

<b>Course Code:</b> BIOL1040	<b>Semester Offering:</b> Winter 2012	<b>Credit Weight:</b> 0.50
<b>Course Title:</b> BIOLOGY 2	<b>Lecture, Lab, and Independent Learning Hours:</b> <b>Lecture:</b> 3x 1hr, Mon 10am, Tues and Thurs 1pm Admin 201 <b>Lab:</b> 1x3hr, Wed 9-12, Fraser Lab and Classroom <b>Independent Learning:</b> Courselink	
<b>Instructor Name and Contact Information:</b>		
Instructors:	Dr. Paul Sharpe Fraser Rm Dr. Jane Kielly Parish 210	Office Hrs: Mon 10-12, Tues 10-12 Office Hrs: Mon 10 – 12, Tue/Th 10-12
Lab Instructor:	Helen MacGregor Parish 216E	Office Hrs: Mon 10-12, Tues 10-12

**Course Description:**

Biology II, BIOL\*1040, continues the scientific study of life introduced in Biology I, BIOL\*1030. It explores some of the basic challenges that organisms from microbes to plants and animals face in order to survive and reproduce. Biology I addressed the challenges faced for structural organization, communication and nutrition and the evolutionary framework that provided ongoing solutions to such challenges. Biology II will introduce the Challenges of Growth and Development, Reproduction, and Response to the Environment and the variety of solutions living systems have developed. The course will conclude with Life in the Global Context to demonstrate how organisms are interdependent and form a global living system which is not only sensitive to changes in the environment but also directly influences it. The course presents these aspects through the route of scientific discovery used to contribute to our current knowledge. Through lectures, laboratory investigations, D2L assignments and the use and interpretation of the primary scientific literature, the course emphasizes the dynamic process of discovery, highlights relevant, and at times, controversial topics in biology, and introduces some of the general principles necessary for more advanced courses.

**Evaluation:**

- 7% Online discussion: Debating biology-related issues in science (Jan. 16 - Feb. 3, inclusive)
- 23% Midterm exam (Wed Feb 29, 9-11am); based on the first six weeks of the semester.
- 15% Final Semester Assignment: PowerPoint Presentation – summary and critique of 2 primary journal articles (to D2L dropbox by Monday, Mar. 19 at 12:00 noon) and presentations on Mar 21 and 28. Students **must attend** all presentations.
- 12% Laboratory (lab report data sheets and pre-lab quizzes)
- 43% Final exam (Tuesday April 10. 7:00 – 9:00 PM); comprehensive, with some emphasis on the last weeks of the semester.

### **Method of Presentation including Lecture Modules:**

Lectures will be presented on **Monday from 10-11am, Tuesday and Thursday from 1- 2 pm** in ADMIN 201.

Lectures in the course will consist of four integrated topics:

- 1) Challenges of Growth and Development (Dr. Sharpe, Jan 9 – Jan 27)
- 2) Response to the Environment (Dr. Sharpe, Jan 30 – Feb 17) **Review Feb 15**
- 3) Challenges of Reproduction (Dr. Kielly, Feb 27 – Mar 16)
- 4) Life in the Global Context (Dr. Kielly, Mar 19 – April 5) **Review April 4**

Students will be fully responsible for material from the **reading assignments** as well as the lectures for the exams. Lecture outlines will be posted on D2L, not necessarily before they have been presented.

### **Learning Objectives:**

Upon completion of this course, students will understand:

- Cellular diversity and the related division of labour in a multicellular organism is a solution to several Challenges of Life.
- Generating cellular diversity and morphology is a fundamental challenge that involves growth, differentiation and death and that this capability is maintained from generation to generation.
- Problems associated with cell division and differentiation, morphogenesis, growth, ageing and lifespan, as well as evolution and reproduction are classical problems in developmental biology.
- Reproduction accomplishes not only maintenance or increase in numbers of individuals but also introduces genetic variability.
- Although strategies differ, there are several mechanisms in both sexual and asexual reproduction which provide for genetic variability.
- Both biotic and abiotic environmental changes impact on the ability of an organism to survive and are a major driving force of evolution.
- A variety of strategies are employed to sense changes in the environment and that some behavioural, physiological and morphological adaptations have evolved to deal with them but certain stressors put constraints on survival in diverse habitats.
- Due to constraints on evolution itself, there are non-ideal evolutionary trade offs that allow survival at a below optimum level.
- Although diversity is needed for survival the extent of diversity is itself dependent on several factors.
- Biology impacts on and is influenced by everyday events and global issues.

