



BIOL 306 - 001

Animal Ecology (3 credits)

2026/27 W T1 (fall2026)

TTh 5:00pm - 6:30pm, SCI 247

The UBC Okanagan campus is situated on the traditional, ancestral and unceded territory of the Syilx Okanagan Nation and their peoples, who have used this site for millennia to pass on in their culture, history, and traditions from one generation to the next. The relationship between the Syilx Okanagan Nation and UBC Okanagan is an important part of our institution's history, and it's important to respectfully acknowledge that. For more information please see: <https://ok.ubc.ca/about/indigenous-engagement/>

Instructor:

Dr. Matthew K Nelson

SCI 160

Phone: 250-807-9683 (i won't get messages)

matthew.nelson@ubc.ca (you can **imessage** me here)

<http://www.natureboy.com>

Office Hours: Sci 160

About me: My research

background is mainly focused on the behavioral ecology and life history of wolf spiders and other arachnids. I have also done some work with snakes, lizards, and salamanders. My current interests

include arachnology, entomology, and herpetology. Originally from Texas, I moved to British Columbia in 2013 and currently reside in Penticton.



Course Description:

BIOL 306 (3 Credits) (Animal Ecology)

Integrates recent advances in the study of animal ecology. Principles of animal community, population, and individual ecology are covered. [3-0-0]

Prerequisite: BIOL 201 and BIOL 202.



Course Overview:

This course is an introduction to the study of ecology from an animal perspective. We will be discussing different aspects of interactions among animals and their environments at the individual, population, community and ecosystem level. Topics covered will include population dynamics, competition, behavioral ecology, life history strategies, food webs, and succession patterns.

Learning outcomes:

By the end of this course, students will be able to:

1. Explain the major factors that help to determine global climate patterns and the role that these patterns play in determining the characteristics of terrestrial and aquatic biomes.
2. Discuss the ways in which individuals interact with other organisms and with their environment, making trade-offs in order to increase individual fitness.
3. Estimate population size using mark and recapture data.
4. Explain the different factors affecting population growth, and use population growth models to estimate population trends based on these factors.
5. Estimate the effects of competition, exploitation, and mutualism on population size/growth.
6. Explain the factors affecting spatial distribution of animals and analyze the effects of movement on interactions within a metapopulation.
7. Describe the transfer of energy through a trophic system. Compare and contrast top-down and bottom-up trophic systems.
8. Examine an ecology-related article in the mass media, assess how well the writer has conveyed the research findings, and propose ways in which the information might have been communicated more clearly.

Course Format:

This course is a standard lecture course. I will, however, use **Canvas** to provide some material that I would like you to read or look at. In these uncertain times, I am also prepared to transition to online delivery should the need arise. (Hopefully this will not be the case.) **Canvas modules** will help guide you through the course material. From time to time I may post supplementary material on **natureboy.com (this will all be linked to from Canvas)**. **Canvas** and **Canvas mail** will be used to post announcements and to provide course-related material. It is your responsibility to check the Canvas site at least once a week.



Exams will be given in class, in person. Graded material in this course will include some homework assignments, two midterms, a final exam, and a writing assignment.

Course Evaluation:

Midterm 1	25%	OCT 6
Midterm 2	25%	NOV 17
smartwork / in-class assignments	10%	
writing assignment	10%	OCT 22
Final	30%	TBA
Total		100%

Final grades will be based on the evaluations listed above and the final grade will be assigned according to the standardized grading system outlined in the UBC Okanagan Calendar.

Required Materials:

Marchetti, M.P., Lockwood, J.L., and Hoopes, M.F. (2023) *Ecology in a changing world*. W. W. Norton & Company. ISBN: 978-0-393-89239-0 (ebook) OR 978-0-393-89240-6 (paperback)

note: we will be doing some of the simulations and assignments from this textbook, so it is required and you will need access to the online materials.

Writing assignment:

The individual writing assignment will consist of a short paper (1-2 pages double-spaced), critically evaluating a report in the mass media of a topic relevant to this course. (**OCT 22**).

Final Examination:

Students are expected to make themselves available to write final exams at the scheduled times. In the event of an exam clash (i.e., two exams schedule at the exact same date and time) students must inform the instructors as soon as possible, so that alternate arrangements can be made. In the event of an exam hardship (i.e., 3 or more exams that start and end in a 27-hour period, must notify the instructor of the second formal examination no later than one month prior to the examination date for courses in the Winter Session (whether in December for Term 1 or April for Term 2), and no later than two weeks prior to the examination date for courses in the Summer Session. For more information, please see the BC Okanagan Academic calendar, regarding exam clashes and hardships.

