

Biology 120.3 (01) - The Nature of Life (CRN 26099)
Enter Time and Location of Lectures
General Course Outline
Term 2. Winter 2015

Amended January 9th 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

By the end of BIOL 120.3 you should be able to describe, classify, and discuss aspects of 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. After completing the lab section of the course, you should know how to use a microscope to visualize cells and tissues and how to solve basic genetics problems.

Detailed learning objectives for each lecture topic will be posted in Blackboard Learn.

INSTRUCTOR CONTACT INFORMATION

Dr. Jorge Chedrese	Biology RM 323 jorge.chedrese@usask.ca	966-4446
Dr. Doug Smith	Biology RM 150 Biology dh.smith@usask.ca	966-4415
Gillian Murza Lab Coordinator	Biology Building RM 216 gillian.murza@usask.ca	966-4423

Office Hours: by appointment or after lecture

INSTRUCTIONAL RESOURCES: TEXTBOOK AND LAB MANUAL

The required textbook for Biology 120.3 is *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 textbook material we will be covering is outlined on the last page of this outline and will be the core testable material for the course. Copies of the textbook will be available from the reserve desk in the Science Library, for short term, in library use. The lectures are intended to highlight and reinforce key concepts. Please see the Learning Objectives Summary, which will be posted on Blackboard with this outline for a more detailed description of the topics you will be responsible for on the midterm and final exams. All sections of the course will sit common midterm and final exams.

The Lab Manual for Biology 120.3 (2014-15 Edition) is required for the course, and must be brought to each lab session. It is available for purchase from the UofS Bookstore.

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.

STRUCTURED STUDY SESSIONS (University Learning Centre)

Biol120 Structured Study Sessions are weekly *peer-led study sessions that run throughout the term. These regularly scheduled study sessions give you the opportunity to review and complete exercises on the course material, revisit more difficult concepts, and practice your exam-writing skills through mock exam sessions for the midterm and final exams.

All Biol120 students are welcome to attend structured study sessions. Pre-registration is not required and attendance is free. All that you need to do is show up to the session at the scheduled time and location and be open to learning! Watch your course Blackboard site for the schedule of sessions.

* Note: Structured Study Sessions are run by experienced students who've already completed Biol120, and achieved an excellent grade. Research has shown that students who attend Structured Study Sessions, on average, achieve higher grades than those who don't.

STUDENT ADVICE RECOMMENDER AGENT (SARA)

Each week through Blackboard you will receive tailored, personalized advice from SARA. This advice will guide you to additional University and online resources to help you succeed in this course.

STUDENT REVIEW AND COURSE PREPARATION (PURPLE PAGES)

There is prerequisite material that will not be directly covered in lectures. This material is expected knowledge from high school courses. Students should review this information ahead of time because it is important for the understanding of many basic biological topics we will cover.

In Russell *et al.* you will find this section in the middle of the book denoted by the purple colouring (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).

Knowledge of some of this information will be needed to understand course content and answer questions 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 Tuesday Feb 24th, 2015.* The midterm will be scheduled from 5:30 to 6:30 in Health Sci 1150. 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 2015, as arranged by the Registrar. Please note that the scheduled final exam period is April 11-30, 2015. 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.

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.

Laboratory Examinations: There will be two Laboratory Exams. *Lab Exam 1* will be in the week of Feb. 9th. *Lab Exam 2* will be in the week of Mar. 30th. Consult the 2014-15 Lab Manual for the procedure to follow for a missed Lab or Lab Exam.

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

GRADES

The final grade is calculated as follows:

Lecture Mid-term Exam	12.5%
Lecture Final Exam	37.5%
Weekly online quizzes (OLI)	10%
Lab Assignments and Quizzes	15%
Lab Exam 1	15%
Lab Exam 2	10%
TOTAL	100%

IMPORTANT ACADEMIC DATES

Tues Jan. 16th is the final day to change Term 1 registration without penalty.

Wed Jan. 30th is the final date to drop Term 1 classes and receive 50% tuition credit.

Sat. Mar. 15th is the last day to drop a Term 2 class without academic penalty.

