



COURSE SYLLABUS

COURSE TITLE:	Biology 120 The Nature of Life		
COURSE CODE:	82455	TERM:	1
COURSE CREDITS:	3	DELIVERY:	Lecture & Practicum (Lab)
CLASS SECTION:	97		
CLASS START DATE:	Sept. 8 th , 2020	LAB START DATE:	Sept. 22 nd , 2020
CLASS LOCATION:	St. Peter's College	LAB LOCATION:	St. Peter's College
CLASS TIME:	Tues. 9 AM	LAB TIME:	Tues., 1 PM, (Tues. 4 PM if required)
TUTORIAL TIME	Tues. noon or after lab,		
WEBSITE:	www.usask.ca and www.bblearn.usask.ca		

Land Acknowledgement

As we engage in Remote Teaching and Learning, we would like to acknowledge that the St. Peter's College and the Saskatoon campus of the University of Saskatchewan are on Treaty Six Territory and the Homeland of the Métis. We pay our respect to the First Nation and Métis ancestors of this place and reaffirm our relationship with one another. We would also like to recognize that some may be attending this course from other traditional Indigenous lands. We ask that you take a moment to make your own Land Acknowledgement to the peoples of those lands. In doing so, we are actively participating in reconciliation as we navigate our time in this course, learning and supporting each other.

Instructor Information

Contact Information

Kim Cross

kim.cross@usask.ca

Office Hours

One hour following lecture, one hour following lab. Please email questions if that time is not practical. Please email again, if the instructor does not respond within 24hrs. Due to limitations of email, online meetings can also be set up if more in-depth explanations are required

Remote Learning Context

Due to the complex circumstances presented by the pandemic, the delivery of this course may take many forms and may change over time. Elements of remote learning may be required by some, or all, students for portions of the course. As participants in this class please act with empathy and care toward other students, the instructors and university staff. All participants wish for the best possible outcome in this class.

Course Description

This course is designed to introduce the student 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. Prerequisites: Biology 30 or BIOL 90 or BIOL 107 or BIOL 108. Note: Chemistry 30 is strongly recommended. Students with credit for BIOL 110 will not receive credit for BIOL 120.

Learning Outcomes

By the completion of this course, students will be expected to:

1. Improve critical thinking skills and problem-solving abilities.
2. Be able to describe, classify, and discuss aspects of cell theory.
3. Be able to describe, classify, and discuss aspects of cell division and genetics.
4. Be able to describe, classify, and discuss aspects of the molecular basis for variation and natural selection.
5. Be able to describe, classify, and discuss aspects of enzymes and bioenergetics.
6. Obtain laboratory experience to help link these topics together, with hands-on exercises leading to understanding the use of microscopes to visualize cells and tissues, and how to solve basic genetics problems.

Information on literal descriptors for grading undergraduate students at the University of Saskatchewan can be found at: <https://students.usask.ca/academics/grading/grading-system.php#GradingSystem>. Please note: There are different literal descriptors for undergraduate and graduate students.

More information on the Academic Courses Policy on course delivery, examinations and assessment of student learning can be found at:

http://www.usask.ca/university_secretary/council/academiccourses.php

The University of Saskatchewan Learning Charter is intended to define aspirations about the learning experience that the University aims to provide, and the roles to be played in realizing these aspirations by students, instructors, and the institution. A copy of the Learning Charter can be found at:

<https://teaching.usask.ca/documents/vptl/LearningCharter.pdf>

Course Overview

Every week Biology 120 will require 3 hours of lecture, 3 hours of lab and a minimum of 3 hours of study. The lecture & labs will be delivered using a blended model of face to face mixed with on-line and web-based activities, at/from St. Peter's College, Muenster Saskatchewan. Asking questions during lecture and lab, and generally engaging in the material is extremely beneficial.

