Biology 120.3 Section 92 - The Nature of Life [CRN 30031]
M/W/F 9:30-10:20 pm ARTS 104
General Course Outline
Winter 2015

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.

INSTRUCTORS

Dr. Jorge Chedrese	Biology RM 323 jorge.chedrese@usask.ca	966-4446
Dr. Doug Smith	Biology RM 150 Biology doug.smith@usask.ca	966-4415
Mr. Paul Dick Lab coordinator	room G77.3 Thorvaldson paul.dick@usask.ca	966-4431

TEXTBOOK AND LAB MANUAL

Biology - Exploring the Diversity of Life (2nd 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. 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. Copies of the textbook will be available from the reserve desk in the Science Library, for short term, in library use.

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.

ONLINE RESOURCES

There are a number of online resources to help support your learning in Biol120. We highly recommend the use of these resources as a means to help increase your performance and success in this course.

Blackboard Learn (https://bblearn.usask.ca) is where you will be able to access lecture notes, learning objectives, and other resources from your instructor.

All students will have access to an online biology course in Open Learning Initiative (OLI). This online course will be accessed through Blackboard and provides additional readings, animations, and self-tests. **OLI is also where you will access your weekly online quizzes.**

Those students who purchase a copy of the textbook (including the electronic version) will have access to MindTap. MindTap is an online platform that provides access to a digital copy of the textbook, animations, and self-tests.

Aboriginal Student Achievement Program Attendance Policy:

The Aboriginal Student Achievement Program (ASAP) offers Aboriginal students an opportunity to experience their first year of University in a supportive, culturally aware, small-class environment. ASAP is a community of learners, and all members of that community are expected to take responsibility for creating a positive and success-oriented learning environment within the program. When students miss classes, it leads to lack of community, lack of academic continuity, and a less encouraging environment for other students. For these reasons, ASAP requires that students in the program commit to attending all classes, labs, tutorials, and ASAP Hours. **ASAP students who have missed six or more hours of instruction time due to unexcused absences in any one course will be encouraged to withdraw from that course and, if they remain enrolled, will receive a grade of "Incomplete Fail" (INF) for the course.** Note that missing six or more hours of instruction time means being absent from at least: six one-hour classes, four hour-and-a-half classes, or two three-hour classes or labs.

Attendance will be taken by Instructors in every class and lab, using the ASAP online attendance system. Students who have not arrived in class within the first 30 minutes are considered to be absent and are required to communicate with the Instructor about the reason for their lateness. If a student is absent from a class or lab, he or she is required to communicate to either an Aboriginal Student Achievement Office (ASAO) Advisor or the Course Instructor within 48 hours, using either e-mail, phone message, text, or in-person discussion. If it is impossible for a student to communicate within 48 hours, he or she must get in touch as soon as possible, explaining the reason for the delay. Students must provide a reason for their absence (e.g. illness, family emergency) but are not required to disclose the details. If this communication is received, the Instructor or Advisor will alter the absence to "Absent Excused." If no communication is received from the student, the absence is considered to be unexcused.

After three hours of unexcused absences, a student will be sent a warning message from the ASAO to his or her PAWS email account, providing information on the attendance policy and asking the student to meet with an Advisor to make a plan to prevent future absences. Once a student has six or more hours of unexcused absences in a course, the ASAP Attendance Committee will meet with the course instructor to discuss the situation and the student will be sent an email advising him or her to withdraw from the course or receive a grade of INF (Incomplete Fail). If the student remains enrolled in the course, a grade of INF will be given for that course. A percentage grade will also be calculated based on the student's performance in the class and that percentage will be calculated into his or her average. The student will still be responsible for tuition and fees associated with the course. Throughout this

process, students will be encouraged to meet with an Academic Advisor to discuss their situations and explore their options.

Students can appeal the decision of the Attendance Committee. They must do so at least three weeks before the beginning of the final exam period. To appeal, they must submit to the ASAO a letter explaining why they missed classes, why they did not communicate the reasons for missing, and what will change to prevent this from happening again in the future. The letter will be considered by the Attendance Committee, in consultation with the Course Instructor, and the student will be informed of the decision at least two weeks prior to the final exam period.

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 on Tuesday February 24th, 2014. In the event of missing this exam due to a medical emergency, death in the family, or another exceptional circumstance, the student must advise the instructor within THREE WORKING DAYS of the missed exam. If the student does not advise the instructor within this term, or does not have an acceptable excuse, a grade of zero will be assigned. The Final Lecture Exam will be held in April 2015, as arranged by the Registrar. Please note that the final day of scheduled exams is April 30th, 2015.

Accommodations will not be made for students making travel arrangements prior to this date. 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 on Tuesday, April 2st. Consult the 2014-15 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.