Note: Any requests for changes to final exams must be sent to the office of the Associate Dean of Students (bsasdeansoffice.ubco@ubc.ca).



Makeup exams:

If you have to miss an exam, you need to contact me **as soon as possible** to let me know what is going on. When you are able to return to class, we will schedule a makeup exam. It is in your best interest not to miss an exam; students rarely do well on makeup exams. However, if you *are sick* you should not attend an exam or class.

Missed Assignments and Exams:

From UBC Okanagan Academic Calendar/Policies and Regulations/Academic Concession

"Students who, because of unforeseen events, are absent during the term and are unable to complete tests or other graded work, should normally discuss with their instructors how they can make up for missed work, according to **written guidelines given to them at the start of the course**. Instructors are not required to make allowance for any missed test or incomplete work that is not satisfactorily accounted for. If ill health is an issue, students are encouraged to seek attention from a health professional. Campus Health and Counseling will normally provide documentation only to students who have been seen previously at these offices for treatment or counseling specific to conditions associated with their academic difficulties. Students who feel that requests for consideration have not been dealt with fairly by their instructors may take their concerns first to the Head of the discipline, and if not resolved, to the Office of the Dean. Further information can be found at:

<http://www.calendar.ubc.ca/okanagan/index.cfm?tree=3,48,0,0>.

Grading practices:

Faculties, departments, and schools reserve the right to scale grades in order to maintain equity among sections and conformity to university, faculty, department, or school norms. Students should therefore note that an unofficial grade given by an instructor might be changed by the faculty, department, or school. Grades are not official until they appear on a student's academic record.

www.calendar.ubc.ca/okanagan/index.cfm?tree=3,41,90,1014.

Disability Resource Centre

The Disability Resource Centre (DRC) facilitates disability-related accommodations and programming initiatives that ameliorate barriers for students with disabilities and/or ongoing medical conditions. If you require academic accommodations to achieve the objectives of a course, please contact the DRC at:

UNC 215 250.807.8053

Email: drc.questions@ubc.ca

Web: <https://students.ok.ubc.ca/academic-success/disability-resources/>

**Tentative Lecture Schedule:**

TARGET DATE	TOPIC / In-class Assignment	READINGS
SEP 1	Syllabus/Discuss Course	
SEP 3	global climate/biomes	CH 3
SEP 8	evolution/speciation	CH 4
SEP 10	individuals, organisms and the environment	
SEP 15	individuals, organisms and the environment	CH 5
SEP 17	- water balance, thermoregulation	
SEP 22	populations	CH 6
SEP 24	- density dependence	
SEP 29		
OCT 1	<i>in class assignment</i>	
OCT 6	MIDTERM 1	
OCT 8	life history strategies	
OCT 13	competition	CH 7
OCT 15		
OCT 20	exploitation	CH 8
OCT 22	<i>in class assignment / writing assignment due</i>	
OCT 27	coevolution/mutualism	CH 9
OCT 29		
NOV 3	communities/food webs	CH 10
NOV 5		
NOV 9-13	MIDTERM BREAK	
NOV 17	MIDTERM 2	
NOV 19	spatial dynamics	CH 12
NOV 24	biodiversity	CH 11
NOV 26		
DEC 1	succession, disturbance, invasives	CH 13
DEC 3		
TBA	FINAL EXAM	



Academic Integrity:

The academic enterprise is founded on honesty, civility, and integrity. As members of this enterprise, all students are expected to know, understand, and follow the codes of conduct regarding academic integrity. At the most basic level, this means submitting only original work done by you and acknowledging all sources of information or ideas and attributing them to others as required. This also means you should not cheat, copy, or mislead others about what is your work. Violations of academic integrity (i.e., misconduct) lead to the break down of the academic enterprise, and therefore serious consequences arise and harsh sanctions are imposed. For example, incidences of plagiarism or cheating may result in a mark of zero on the assignment or exam and more serious consequences may apply if the matter is referred to the President's Advisory Committee on Student Discipline. Careful records are kept in order to monitor and prevent recurrences.

The use of generative AI tools, including ChatGPT and other similar tools, to complete or support the completion of any form of assignment or assessment in this course is not allowed and would be considered academic misconduct.

A more detailed description of academic integrity, including the policies and procedures, may be found at: <http://okanagan.students.ubc.ca/calendar/index.cfm?tree=3,54,111,0>

If you have any questions about how academic integrity applies to this course, please consult with your professor.

