

# **Biology 120.3 (02) - The Nature of Life**

## **General Course Outline**

### **Winter 2013-14**

This course is designed to introduce you to the vast and exciting field of biology, with a focus on events that are not normally visible to the naked eye. Covering topics in cell biology, genetics and evolution, Biology 120.3 is one of two foundation courses for biology majors and for students going into Natural Sciences (Program C). Biology 120.3 also counts towards the biology requirements of a number of programs in different colleges across campus. Biology 121.3 - The Diversity of Life - is the sister course to Biology 120.3, and focuses on biological diversity, evolution, adaptations of organisms to specific environments, and the factors influencing changes in biodiversity over time and space.

#### **ANTICIPATED LEARNING OUTCOMES**

There are a number of goals that the instructors of this course hope you achieve. In addition to helping improve your critical thinking skills and problem solving abilities, successful completion of Biology 120.3 should provide you with a basic understanding of the cell, cell theory, cell division, genetics, bioenergetics, and the molecular basis for variation and natural selection. The laboratory portion of the course will help link these topics together with hands-on exercises leading to you knowing how to use a microscope to visualize cells and tissues and how to solve basic genetics problems.

#### **INSTRUCTOR CONTACT INFORMATION**

Dr. Peta Bonham-Smith  
Arts Tower Room 229  
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Office Hours: by appointment (*send me an email and we can schedule a time that works for the two of us*)

#### **TEXTBOOK AND LAB MANUAL**

The required textbook for Biology 120.3 is **Biology - Exploring the Diversity of Life (2<sup>nd</sup> Canadian Edition)** by Russell et al., Nelson Education Ltd., 2013. The textbook will be referred to regularly during lectures both in terms of content and for the use of visual aids. It is also helpful for reviewing the material. You will not need to bring your textbook to class.

Copies of the textbook will be available from the reserve desk in the Science Library, for short term, in library use.

The Lab Manual for Biology 120 (2013-14 Edition) is required for the course, and must be brought to each lab session. It is available for purchase from the UofS Bookstore.

## **STUDENT REVIEW AND COURSE PREPARATION**

Due to the limited class time available, the instructors of Biol 120.3 want students to review particular information ahead of time. In the course textbook you will find a section in the middle of the book denoted by purple framing (pgs. F2-F56). This section contains basic information about the chemical and physical foundations of Biology, as well as a review of the macromolecules that make up living things (proteins, nucleic acids, carbohydrates and lipids). We will not directly cover this material in class, nevertheless it is important for the understanding of many basic biological topics we will cover. As such, you will be responsible for the information found in this section of the text, even though we will not directly cover the content in class. Knowledge of some of this information will be needed to answer questions posed on the midterm and final exams.

## **EVALUATION**

**Lecture Examinations:** Students must bring their current University of Saskatchewan student card to all exams and be prepared to present it for verification purposes. It is forbidden for students to utilize any type of electronic device during an exam (e.g., cell phone, dictionary, translator, etc.) (see Academic Honesty section below).

There will be one Midterm Lecture Exam held outside of class time on the evening of Wednesday Feb. 26<sup>th</sup>, 2014. The midterm will be scheduled from 5:30 to 6:30, at a location that will be announced during class. In the event that you miss this exam due to a medical emergency, death in the family, or another exceptional circumstance, you must advise your instructor within **THREE WORKING DAYS** of the missed exam. If you do not advise your instructor within three working days, or do not have an acceptable excuse, a grade of zero will be assigned.

The Final Lecture Exam will be held in April 2014, as arranged by the Registrar. Please note that the scheduled final exam period is April 10-30<sup>th</sup>, 2014.

Accommodations will not be made for students making travel arrangements during this time frame. If a student is absent for a legitimate reason he/she may apply for a Deferred Final Exam within **THREE WORKING DAYS** of the missed exam. All applications are made to the Dean's Office of the College in which the student is registered.

**Laboratory Examinations:** There will be a Final Laboratory Exam in the week of March 31<sup>st</sup>. Consult the 2013-14 Lab Manual for the procedure to follow for a missed Lab or Lab Exam.

There are other regular assignments, drawings and quizzes required for successful completion of the laboratory component of the course, and these are outlined in the Lab Manual.

## **GRADES**

**The final mark is calculated as follows:**

<b>Lecture Mid-term Exam</b>	<b>15%</b>
<b>Lecture Final Exam</b>	<b>45%</b>
<b>Lab Assignments and Quizzes</b>	<b>20%</b>
<b>Lab Exam</b>	<b>20%</b>
<b>TOTAL</b>	<b>100%</b>

### **IMPORTANT ACADEMIC DATES**

**Fri. Jan. 17<sup>th</sup> is the final day to change Term 2 registration without penalty.**

**Fri. Jan. 31<sup>st</sup> is the final date to drop Term 2 classes and receive 50% tuition credit.**

**Sat. Mar. 15<sup>th</sup> is the last day to drop a Term 2 class without academic penalty.**

### **LABORATORIES**

Labs begin in the week of JANUARY 20<sup>th</sup>, 2014. PAWS registration will give you a time and day of the week for your lab section, but room assignments are made by the Biol 120 lab coordinator, Gillian Murza. Lab room assignments will be posted on the bulletin board outside Biology Rm. 202 (second floor of the Biology Building) immediately before your first scheduled lab (check this list when you arrive for the lab to determine in which room you have been placed). Students are expected to attend, and be prepared for, all scheduled labs, lab reviews and final lab exams. A general 2013-14 lab schedule is provided in this hand-out.

