UNIVERSITY OF SASKATCHEWAN

An Introduction to Ecology and Ecosystems

Biology 228.3.1

Term 1, 2013-2014

Instructors:

Dr. Jeff Hudson (Course coordinator)
Room 310A Thompson (Biology) Building
966-4412, email : jeff.hudson@usask.ca

Dr. Jill Johnstone
Room 236 Thompson (Biology) Building
966-4421, email : jill.johnstone@usask.ca

Mr. Scott Halpin (Lab Coordinator)
Room 150 Thompson (Biology) Building
966-4493, email: scott.halpin@usask.ca

Lecture: 10:30–11:20 Monday, Wednesday, and Friday
Room 106 Thompson (Biology) Building

Lab: 1:30–5:30 Monday or Tuesday or Wednesday; or 8:30–12:30 Thursday
Room 212 Thompson (Biology) Building

Description and Course Objectives:

This course is designed for undergraduate students that have an interest in broadening their studies in biology; however, we encourage students from a variety of departments to take this course because the principles of ecology cross several disciplines within the Colleges of Arts and Science, Agriculture, and Veterinary Medicine.

Major topics include: an introduction to ecological principles and the functioning of aquatic and terrestrial ecosystems; individual-based ecology including behaviour; population dynamics; community structure and dynamics; ecosystem production; energy flow and material recycling; and conservation biology. Your instructors have expertise in aquatic ecosystem ecology (Hudson), vegetation ecology (Johnstone) and field data collection methods for terrestrial and aquatic systems (Halpin).

Learning Objectives:
Through lectures, assigned readings, and laboratory exercises students will:

- Develop an introductory understanding of ecology. This understanding will be in 4 major ecological sub-disciplines: population, community, ecosystem and global ecology.
- Be able to describe how the scientific method is applied in examples of ecological studies.
- Practice and apply numerical skills by compiling, summarizing and interpreting basic scientific data.
- Build critical thinking skills through the process of evaluating scientific information in Biol 228 laboratories and from the literature.
- Become familiar with the impacts of humans on ecological systems.
- Be able to describe mechanisms that support biological diversity at the individual, community, landscape, and global scales;
- Develop a sense of place by acquiring new knowledge about the ecology of populations, communities and ecosystems of Saskatchewan and Canada

Prerequisites:

BIOL 121 or GEOG 120 or 6 credit units in GEOL. Students with credit for BIOL 253 or PLSC 213 will not receive credit for BIOL 228.

Textbook:

Smith M. S., R. L. Smith, and I. Waters. 2014. Elements of Ecology. 1st Canadian Edition. Pearson. Upper Saddle River, New Jersey.

Grading Criteria:

Mid-term exam	20%
Final exam	40%
Laboratory	40%
Total	100%

BIOLOGY 228.3.1
LABORATORY SCHEDULE 2013

LABS BEGIN THE WEEK OF SEPTEMBER 9th

SEP 5 - 6	**NO LAB**
SEP 9 -13	Beaver Creek Field Trip; An Introduction to Saskatchewan Ecosystems
SEP 16- 20	Saskatoon Riverbank Field Trip; An Introduction to Saskatchewan Ecosystems
SEP 23 -27	An Investigation of Population Growth I: Exponential Growth Models*
SEP 30-OCT 4	An Investigation of Population Growth II: Logistic Growth Models*
OCT 7 - 11	Quantitative Vegetation Sampling Methods *
OCT 14 – 18	**NO LAB**
OCT 21 – 25	Statistical Analysis of Data; The X^2 Test*
OCT 28 – NOV 1	Energy Flow and Materials Distribution in Terrestrial Ecosystems*
	Quiz1 (on Beaver Creek, Riverbank and Population Growth labs)
NOV 4- 8	Energy Flow and Materials Distribution in Aquatic Ecosystems *
NOV 11-15	**NO LAB**
NOV 18 - 22	**Review**
	Quiz2 (on Statistical Analysis and energy flow labs)
NOV 23	**FINAL LAB EXAM Saturday 9:30am to 12:00 pm**

*** denotes labs with in-lab assignments**

LABORATORY: Room 212 Biology, Monday, Tuesday, Wednesday, 1:30-5:30 pm
Room 212 Biology, Thursday, 8:30 am-12:30 pm

Lab expectations and evaluation/assignment requirements will be discussed in the second lab period.