Required Resources

Textbooks/Readings

BIOLOGY: Exploring the Diversity of Life: Volume 1, 4th Can. Ed., by Russell, Nelson Pub. (either printed copy or e-text). Required. **Please note:** If students intend to enroll in Biol 121 or Biol 224 it is cheaper to buy the full text, rather than the individual volumes. Textbook readings are available below. Mindtap code is not required for this section of Biology 120.3. **Please pay attention to the ‘purple pages’, F2 to F56, in the textbook. These are mandatory learning requirements, but there will not be a lot of face to face time dedicated to these pages. All mandatory materials will have questions on exams. There will be a web-based lecture posted on Canvas covering some (not all) of the mandatory ‘purple pages’ material to assist in learning the material.**

2020-2021 Lab Manual for Biology 120.3. University of Saskatchewan, Biology Department. Required. The lab manual should be read prior to each lab, to ensure all work is completed within the lab time.

Textbooks and lab manuals are available from the University of Saskatchewan Bookstore: <https://bookstore.usask.ca/>. Reading the textbook prior to lecture and the lab manual prior to lab will ensure greater understanding of the material. General textbook readings from *Biology – Exploring the Diversity of Life (4th Can. Ed.)*

Purple Pages

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

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

Chapter 4 – Cell Membranes Structure and Function – §4–4.6b

Chapter 7 – Cell Cycles – §7–7.4b

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

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

Chapter 10 – Linkage, Sex Linkage, & Other Inheritance Models – §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 3 – Energy and Enzymes – §3–3.5d, 3.6a, 3.6d

Chapter 5 – Cellular Respiration – §5–5.7d

Chapter 6 – Photosynthesis – §6–6.4c

Downloadable note packages, for Section 97 students. Required. The instructor for this section of Biology 120.3 will provide a full set of downloadable note packages on Canvas. These packages are structured in a reverse-lecture fashion. What does that mean? Students should be able to download the notes a week before the scheduled lecture and use resources to fill in the notes, prior to coming to class. Once in class students can spend more time listening or asking questions to clarify points and understanding. The lecture presentations are meant to highlight and synthesize essential concepts, and to provide opportunities for class discussion and interaction. This method of note taking, and class discussion, significantly increases student engagement in the material, thereby increasing knowledge and understanding of the material. Additionally, a more specific list of textbook readings can be found at the beginning of each note package.

Electronic Resources, Downloads & Supplementary Resources

Canvas is where students will be able to access the course's detailed Learning Objectives, recorded video lectures, lecture notes, lab materials, and any other resources.

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 the Mindtap platform will not be used for Section 97 or for any mandatory, online quizzes in BIOL 120.

There are several online resources to help support student learning in Biol120. The use of these resources can help increase student performance and success in this course. Warning: always use the course notes to determine the relevance of the information found outside the main resources provided.

Students are reminded of the importance of having the appropriate technology for remote learning. The list of recommendations can be found at <https://students.usask.ca/remote-learning/tech-requirements.php>

Evaluation

7 Post Lecture Quizzes	21%
3 Lab Quizzes and 8 Assignments	19%
2 Lecture & Lab Midterms	20%
1 Lecture & Lab Final Exam	40%
Total	100%

Evaluation Components

Post Lecture Quizzes

Value: 21% of final grade

Date: See Course Schedule at the end of this syllabus.

Length: 20 minutes, each

Type: Multiple choice.

Description: These are comprised of **7 post-lecture, open book quizzes** over the course of the term. These quizzes are designed to assess a student's knowledge and understanding of the material from the previous lecture topics. Each quiz consists of multiple-choice questions delivered and submitted online through Canvas. The quiz will be taken individually during the last 20 minutes of the last lecture of the assigned week.

Lab Quizzes

Value: 9% of final grade

Date: See Course Schedule at the end of this syllabus.

Length: 20 minutes, each.

Type: Variable format. Detail provide one week prior to each quiz.

Description: There are **3 open-book lab quizzes** to be completed individually via Canvas within the scheduled lab session time.

