

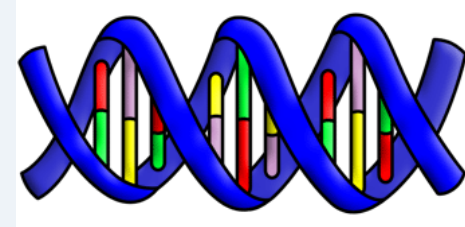


- **PRINCIPLES OF ECOLOGY**
- **BIOLOGY 215 (10310)**
- **Sept 2019**

- **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](mailto: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

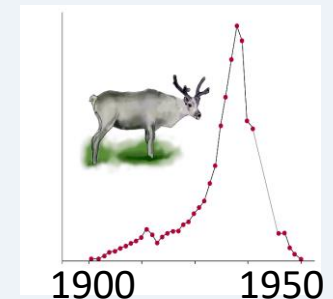


- Behavioral ecology- optimal foraging, territoriality, sex & mating systems, group living, life histories



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

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



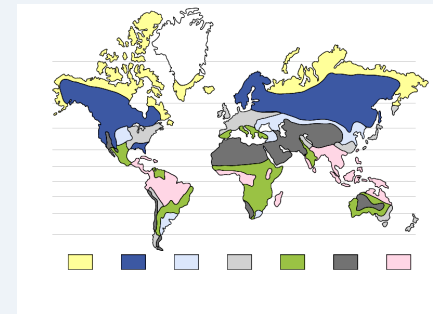
**Ecological interactions- competition, niche, predation, defenses**



**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**

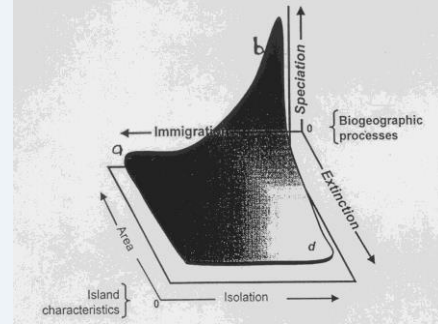


**Global biodiversity- latitude, elevation, ocean depth causes: evapotranspiration, spatial heterogeneity, geological history, complexity, stability**





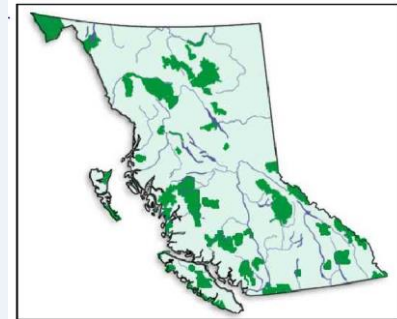
# Island biogeography – island size, distance, species turnover, equilibrium & tripartite theory



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

DATE (WEEK OF)	LAB #	LAB CONTENT
September 9	1	Ecological sampling: herbivory and Garry Oak Ecosystems
September 16	2	Morphological variation: Ecological adaptations of <i>Nucella lamellosa</i> , confidence limits, histograms, barcharts, summary statistics
September 23	3	Predator/Prey: Orb-weaving spiders Quadrat sampling, Transect sampling
September 30	4	Mark and Recapture <i>Hemigrapsus</i> sp. <b>Quiz 1</b>
October 7	5	<b>Lab midterm exam</b>
October 14	6	<b>Thanksgiving – No Labs</b>
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	<b>Reading Break – No Labs</b>
November 18	11	Soil litter/edge, diversity indices, part 2 <b>Quiz 2</b>
November 25	12	<b>Lab final exam</b>

**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.**

- **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**

- **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”.**