

COURSE SYLLABUS

COURSE TITLE:	BIOL 120.3.03 - The Nature of Life		
COURSE CODE:	TERM:	Fall 2019	
COURSE CREDITS:	3.0	DELIVERY:	Lecture & Practicum (Lab)
CLASS SECTION:	03	START DATE:	Saturday, September 7 th , 2019
CLASS LOCATION:	Biology Building, Rm 106		
LAB LOCATION:	Biology Building, Rm 202 or Rm 204		
CLASS TIME:	9:30 to 12.20 am	LAB TIME:	8.30 to 11.20 am (T,R) or 1.30 to 4.20 pm (M,T,W,R,F) or 5.30 to 8.20 pm (M,W,R) or 1:00 to 3:50 (S)
WEBSITE:	via Blackboard		

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, BIOL 120.3 is one of two foundation courses for biology majors and for students going into Natural Sciences (Program C). BIOL 120.3 also counts towards the biology requirements of a number of programs in different colleges across campus. BIOL 121.3 - The Diversity of Life - is the sister course to BIOL 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

Lecturers:

Dr. Cynthia Swan

HLSC Rm GB29 (306) 250-2388

cynthia.swan@usask.ca

Office Hours:

After each lecture or by appointment

Mr. Paul Dick, M.Sc.

Lab Coordinator

Rm 216, Biology Building

(306) 966-4423

paul.dick@usask.ca

Mr. James Bush, M.Sc.

Coordinator for Mindtap
and SARA

Rm 118, Biology Building

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INSTRUCTIONAL RESOURCES: TEXTBOOK AND LAB MANUAL

The required textbook for BIOL 120.3 is *Biology - Exploring the Diversity of Life (3rd or 4th Canadian Edition)* by Russell *et al.*, Nelson Education Ltd. This textbook is available from the U of S Bookstore in various formats, which all contain Mindtap and a copy of the e-text. There is a special code required in order to access Mindtap and the e-text, which will be made available early in Term 1 by Mr. James Bush.

There is a smaller hard-copy version (known as Volume 1), which mostly contains the chapters utilized in BIOL 120.3, alone. The textbook is available in its full length (for students who also plan on taking BIOL 121.3 and/or 224.3). Copies of the textbook will be available from the Reserve Desk in the Science Library, for short-term, in-library use.

Note that 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 that you are responsible for is outlined on the second-last page of this syllabus and will be the core testable material for the course. 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 lecture midterm and final exams.

The BIOL 120.3 Lab Manual (2019-20 Edition) is required for the course, and must be brought to each lab session. It is available for purchase from the U of S Bookstore.

ONLINE RESOURCES

There are a number of online resources to help support your learning in BIOL 120.3. 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 the course's detailed Learning Objectives, some of the instructor's lecture notes (at the discretion of each instructor), and any other resources from your instructor.

When purchasing a copy of the textbook from the U of S Bookstore, the individual student also receives access to an online platform termed Mindtap. This platform provides access to a digital copy of the textbook, and to other resources like animations and self-tests. Note that Mindtap platform **will not be** used for any mandatory, online quizzes in BIOL 120.

STRUCTURED STUDY SESSIONS (Student Learning Services)

BIOL 120 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 BIOL 120 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:** Experienced students who have already completed BIOL 120.3, and achieved an excellent grade run the structured Study Sessions. Research has shown that students, who attend Structured Study Sessions, on average, achieve higher grades than those who do not.

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 covered directly 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 near the middle of the book denoted by the purple colouring (pgs. F1-44) – for that reason, these are known as “The Purple Pages”. 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 much of this information will be needed to understand course content and answer questions on the lab quizzes, and the lecture 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.* Also bring an HB pencil plus an eraser.

It is forbidden for students to utilize any type of electronic device during an exam (e.g., cell phone, dictionary, translator, head-phones, etc.) (see Academic Honesty section below).