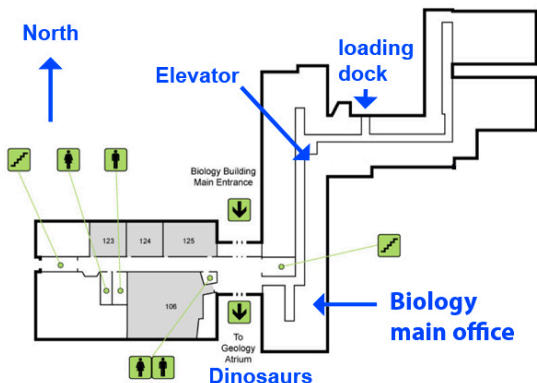
LABORATORIES

Labs begin in the week of January 12th, 2015. PAWS registration will give you a time and day of the week for your lab section, but room assignments are made by the Biol120 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 lab schedule is provided in this hand-out.

The 2014-2015 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

Students who have disabilities (learning, medical, physical, or mental health) are strongly encouraged to register with Disability Services for Students (DSS) if they have not already done so. Students who suspect they may have disabilities should contact DSS for advice and referrals. In order to access DSS programs and supports, students must follow DSS policy and procedures.



For more information, check <http://students.usask.ca/disability/>, or contact DSS at 966-7273 or dss@usask.ca.

Students registered with DSS may request alternative arrangements for mid-term and final examinations. Students must arrange such accommodations through DSS by the stated deadlines. Instructors shall provide the examinations for students who are being accommodated by the deadlines established by DSS.

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, or 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.

Integrity Defined (from the Office of the University Secretary)

The University of Saskatchewan is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect. Students are particularly urged to familiarize themselves with the provisions of the Student Conduct & Appeals section of the University Secretary Website and avoid any behavior that could potentially result in suspicions of cheating, plagiarism, misrepresentation of facts and/or participation in an offence. Academic dishonesty is a serious offence and can result in suspension or expulsion from the University.

All students should be familiar with the Regulations on Academic Student Misconduct (http://www.usask.ca/university_secretary/honesty/StudentAcademicMisconduct.pdf) as well as the Standard of Student Conduct in Non-Academic Matters and Procedures for Resolution of Complaints and Appeals (http://www.usask.ca/university_secretary/honesty/StudentNon-AcademicMisconduct2012.pdf)

For more information on what academic integrity means for students see the Student Conduct & Appeals section of the University Secretary Website at: http://www.usask.ca/university_secretary/pdf/dishonesty_info_sheet.pdf

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

Lectures (T/Th 10:00 am – Rm BIOL 106) and lab schedule for Biol 120.3 Section 01 – Jan-Apr 2015 (approximate number of lectures in brackets)

	Lecture topic	Lab topic
Week 1 Jan 5-9	Introduction (1), Cell Biology (2) Chedrese	No lab
Week 2 Jan 12-16	Cell Biology (3) Chedrese	Introduction, microscopy, cells
Week 3 Jan 19-23	Cell Biology (1), Cell Cycle (1.5), Meiosis (0.5) Chedrese	Eukaryotic cell structure and function
Week 4 Jan 26-30	Meiosis (1), Origins of Life (1.5), Energy & Enzymes (0.5) Chedrese	Osmosis and cell division
Week 5 Feb 2-6*	Energy & Enzymes (1), Membranes & Transport (2) Chedrese	Sexual life cycles and meiosis

(*Fri. Feb 6th lab will be rescheduled due to BioScan.)

Week 6 Feb 9-13	Membranes & Transport (2), Chedrese	Lab Final 1
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MIDTERM LECTURE EXAM not in class time – Feb 24th 5:30-6:30 pm. Health Sci 1150

Week 7 Feb 16-20	Winter Break Week	No Lab
Week 8 Feb 23-27	Mendelian Genetics (3) Smith	No Lab
Week 9 Mar 2-6	Human genetics (1), DNA Structure and Replication (2) Smith	Introduction to genetics
Week 9 Mar 9-13	DNA Structure and Replication (1), Gene Expression (2) Smith	Human genetics and gene linkage
Week 10 Mar 16-20	Transcription and Translation (2), Mutations (1) Smith	Biotechnology & applications

Week 11 Mar 23-27	Cell Respiration (3) Smith	Genetics Tutorial
Week 12 Mar 30-Apr 3*	Photosynthesis (2) Smith	LAB EXAM 2
Week 13 Apr 7	Photosynthesis (1), Review (1) Smith - Chedrese	No lab

(*Fri. Apr. 3rd lab will be rescheduled due to Good Friday)

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