Laboratory mark breakdown: 25% from quizzes/assignments, and 15% from lab exam

Fall 2013 Lecture Schedule		
Date	**Topic**	**Readings**
Sept 6	Introduction: Concepts of Ecology & Ecosystems	Chap 1 (All readings in "Elements of Ecology")
Sept 9, 11, 13	Life History Patterns & the Basics of Population Ecology	Chap 8, 9
Sept 16, 18, 20	Populations: Patterns and Growth	Chap 10
Sept 23, 25, 27	Competition Within and Among Species	Chap 11, 13
Sept 30, Oct 2, 4	Species Interactions: Predation, Parasitism, Mutualism	Chap 14, 15
Oct 7, 9	Species Interactions and Community Dynamics	Chap 17
Oct 11, 14	**Term 1 Fall Break and Thanksgiving Day Holiday**	
Oct 16, 18	Species Interactions and Community Structure	Chap 16
Oct 21	**BIOL 228 Mid-Term Exam**	
Oct 23	Carbon Cycle: Laws of Thermodynamics	To be announced in class
Oct 25, 28, 30, Nov 1	Carbon Cycle: Energy Flow, Food Webs	
Nov 4, 6, 8	Nitrogen, Phosphorus, Sulfur Cycles (and other cycles of interest)	
Nov 11	**Holiday in lieu of Remembrance Day**	
Nov 13, 15, 18, 20, 22	Aquatic Systems: Freshwater and Marine Ecosystems	
Nov 25, 27, 29, Dec 2, 4	Terrestrial Ecosystems: Grasslands and Boreal Forest	
Dec 4	Review	
TBA	**Final Exam**	

Email Policy:

Although email is a useful communication tool, please consider your email inquiries carefully. For example, if you have a question that has a likely answer in your text or lecture notes, please refer to these resources first. Inquiries that may require a lengthy response should be posed after class, or during your laboratory time.

Deferred Examinations and Labs:

You must take examinations during their scheduled periods, and treat due dates for lab reports as seriously as that of a scheduled exam. If you are absent from a lecture exam, or miss a due date for a report for a reason that is University approved (e.g., illness, death in the family, official University business), then provide the course organisers with the appropriate documentation (required in ALL circumstances) in a timely manner (within three days), and arrangements to help you meet course requirements will be made. Final exams are rescheduled ONLY with a fee and by application to your College, following University-approved procedures.

Special Needs or Disabilities:

Students with special needs or disabilities are encouraged to contact the instructor and let me know about your needs as soon as classes begin. Every effort will be made to accommodate the requirements of students with special needs. Please take advantage of the programs offered by Disability Services http://www.students.usask.ca/disability/dss/

Academic Honesty:

The Guidelines for Academic Conduct from University of Saskatchewan Council can be found at: http://www.usask.ca/university_secretary/honesty/.

Honesty and integrity are expected in class participation, examinations, assignments, and other academic work.

- Perform your own work unless specifically instructed otherwise;
- Use your own work to complete assignments and exams;
- Cite the source when quoting or paraphrasing someone else's work;
- Follow examination rules;
- Be truthful on all university forms;
- Discuss with your professor if you are using the same material for assignments in two different courses;
- Discuss with your professor if you have any questions about whether sources require citation;
- Use the same standard of honesty with fellow students, lab instructors, teaching assistants, sessional instructors and administrative staff as you do with faculty.

Beware of plagiarism!!!! Academic honesty is a must in our institution and plagiarism will be strictly penalized.

You are expected to consult the Student Academic Misconduct Regulations (University Council): http://www.usask.ca/university_secretary/pdf/dishonesty_info_sheet.pdf