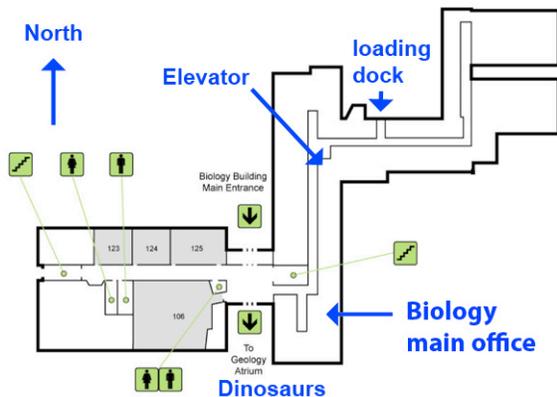
The current edition of the Lab Manual for Biology 120.3 is required for all labs. Please make sure that you have read the lab instructions and are prepared for the assigned exercises before going to each of your scheduled lab sessions. Any other questions regarding the lab should be directed to the laboratory instructional staff in Rm. 215 of the Biology Building.

### **STUDENTS WITH A DISABILITY**

Disability Services for Students (DSS) provides accommodations and services to part-time and full-time students with temporary and permanent disabilities. Services include exam accommodations, note-taking services, referral for assessments, counseling, and other advocacy support. Services are free of charge; however, students are required to register and provide appropriate medical documentation. If you are a student with a disability, or would like more information about the services, please contact Disability

Services for Students at 966-7273 or check out the website at [www.students.usask.ca/disability](http://www.students.usask.ca/disability)

Students requiring an elevator for access to the second floor in the Biology Building (teaching labs and some faculty offices) may use the elevator in the Museum of Natural Sciences. Alternatively, if offices on the 3<sup>rd</sup> floor of the Biology Building need to be accessed, there is an elevator located at the north end of the research wing, opposite Room 130.



## **ACADEMIC HONESTY**

It is the responsibility of all students to uphold the highest standards of integrity and honesty with respect to all of their academic work. It is in your best interest to make yourself aware of what constitutes an academic offense, and the implications and consequences of engaging in academically dishonest activities as described by the University of Saskatchewan Council. Rules regarding what constitutes an academic offense can be found on the website of the Office of the University Secretary: ([http://www.usask.ca/university\\_secretary/honesty/](http://www.usask.ca/university_secretary/honesty/)).

Typical penalties assessed for plagiarism, or cheating on an exam, vary depending on the seriousness of the offence. A common punishment for a minor first-offence in the College of Arts and Sciences is a grade of 0 on the exam or assignment and an additional -10% on the final course grade.

**LECTURE AND LAB SCHEDULE FOR BIOLOGY 120.3 -  
Winter 2013-14**  
(Section 01 – M/W/F – The approximate number of lectures  
is indicated in brackets)

	<b>LECTURE TOPIC</b>	<b>Chapters</b>	<b>LAB TOPIC (see lab manual for details)</b>
<b>WEEK 1 (Jan 6)</b>	<b>Introduction (2) + Cell Biology (1)</b>	1.1-1.9 (overview)	<b>No Lab</b>
<b>WEEK 2 (Jan. 13)</b>	<b>Cell Biology (3)</b>	2.1-2.5	<b>No Lab</b>
<b>WEEK 3 (Jan. 20)</b>	<b>Cell Biology (3)</b>	2.1-2.5	<b>Introduction, Microscopy, and Cells</b>
<b>WEEK 4 (Jan. 27)</b>	<b>Origins of Life (2) + Energy &amp; Enzymes (1)</b>	3.1-3.6	<b>Eukaryotic Cell Structure and Function</b>
<b>WEEK 5 (Feb. 3)</b>	<b>Energy &amp; Enzymes (1) + Membranes &amp; Transport (2)</b>	4.1-4.5	<b>Osmosis and Cell Division</b>
<b>WEEK 6 (Feb. 10)</b>	<b>Membranes &amp; Transport (3)</b>	5.1-5.7	<b>Sexual Life Cycles and Meiosis</b>
<b>Feb 17-21</b>	<b>MIDTERM BREAK</b>		<b>No Lab</b>
<b>Feb 26</b>	<b>MIDTERM EXAM</b>		<b>5:30-6:30 out of class</b>
<b>WEEK 7 (Feb. 24)</b>	<b>Respiration &amp; Photosynthesis (3)</b>	6.1-6.7 7.1-7.6 (limited 7.5)	<b>No Lab</b>
<b>WEEK 8 (Mar. 3)</b>	<b>Respiration &amp; Photosynthesis (2) + Cell Cycle (1)</b>	8.1; 8.3-8.5	<b>Introduction to Genetics</b>

<b>WEEK 9 (Mar. 10)</b>	<b>Cell Cycle (2) + Genetics (1)</b>	9.1-9.3 (limited 9.4)	<b>Human Genetics and Gene Linkage</b>
<b>WEEK 10 (Mar. 17)</b>	<b>Genetics (3)</b>	10.1-10.2 11.1-11.2 12.1-12.5	<b>Biotechnology: Techniques and Applications</b>
<b>WEEK 11 (Mar. 24)</b>	<b>Gene Expression &amp; Mutations (2) + Control of Gene Expression (1)</b>	13.1-13.4	<b>Review Lab</b>
<b>WEEK 12 (Mar. 31)</b>	<b>Control of Gene Expression (1) + DNA Technologies (2)</b>	14.1-14.2 (limited 14.3) 15.1-15.2	<b>Final Lab Exam</b>
<b>WEEK 13 (Apr. 7)</b>	<b>Review (1)</b>		<b>No Lab</b>