Weekly Online Quizzes: There will be 10 weekly online quizzes that are accessed on OLI through the Blackboard Course Tools link in PAWS. Quizzes will be about 10 questions in length and will be available for you to complete between Monday and Sunday of each week. For example, Quiz 1 will be available to complete from Jan. 5 to 11. You will be allowed to attempt each quiz up to two times. The average score achieved will be recorded. These 10 quizzes will account for 10% of your final grade. Late quiz attempts cannot be accommodated due to software limitations.

GRADES

The final grade is calculated as follows:

Lecture Mid-term Exam	12.5%
Lecture Final Exam	37.5%
Weekly online quizzes (OLI)	10.0%
Lab Assignments and Quizzes	15.0%
Lab Exam 1	15.0%
Lab Exam 2	10.0%
TOTAL	100%

IMPORTANT ACADEMIC DATES

Friday, January 9th is the final day that students will be able to register for this course. Saturday, February 14th is the final date to drop Term 2 classes and receive 50% tuition credit. Saturday, March14th is the last day to drop a Term 2 class without academic penalty.

LABORATORIES

Labs begin in the week of January 12th, 2015. Your labs are Tuesday at 9 am in Rm 202, Biology. Students are expected to attend, and be prepared for, all scheduled labs, lab reviews and final lab exams. A general 2014 lab schedule is provided in this *Syllabus*.

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. 216 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

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 3rd 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/).

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.

Chapters and sections in Russell et al: *Biology, exploring the diversity of life*

Please note: Materials in the following sections from Russell *et al.* constitute all of the testable material for the lecture exams. The lecture presentations are to highlight and synthesize essential concepts, and to provide opportunities for class discussion and interaction.

Chapter 2 – The Cell: an Overview – §2–2.5c
Chapter 8 – Cell cycles – §8–8.4
Chapter 9 – Genetic recombination – §9.3 a-c - Meiosis
Chapter 3 – Defining Life and its Origins – §3–3.5 c
Chapter 4 – Energy and Enzymes – §4–4.5d
Chapter 5 – Cell Membranes and Signaling – §5–5.6 b
Midterm lecture exam
Chapter 10 – Mendel, Genes, & Inheritance – §10–10.2

Chapter 11 – Genes, Chromosomes, & Human Genetics – §11–11.2
Chapter 12 – DNA Structure, Replication, & Organization – §12–12.3
Chapter 13 – Gene structure & expression – §13–13.4
Chapter 6 – Cellular respiration – §6–6.7 d
Chapter 7 – Photosynthesis – §7–7.4 c
Final lecture exam – comprehensive – covers all of the lecture material in the course

LECTURE AND LAB SCHEDULE FOR BIOLOGY 120.3.92 (Winter 2015). Lectures (M/W/F 9:30-10:20 – Rm ARTS 104), and lab schedule (*approximate* number of lectures in brackets).

	Lecture topic	**Lab topic**
Week 1 Jan 5-7-9	Introduction (1), Cell Biology (2) Chedrese	No lab
Week 2 Jan 12-14-16	Cell Biology (3) Chedrese	Introduction, microscopy, cells
Week 3 Jan 19-21-23	Cell Biology (1), Cell Cycle (1.5), Meiosis (0.5) Chedrese	Eukaryotic cell structure and function
Week 4 Jan 26-28-30	Meiosis (1), Origins of Life (1.5), Energy & Enzymes (0.5) Chedrese	Osmosis and cell division
Week 5 Feb 2-4-6	Energy & Enzymes (1), Membranes & Transport (2) Chedrese	Sexual life cycles and meiosis
Week 6 Feb 9-11-13	Membranes & Transport (2), Chedrese	LAB EXAM 1
Week 7 Feb 16-18-20	Winter Break Week	No Lab
Week 8 Feb 23	Mendelian Genetics (3) Smith	No Lab
Feb 24	MIDTERM LECTURE EXAM During lab time	
Feb 25-27	Mendelian Genetics Smith	
Week 9 Mar 2-4-6 Smith	Human genetics (1), DNA Structure and Replication (2)	Introduction to genetics
Week 9 Mar 9-11-13	DNA Structure and Replication (1), Gene Expression (2) Smith	Human genetics and gene linkage

Week 10 Mar 16-18-20	Transcription and Translation (2), Mutations (1) Smith	Biotechnology & applications
Week 11 Mar 23-25-27	Cell Respiration (3) Smith	Genetics Tutorial
Week 12 Mar 30-Apr 1	Photosynthesis (2) Smith	LAB EXAM 2
Week 13 Apr 6-8	Photosynthesis (1), Review (1) Smith	No lab

FINAL EXAMS start Apr. 11th. Date and Locations to be announced by the Registrar's Office.