**Weekly laboratory Outline:** The following summary of weekly Labs/Tutorials is subject to change.

Dates	Week	
Jan 11	1	Tutorial 1 – How to do online discussion <b>Fraser classroom</b> <b>Jan 16-Feb3 – Online discussion dates</b>
Jan 18	2	Lab 1 – <b>Challenges of Growth and development – Fraser lab</b>
Jan 25	3	Tutorial 2 – Power Pt Groups organized and learning session in <b>computer lab 120</b>
Feb 1	4	<b>No lab</b>
Feb 8	5	Lab 2 – <b>Physiological Colour Change - Fraser Lab</b> <b>Feb 10 – Deadline - Power Point articles due by noon to D2L dropbox</b>
Feb 15	6	NO Lab
Feb 20-24	7	Reading Week
Feb 27- Mar 2	8	Feb 29 – Midterm Exam <b>Mar 2 - Deadline – Draft questions for power point due by noon to D2L dropbox</b>
Mar 7	9	Lab 3 – <b>Challenges of Reproduction - Fraser Lab</b>
Mar 14	10	Lab 4 – <b>Phenotypic Plasticity - Fraser Lab</b> <b>Mar 16 – Power Points due by noon to D2L dropbox</b>
Mar 21	11	Power Point Presentations - <b>Fraser Class – all students attend</b>
Mar 28	12	Power Point Presentations - <b>Fraser Class – all students attend</b>
Apr 4	13	Exam review in lab time
April 15	14	<b>FINAL EXAM is on Tuesday April 10, 7:00 – 9:00 PM</b>

<b>Course Prerequisite(s):</b> BIOL1030	<b>Course Restriction(s):</b>
<p><b>Text Book(s) Required:</b> The recommended textbook is <i>Life, the Science of Biology</i>, 8<sup>th</sup> Edition by Sadava, Heller, Orians, Purves, and Hillis, to complete the background readings in this course, and</p> <p><b>Biology II Laboratory Manual Winter 2012 is required.</b></p> <p>A few copies of the textbook are available in the library on a two hour in-library loan basis.</p> <p><b>Lab manual can be purchased at library and is required for all labs and tutorials.</b></p>	<p><b>Reference Material:</b> <b>Courselink WEB SITE:</b> The course web site on courselink should be consulted regularly for general course information, announcements, online discussions, detailed information about assignments, room locations for the midterm, lecture readings, access to semester marks, and study resources. Please note that the course web site will be <b>updated regularly</b> and may include important information about lab scheduling, assignments, and exams. If you have difficulties accessing information, tutorials, posted grades etc., email <a href="mailto:hmacgreg@kemptvillec.uoguelph.ca">hmacgreg@kemptvillec.uoguelph.ca</a>. Please note that pop up window blockers must be shut off to allow proper viewing of the BIOL*1040 courselink site.</p>

### Additional Course Information:

### Classroom Policies:

1. Students are expected to arrive on time and stay for the duration of the class.
2. The general use of small, personal electronic devices (e.g. cell phones, iPods) during class is disruptive and disrespectful. As a result, their use in the classroom for reasons other than instructor-led learning is prohibited
3. The use of a laptop for the purpose of taking notes/learning in the classroom is a *privilege*. Any student abusing this concession by using a laptop in class for other purposes will have the privilege revoked
4. In the classroom, students are expected to demonstrate behaviour that would meet the minimum conduct requirements of any professional working environment
5. Assignments are due on indicated date. Late assignments will not be marked unless there is a valid reason for its lateness.
6. If class is missed, it is your responsibility to make up the work.

**Electronic Communications:** Students will be required to access course materials and grades on *CourseLink*. Further, it is the student's responsibility to ensure that he/she knows how to send and receive e-mail using his/her *GryphMail* account and to check it regularly. All course-related electronic communications with the instructor and fellow students are to be delivered with the *GryphMail* account.

**Academic Integrity:** Adherence to acceptable standards of academic honesty is expected. Academic material submitted by a student is evaluated on the assumption that the work presented is his/ her own, unless designated otherwise. The University of Guelph takes a serious view of academic misconduct and it is your responsibility as a student to be aware of, and to abide by, the University's policy. To better understand your responsibilities, refer to the Diploma Program Calendar and discuss any questions you may have with your Instructor or Program Coordinator. For this course, all exams will be kept on file for one academic year by the Instructor. [The use of dictionaries is prohibited during all examinations.]

**Missed Assessments & Classes:** Make-up exams will be offered only to students with documented medical, psychological, or compassionate reasons for missing a scheduled assessment or *advanced consent* from the Program Coordinator. Late assignments without the aforementioned documentation will not be accepted and will result in a zero grade. It is the student's responsibility to obtain notes/ learning materials from a missed class.

**Advanced Consent:** Advanced consent is offered by the Program Coordinator to students who are taking part in an industry-related activity during a period that conflicts with a previously scheduled significant assessment (> 10% of term grade) that is not a midterm or final exam. This consent is offered prior to the event on the basis of evidence provided by the student to the Coordinator, verifying the participatory nature of the student. A written document from the event sponsor or employer- complete with dates, signature, and specific evidentiary explanation- is required.