- PRINCIPLES OF ECOLOGY
  - BIOLOGY 215 (10358)
    - Sept 2020

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

Data S.O., NOAA, U.S. Navy, NGA, GEBCO Image Landsat / Copernicus

# **Course Outline**

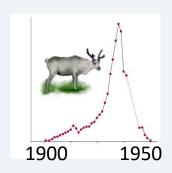
 Ecological genetics –genetic variability, natural selection, evolution, geological timetable



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

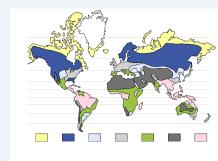


Ecological interactions- competition, niche, predation, defenses



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

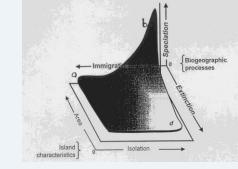
Major ecological communities- estuaries, intertidal, kelp forests, pelagic, deep sea, coral reefs, lakes, tundra, taiga, temperate forests, grasslands, deserts, tropical forests



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



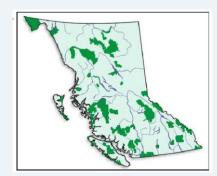
Island biogeography – island size, distance, species turnover, equilibrium & tripartite theory



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** 

- All lectures and labs will be online and synchronous
- Course marking scheme
- All examinations are open book and time limited
- Lecture mid-term examinations during classtime
- Oct 5- 20% of course mk: 0830 hrs (40 minutes, multiple choice
- questions on lecture content from Sept 9 to Oct 2
- Nov 5- 20% of course mk: 0830 hrs (40 minutes, multiple choice
  - questions on lecture content from Oct 2 to Nov 2
- ...not cumulative
- Final Lecture examination (30% of course mk) ...not cumulative.
- Date and time TBA
- Labs: (30% of course mk)

#### BIOLOGY 215--LAB SCHEDULE-FALL 2020

DATE (WEEK OF)	LAB#	LAB CONTENT		
September 7		NO LABS		
September 14	1	Ecological sampling: herbivory and Garry Oak Ecosystems		
September 21	2	Morphological variation: Ecological adaptations of Nucella lamellosa, confidence limits, histograms, barcharts, summary statistics		
September 28	3.	Predator/Prey: Orb-weaving spiders Quadrat sampling Transect sampling		
October 5	4	Mark and Recapture <i>Hemigrapsus</i> sp.		
October 12	5	Thanksgiving – No Labs		
October 19	6	Lab midterm exam		
October 26	2	Dietary analysis coastal wolves		
November 2	8	Island Biogeography – Beetles and forest patches		
November 9	9	Reading Break – No Labs		
November 16	10	Exploring principles of community diversity: Soil litter/edge part 1		
November 23	11	Soil litter/edge, diversity indices, part 2		
November 30	12	Lab final exam		

#### LABORATORY MARK DISTRIBUTION (40% of the course mark)

Laboratory midterm exam:	Week of October 19	Mark	15.0%
Laboratory final lab exam:	Week of November 30	Mark	15.0%

Total laboratory mark:

Note: The laboratory exam format is composed of timed multiple choice questions. Details will be covered in your virtual lab meetings. The laboratory final exam is cumulative.

- Lecture Text: -purchase suggested but not required
- Ecology Authors: Molles and Laursen 2020- 5<sup>th</sup> edition (Canadian Edition)
- -E-version available (\$59) 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 of most lecture slides 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 10 minutes at the beginning of each lecture devoted to a question and answer session concerning any issues from the previous lectures.

## **Important Dates**

Sept 22: 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 25: Last day for adding courses that begin in the first term

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

Oct 5: First lecture midterm exam

Oct 13: 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 5: Second lecture midterm exam** 

**Nov 9-11- Reading break** 

Dec 04: Last lecture in Biol215

**Dec 07: Examinations begin for all faculties** 

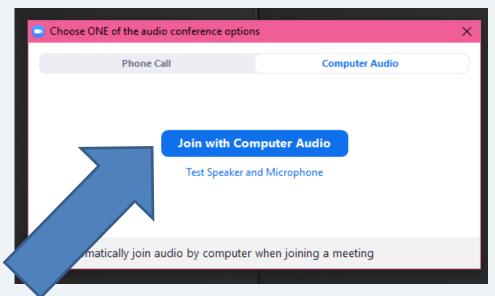
Maintain social distancing apart from your closest friends

Please learn a lot, study hard, and enjoy the course

# For the Zoom meetings

- Go to <a href="https://uvic.zoom.us/">https://uvic.zoom.us/</a> to sign in. You <a href="https://uvic.zoom.us/">have</a> to use your UVic netlink Id and password to automatically join the Biology 215 Zoom lectures. If you receive a notice "Please wait for the host to start this meeting", that just means your 'virtual' prof has not yet started the meeting.
- Once you are signed in, you can join a meeting by clicking on the provided link. If you experience a waiting room message ("Please wait for the host to let you in"), then you have not signed in correctly.
- Please keep your camera turned off.
- Please keep your microphone muted.
- Join the lecture early 0820 to ensure a good connection.

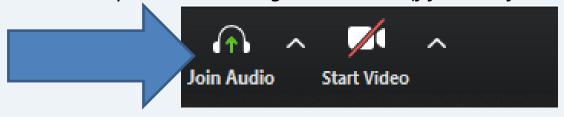
To be able to hear...



Please enable 'Join with Computer Audio'. Be sure to test your speaker and microphone. NB: If you are on a tablet, it may ask to 'Join with Device Audio'.

If the screen above does not show, please select 'Join Audio' to connect with computer/device audio.

NB: On a computer, this is found on the bottom left of the Zoom screen. On a tablet, this is found on the top towards the right-hand side (fifth icon from the right).



Please keep your microphone muted. ©

To help with attendance recording, please rename yourself to something similar on your registration. Click on Participants (bottom banner) and select your name. Click on 'More' and select 'Rename'. Thank you! ©

For more information on how to use Zoom and how to log in with your NetLink ID please visit

<u>https://www.uvic.ca/systems/services/avmultimedia/zoomvideoconferencing/index.php</u>

(or for more detailed information <a href="https://www.uvic.ca/systems/support/avmultimedia/zoomvideoconfe">https://www.uvic.ca/systems/support/avmultimedia/zoomvideoconfe</a> rencing/resources.php)

or register for a student Zoom webinar (see next slide).

### The following supports are available to all students:

### **UVic Technology Guide for Students**

This self-paced guide will help students get started with the online learning technologies for their courses. This includes Brightspaces and Zoom. After completing the guide, students will be able to navigate and use these tools for their online courses and know where to get help.

Additionally, if your concern is more technical or the resources above do not address your question, please place a ticket with the Computer Help Desk by e-mailing <a href="mailto:helpdesk@uvic.ca">helpdesk@uvic.ca</a>.

Any further questions about Zoom should be directed to the Computer Help Desk personnel. Thanks so much for your understanding.