Copyright disclaimer: Diagrams and figures included in lecture presentations adhere to Copyright Guidelines for UBC Faculty, Staff and Students <http://copyright.ubc.ca/requirements/copyright-guidelines/> and UBC Fair Dealing Requirements for Faculty and Staff <http://copyright.ubc.ca/requirements/fair-dealing/>. Some of these figures and images are subject to copyright and will not be posted to **Canvas**. All material uploaded to **Canvas** that contain diagrams and figures are used with permission of the publisher; are in the public domain; are licensed by Creative Commons; meet the permitted terms of use of UBC's library license agreements for electronic items; and/or adhere to the UBC Fair Dealing Requirements for Faculty and Staff. Access to the **Canvas** course site is limited to students currently registered in this course. Under no circumstance are students permitted to provide any other person with means to access this material. Anyone violating these restrictions may be subject to legal action. Permission to electronically record any course materials must be granted by the instructor. Distribution of this material to a third party is forbidden.

Equity and Inclusion Office

Through leadership, vision, and collaborative action, the Equity & Inclusion Office (EIO) develops action strategies in support of efforts to embed equity and inclusion in the daily operations across



the campus. The EIO provides education and training from cultivating respectful, inclusive spaces and communities to understanding unconscious/implicit bias and its operation within in campus environments. UBC Policy 3 prohibits discrimination and harassment on the basis of BC's Human Rights Code. If you require assistance related to an issue of equity, educational programs, discrimination or harassment please contact the EIO.

UNC 325H 250.807.9291

Email: equity.ubco@ubc.ca

Web: <https://equity.ok.ubc.ca/>

Resources for Indigenous Students:

Indigenous Programs & Services provides community and culturally appropriate services and support to First Nation, Métis, and Inuit Students. You belong here.

The Indigenous Centre, located on the second floor of the University Centre building (UNC 210), provides a sense of belonging and community to First Nations, Métis, and Inuit students. This home away from home is committed to enriching the quality of the student experience for Indigenous students by promoting access, providing capacity building opportunities, and celebrating success.

Website: <https://students.ok.ubc.ca/indigenous-students/>

Office of the Ombudsperson for Students

The Office of the Ombudsperson for Students is an independent, confidential and impartial resource to ensure students are treated fairly. The Ombuds Office helps students navigate campus-related fairness concerns. They work with UBC community members individually and at the systemic level to ensure students are treated fairly and can learn, work and live in a fair, equitable and respectful environment. Ombuds helps students gain clarity on UBC policies and procedures, explore options, identify next steps, recommend resources, plan strategies and receive objective feedback to promote constructive problem solving. If you require assistance, please feel free to reach out for more information or to arrange an appointment.

UNC 217 250.807.9818

Email: ombuds.office.ok@ubc.ca, Web: www.ombudsoffice.ubc.ca

Student Learning Hub

The Student Learning Hub is your go-to resource for free math, science, writing, and language learning support. The Hub welcomes undergraduate students from all disciplines and year levels to access a range of supports that include **tutoring in math, sciences, languages, and writing, as well as help with academic integrity, study skills and learning strategies**. Students are encouraged to visit often and early to build the skills, strategies and behaviours that are essential to being a confident and independent learner. For more information, please visit the Hub's website.



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LIB 237 250.807.8491

Email: learning.hub@ubc.ca

Web: <https://students.ok.ubc.ca/academic-success/learning-hub/>

Student Wellness

At UBC Okanagan health services to students are provided by Student Wellness. Nurses, physicians and counsellors provide health care and counselling related to physical health, emotional/mental health and sexual/reproductive health concerns. As well, health promotion, education and research activities are provided to the campus community. If you require assistance with your health, please contact Student Wellness for more information or to book an appointment.

UNC 337 250.807.9270

Email: healthwellness.okanagan@ubc.ca, Web: <https://students.ok.ubc.ca/health-wellness/>

Independent Investigations Office (IIO):

If you or someone you know has experienced sexual assault or some other form of sexual misconduct by a UBC community member and you want the Independent Investigations Office (IIO) at UBC to investigate, please contact the IIO. Investigations are conducted in a trauma informed, confidential and respectful manner in accordance with the principles of procedural fairness. You can report your experience directly to the IIO (investigationsoffice.ubc.ca):

Email: director.of.investigations@ubc.ca

Telephone: 604.827.2060

SAFEWALK

*Don't want to walk alone at night? Not too sure how to get somewhere on campus? Call Safewalk at **250-807-8076.***

For more information, see: <https://security.ok.ubc.ca/safewalk/>