



## DEPARTMENT OF SCIENCE

### COURSE OUTLINE – BIOLOGY 2080, WINTER SEMESTER, 2015

#### PRINCIPLES OF ECOLOGY 3

**INSTRUCTOR:** Dr. Georgia Goth      **PHONE:** 780-539-2827  
**OFFICE:** J222      **EMAIL:** ggoth@gprc.ab.ca

**OFFICE HOURS:** Tuesday, Wednesday, Thursday 11:30-12:50

**PREREQUISITE(S)/COREQUISITE:** BI 1080

#### **REQUIRED TEXT/RESOURCE MATERIALS:**

Freedman, B. et al., 2015, *Ecology: A Canadian Context*, 2<sup>nd</sup> edition, Nelson Publ. C.,  
662pp (required textbook)

#### **CALENDAR DESCRIPTION:**

Ecology is the scientific study of interactions between organisms and their environment in a hierarchy of levels: individuals, populations, communities, and ecosystems. This course is designed to provide a comprehensive survey of general concepts that can stand alone or serve as preparation for advanced courses in ecology. Labs emphasize the collection, analysis and interpretation of data from ecological experiments to illustrate and complement the lecture material. Examples will be drawn from a wide range of organisms and systems.

**CREDIT/CONTACT HOURS:** 3 (3-0-3)

**DELIVERY MODE(S):** Lectures, labs, seminars

#### **OBJECTIVES:**

The objective of this course is to develop an understanding of the environmental interactions that determine the distribution and abundance of organisms. The environment can be abiotic (temperature, water availability, soil nitrogen levels, etc.) or biotic (influences exerted by other organisms). The **organism** can be viewed as the most fundamental unit of ecology in the sense that no smaller unit has a separate life in the environment. Although ecological systems can be as small as a drop of water or as large as the entire biosphere, ecologists recognize 4 hierarchical levels of study: the response of **individuals** to their environments; the response of **populations** of a single species; the composition and structure of **communities**; the processes occurring within **ecosystems**.

Within ecology there are a number of fields of study. These can be approached in different ways. For example, **behavioural ecology** is concerned with patterns of behaviour within populations; **physiological ecology** explores how individuals are physiologically or functionally adapted to live in their environments and carry out their roles; **evolutionary ecology** is concerned with the impact of evolution on current ecological patterns and the historical formation of adaptations. In this course we will cover several of these fields of study.

There are several concepts to remember before beginning the study of ecology: (A. Mackenzie, A.S. Ball, S.R. Virdee)

1. Ecology is a science
2. Ecology is only understandable in the light of evolution
3. Nothing happens 'for the good of the species'
4. Genes and the environment are both important
5. Understanding complexity requires models
6. 'Story-telling' is dangerous (ie, anecdotal evidence doesn't count!)
7. There are hierarchies of explanations
8. There are multiple constraints on organisms
9. Chance is important

#### **TRANSFERABILITY:**

**UA, UC, UL, AU, AF, CU, KUC**

\*\* Grade of D or D+ may not be acceptable for transfer to other post-secondary institutions. Students are cautioned that it is their responsibility to contact the receiving institutions to ensure transferability

**GRADING CRITERIA:**

<b>GRANDE PRAIRIE REGIONAL COLLEGE</b>			
<b>GRADING CONVERSION CHART</b>			
<b>Alpha Grade</b>	<b>4-point Equivalent</b>	<b>Percentage Guidelines</b>	<b>Designation</b>
<b>A<sup>+</sup></b>	<b>4.0</b>	<b>90 – 100</b>	<b>EXCELLENT</b>
<b>A</b>	<b>4.0</b>	<b>85 – 89</b>	
<b>A<sup>-</sup></b>	<b>3.7</b>	<b>80 – 84</b>	<b>FIRST CLASS STANDING</b>
<b>B<sup>+</sup></b>	<b>3.3</b>	<b>77 – 79</b>	
<b>B</b>	<b>3.0</b>	<b>73 – 76</b>	<b>GOOD</b>
<b>B<sup>-</sup></b>	<b>2.7</b>	<b>70 – 72</b>	
<b>C<sup>+</sup></b>	<b>2.3</b>	<b>67 – 69</b>	<b>SATISFACTORY</b>
<b>C</b>	<b>2.0</b>	<b>63 – 66</b>	
<b>C<sup>-</sup></b>	<b>1.7</b>	<b>60 – 62</b>	
<b>D<sup>+</sup></b>	<b>1.3</b>	<b>55 – 59</b>	<b>MINIMAL PASS</b>
<b>D</b>	<b>1.0</b>	<b>50 – 54</b>	
<b>F</b>	<b>0.0</b>	<b>0 – 49</b>	<b>FAIL</b>
<b>WF</b>	<b>0.0</b>	<b>0</b>	<b>FAIL, withdrawal after the deadline</b>

**EVALUATIONS:**

Mid-term Exam: 25%  
 Laboratory: 25%  
 Term Paper: 10%

Final Lecture Exam: 40%

Examinations may include both multiple choice and short answer questions. The final exam is cumulative.

### **STUDENT RESPONSIBILITIES:**

Since presence at lectures and laboratories, participation in classroom discussion and projects, and the completion of assignments are important components of this course, students will serve their interests best by regular attendance. Those who choose not to attend must assume whatever risks are involved. In this connection, the attention of the students is directed to the *Academic Guidelines of Grande Prairie Regional College*.

All assignments must be completed and handed in to the instructor by the date specified. Late assignments will not be marked. Students must attend laboratory sessions and complete each exercise in order to receive credit for the lab reports.

### **STATEMENT ON PLAGIARISM AND CHEATING:**

Refer to the Student Conduct section of the College Admission Guide at

<http://www.gprc.ab.ca/programs/calendar/> or the College Policy on Student Misconduct: Plagiarism and Cheating at [www.gprc.ab.ca/about/administration/policies/\\*\\*](http://www.gprc.ab.ca/about/administration/policies/**)

\*\*Note: all Academic and Administrative policies are available on the same page.

### **COURSE SCHEDULE/TENTATIVE TIMELINE:**

Chapters 1, 2, 5, 6, and 8 will be covered on the midterm exam

Chapters 9, 10, 12, and Human Ecology will be covered after midterm week

The final exam is cumulative