Lab Assignments

Value: 10% of final grade

Due Date: See Course Schedule at the end of this syllabus.

Type: 7 Lab Assignment Sheets and one Lab Report.

Description: Each of the 7 labs include a series of worksheets that must be submitted for a completion mark. These are together worth 7% of the course grade and are due 24 hours after the start time of the associated lab. A short research lab report worth 3% of the course grade will be due during the last (review) lab of the term. This assignment requires researching a use of modern biotechnology and preparing a short summary. Details will be provided during the term.

Consult the 2020-21 Lab Manual for the procedure to follow for missed labs or Lab quizzes and assignments.

Lecture & Lab Midterm Exams

Value: 20% of final grade

Due Date: See Course Schedule at the end of this syllabus.

Type: Multiple choice, short and long answer.

Description: This course includes 2 midterm examinations, worth 10% each, delivered and completed online through Canvas. Each midterm is an open book examination taken individually and is designed to assess students' knowledge and understanding of the core concepts of the lecture and the lab. The first midterm exam covers the material from the first part of the course while the second midterm covers the material from the second part of the course. Each midterm will begin with 25 multiple choice questions covering the lecture content, followed by short and/or long answer questions covering the lab content. The total time of each exam is 90 minutes, of which 30 minutes is intended for the lecture portion and 60 minutes for the lab portion. Each exam will be available via Canvas for the duration of the exam time. Midterm 1 will be held on Tuesday, October 13th at 2:00 PM, and Midterm 2 will be held on Tuesday, November 17th at 2:00 PM.

In the event that a student has a legitimate U of S timetabling conflict, contact the instructor right away in order to make arrangements for an alternate date to write a Deferred Lecture & Lab Midterm Exam. If a student is absent from the midterm exam due to a medical emergency or another exceptional circumstance, the student must advise the instructor within THREE WORKING DAYS of the missed exam providing explanatory documentation. This begins a discussion about qualification for a Deferred Lecture & Lab Midterm Exam, this does not guarantee a Deferred Lecture & Lab Midterm Exam will be awarded. If a student does not advise the instructor within three working days, or does not have an acceptable excuse, a grade of zero will be assigned for the Lecture & Lab Midterm Exam.

Lecture & Lab Final Exam

Value: 40% of final grade

Due Date: Scheduled during the Final Exam period, Dec. 8 - 23, 2020.

Type: Multiple choice, short and long answer.

Description: This is an open-book cumulative examination designed to assess student's knowledge and understanding of the core concepts covered throughout the entire course. The final exam will begin with 50 multiple choice questions covering the lecture content, followed by short and/or long answer questions covering the lab content. The duration of the exam is 150 minutes, of which 60 minutes is intended for the lecture portion and 90 minutes for the lab portion.

Consult the Final Exam Schedule when it is released for the examination date and time. The Final Exam will be scheduled by Student Services to take place within the exam period of Dec. 8 - 23, 2020.

Accommodations will not be made for students making travel arrangements during this time frame. If a student is absent from the Final Lecture & Lab Exam for a legitimate reason, within THREE WORKING DAYS of the missed exam, the student may apply for consideration of a Deferred Final Lecture & Lab Exam to the Dean's Office of the College in which the student is registered.

Important Academic Dates

Tues. Sept. 17th – Last day to withdraw from T1 (Fall) classes with 100% tuition credit.

Tues. Sept. 24th – Last day to withdraw from T1 (Fall) classes with 75% tuition credit.

Tues. Oct. 1st – Last day to withdraw from T1 (Fall) classes with 50% tuition credit.

Mon. Dec. 7th – Last day to withdraw from T1 (Fall) classes.