Midterm Lecture Exam Saturday, October 19th 2019 from 1:30-2:30 pm, at a location to be announced. In the event that you have a legitimate U of S timetabling conflict, you must contact your instructor right away in order to make arrangements for an alternate date for you to write a Deferred Midterm Lecture Exam. If you are absent from the **October 19th** exam due to a medical emergency or another exceptional circumstance, you must advise your instructor within **THREE WORKING DAYS** of the missed exam providing explanatory documentation to initiate discussion about whether you qualify for a Deferred 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 for the Midterm Lecture Exam.

The **Final Lecture Exam** will be arranged by the Registrar’s Office to take place within the exam period of **December 7th – 23rd, 2019**. The final exam schedule for Term 1 typically becomes available by late October. Accommodations will **not be made** for students making travel arrangements during this time frame. If a student is absent from the Final Lecture Exam for a legitimate reason, within **THREE WORKING DAYS** of the missed exam, the student may apply for consideration of a Deferred Final Lecture Exam to the Dean’s Office of the College in which the student is registered.

Laboratory Examinations: There are two Laboratory Exams, which you will write in your lab slot. Lab Exam 1 will be written during the **week of October 7th, 2019**. Lab Exam 2 will be written during the **week of November 25th, 2019**. Consult the 2019-20 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 this course. These will be outlined for you during the first week of labs.

GRADES

The final course grade is calculated as follows:

Lecture Midterm Exam	15%
Lecture Final Exam	35%
Lab Assignments and Quizzes	20%
Lab Exam 1	15%
Lab Exam 2	15%
TOTAL	100%

IMPORTANT ACADEMIC DATES

Tuesday Sept. 17th – Last day to withdraw from Term 2 (Fall) classes with 100% tuition credit.

Tuesday Sept. 24th – Last day to withdraw from Term 2 (Fall) classes with 75% tuition credit.

Tuesday Oct. 1st – Last day to withdraw from Term 2 (Fall) classes with 50% tuition credit.

Friday Nov. 15th – Last day to withdraw from Term 2 (Fall) classes.

LABORATORIES

Labs begin in the week of September 9th, 2019. PAWS registration will give you a time and day of the week for your lab section. Room assignments are made by the Lab Coordinator and will be posted on Blackboard immediately before your first scheduled lab. Hard copies of the lists also will be posted on the glass-covered bulletin board outside Biology Rm. 202, on the second floor of the Biology Building.

Students are expected to attend, and be prepared for, all scheduled labs, lab reviews and lab exams. The general lab schedule is provided on the final page of this syllabus.

The 2019-2020 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 Lab Coordinator in Rm. 216 of the Biology Building.

STUDENTS WRITING EXAMINATIONS WITH ACCESS AND EQUITY SERVICES (AES)

Students who have disabilities (learning, medical, physical, or mental health) are strongly encouraged to register with Access and Equity Services (AES) if they have not already done so. Students who suspect they may have disabilities should contact AES for advice and referrals. In order to access AES programs and supports, students must follow AES policy and procedures. For more information, check www.students.usask.ca/aes, or contact AES at 966-7273 or aes@usask.ca.

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

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/secretariat/student-conduct appeals/StudentAcademicMisconduct.pdf](http://www.usask.ca/secretariat/student-conduct%20appeals/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 *Academic Integrity Handout* linked to “Academic Misconduct” in the Student Conduct and Appeals section of the Office of the University Secretary website at:

http://www.usask.ca/university_secretary/pdf/dishonesty_info_sheet.pdf

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

Chapters and sections in the **4th Cdn. Edn. - Russell et al: *Biology – Exploring the Diversity of Life***

Chapter 2 – The Cell: an Overview – §2–2.5c

Chapter 7 – Cell Cycles – §7–7.4b

Chapter 8 – Genetic Recombination (Meiosis) and Life Cycles – §8.3a-d

Chapter 21 – Defining Life and its Origins – §21–21.5d, 21.6c, 21.7b,c

Chapter 3 – Energy and Enzymes – §3–3.5d, 3.6a, 3.6d

Chapter 4 – Cell Membranes and Signalling – §4–4.6b

Chapter 9 – The Chromosome Basis of Mendelian Inheritance – §9–9.2f

Chapter 10 – Genetic Linkage, Sex Linkage, and Other Non-Mendelian Inheritance Mechanisms
– §10–10.2d, 10.4a-d

