LAB CONTENT
September 9	1	Ecological sampling: herbivory and Garry Oak Ecosystems
September 16	2	Morphological variation: Ecological adaptations of *Nucella lamellosa*, confidence limits, histograms, barcharts, summary statistics
September 23	3	Predator/Prey: Orb-weaving spiders Quadrat sampling,Transect sampling
September 30	4	Mark and Recapture *Hemigrapsus* sp. **Quiz 1**
October 7	5	**Lab midterm exam**
October 14	6	**Thanksgiving – No Labs**
October 21	7	Dietary analysis coastal wolves
October 28	8	Island Biogeography – Beetles and forest patches
November 4	9	Exploring principles of community diversity: Soil litter/edge part 1
November 11	10	**Reading Break – No Labs**
November 18	11	Soil litter/edge, diversity indices, part 2 **Quiz 2**
November 25	12	***Lab final exam***

LABORATORY MARK DISTRIBUTION (40% of the course mark)

Laboratory Quiz 1	Week of September 30	Mark 5.0%
Laboratory Quiz 2	Week of November 18	Mark 5.0%
Laboratory midterm exam:	Week of October 7	Mark 15.0%
Laboratory final lab exam:	Week of November 25	Mark 15.0%
Total laboratory mark:		**Total 40.0%**

Note 1: The laboratory final exam is cumulative. **The quizzes will be based on your lab modules and are not cumulative.**

- **Lecture Text: -suggested but not required**
- **- Molles, Cahill and Laursen 2017- Ecology (Canadian Edition) –**
- **-limited quantity in bookstore**

- **Ecology Texts In Reserve Reading Room, McPherson Library**
- **Stiles; Freedman; Molles; Ricklefs ; Wilson**

- -pdfs of most lecture slides on CourseSpaces 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-** required (approx. $13.50@bookstore)
- -bring memory stick to each lab

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

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

Sept 17: 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 20: Last day for adding courses that begin in the first term

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

Oct 08: Last day for 50% reduction of tuition fees. 100% of tuition fees will be assessed for courses dropped after this date

Oct 17: Lecture mid-term exam

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

Dec 02: Last lecture in Biol215

"UVic is committed to promoting, providing and protecting a supportive and safe learning and working environment for all its members".