Chapter 11 – DNA Structure, Replication, and Repair – §11–11.3h

Chapter 12 – Gene Structure, Expression, and Mutation – §12–12.5a

Chapter 5 – Cellular Respiration – §5–5.7d
 Chapter 6 – Photosynthesis – §6–6.4c

Some students may have access to the 3rd Cdn. Edn., which was used in BIOL 120 for the past few years. Although the textbook publisher has made some changes to the new 4th Edn., here are the relevant parts of that textbook which were utilized in BIOL 120 in the past. Please note that you should investigate the content of the 4th Edn., such as a copy obtainable for short-term loan from the Reserve Desk of the Science Library.

Chapters and sections in the **3rd Cdn. Edn. - Russell et al: *Biology – Exploring the Diversity of Life***

Chapter 2 – The Cell: an Overview – §2–2.5c
 Chapter 8 – Cell Cycles – §8–8.4
 Chapter 9 – Genetic Recombination (Meiosis) and Life Cycles – §9.3a-d
 Chapter 3 – Defining Life and its Origins – §3–3.5f
 Chapter 4 – Energy and Enzymes – §4–4.5d, 4.6a, 4.6d
 Chapter 5 – Cell Membranes and Signalling – §5–5.6b
 Chapter 10 – Mendel, Genes, and Inheritance – §10–10.2
 Chapter 11 – Genes, Chromosomes, and Human Genetics – §11–11.2
 Chapter 12 – DNA Structure, Replication, and Organization – §12–12.3
 Chapter 13 – Gene Structure and Expression – §13–13.4
 Chapter 6 – Cellular Respiration – §6–6.7d
 Chapter 7 – Photosynthesis – §7–7.4c

Lectures for Section 03 (Saturdays 9:30 to 12:20 am at Rm 106, Biology Building) and Lab Schedule for BIOL 120.3 during September - December, 2019.

	Lecture Topic	Lab Number and Topic
Week 1 Sept 7	Introduction; Cell Biology	NO LAB
Week 2 Sept 14	Cell Biology	1. Introduction, Microscopy and Cells
Week 3 Sept 21	Cell Biology; Cell Cycle	2. Eukaryotic Cell Structure and Function
Week 4 Sept 28	Cell Cycle; Meiosis	3. Osmosis and Cell Division
Week 5 Oct 5	Origin of Life; Energy	4. Sexual Life Cycles and Meiosis
Week 6 Oct 12	Thermodynamics Enzymes	Lab Exam 1 <u>Note your date, below!</u> (Oct 7–12 during your regular lab session)
Week 7 Oct 19	Membrane Structure	NO LAB
Oct 19	Midterm Lecture Exam –	Location will be announced (1:00-2:00pm)
Week 8 Oct 26	Membrane Function Mendelian Genetics	5. Introduction to Genetics

Week 9 Nov 2	Human Genetics, DNA Structure and Replication	6. Human Genetics and Gene Linkage
Week 10 Nov 9	Gene Expression	7. Biotechnology: Techniques and Applications
Week 11	Reading Week Break (No Lectures or Labs)	
Week 12 Nov 23	Cellular Respiration	Review Lab
Week 13	Photosynthesis	Lab Exam 2 <u>Note your date, below!</u> (Nov 25-30 during your regular lab session)
Nov 30	Completion of Metabolism; Review	NO LAB

FINAL LECTURE EXAM SCHEDULE: Dec 7 -23, 2019.

Date and location of the **3-hour** BIOL 120.3 Final Lecture Exam will be announced by the Registrar's Office.

*The Final Lecture Exam is comprehensive and covers all the testable material outlined in the textbook sections above and described in the **Learning Objectives** for this course.*