Laboratories

Labs begin September 22nd, 2020. PAWS registration will list a time and day of the week for each lab section and the general lab schedule is provided on the final page of this syllabus. The content for each lab will be made available on Canvas six days before the scheduled lab. Unless otherwise specified (ex. quizzes), all lab activities can be completed at any time prior to the scheduled lab time until 24 hours after. St. Peter's College staff and instructors will strive to deliver the best possible learning experience, as such there will be an attempt to deliver Labs 1-3 face to face. This delivery will have to meet with COVID-19 safety standards set out by the University and the Health Authority. More information about labs will be given during the first lecture.

The 2020-21 edition of the Lab Manual for Biology 120.3 is required for all labs. A device capable of capturing digital photographs (ex. smartphone camera, webcam, digital camera) will also be required. Students are expected to participate in and complete all lab activities and assignments.

Criteria That Must Be Met to Pass, including Attendance, Assignment Submissions, & Grading

Students are encouraged to review all University examination policies and procedures: <http://policies.usask.ca/policies/academic-affairs/academic-courses.php>.

All assignments and exams are to be completed during the assigned time (see Evaluation Components section above). Any incomplete quizzes, assignments and exams will be assigned a mark of zero. At the end of Term 1, all grades from all assignments and exams will be tallied. A total grade of 50% is required to pass this course. However, students not attending the Final Lecture & Lab Exam will be assigned an INF and a grade of 49% or lower (depending on work completed). In short, students must attend the Final Lecture & Lab Exam. University regulations concerning grading and examinations are at <https://students.usask.ca/academics/exams.php>

It is to the student's benefit to be on time and attend all lectures. It is essential students attend the section number in which they are enrolled, as content can vary from section to section.

Student Feedback

The instructor will return all lab quizzes & assignments to the student within 7 days of the assignment date. Midterm and Final Exams will be marked within two weeks and grades will be posted on Canvas. Students must make arrangements with the instructor to see Midterm and Final Exams.

Use of Video, Recording the Course, and Copyright

At times in this course students will be required to have video on during video conferencing sessions. It will be necessary for students to use of a webcam built into or connected to a computer. Video conference sessions in this course, including student participation, will be recorded and made available only to participants in the course section for viewing via Canvas after each session. This is done, in part, to ensure that students unable to join the session (due to, for example, issues with their internet connection) can view the session at a later time. This will also provide students the opportunity to review any material discussed.

Please remember that course recordings belong to the instructor, the University, and/or others (like a guest lecturer) depending on the circumstance of each session and are protected by copyright. Do not download, copy, or share recordings without the explicit permission of the instructor (see <http://laws-lois.justice.gc.ca/eng/acts/C-42/index.html>). More information on class recordings can be found in the Academic Courses Policy <https://policies.usask.ca/policies/academic-affairs/academic-courses.php#5ClassRecordings>. For more information about copyright, please visit <https://library.usask.ca/copyright/index.php> where there is information for students available at <https://library.usask.ca/copyright/students/rights.php>, or contact the University's Copyright Coordinator at <mailto:copyright.coordinator@usask.ca> or 306-966-8817.

Students Writing Exams 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 general information, check www.students.usask.ca/aes, or contact AES at 966-7273 or aes@usask.ca. Please see additional information on AES COVID-19 response:

<https://students.usask.ca/documents/AES/aes-covid-19-response.pdf>. Students should also contact St. Peter's Student Services for more details.

Students registered with AES may request alternative arrangements 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)

Although the face of teaching and learning has changed due to COVID-19, the rules and principles governing academic integrity remain the same. If students ever have questions about what may or may not be permitted, ask the instructor. Students have found it especially important to clarify rules related to exams administered remotely and to follow these carefully and completely.

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 read and be familiar with the Regulations on Academic Student Misconduct (<https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php>) as well as the Standard of Student Conduct in Non-Academic Matters and Procedures for Resolution of Complaints and Appeals (<https://secretariat.usask.ca/student-conduct-appeals/academic-misconduct.php#IXXIIAPPEALS>)

For more information on what academic integrity means for students see the Academic Integrity section of the University Library Website at: <https://library.usask.ca/academic-integrity#AboutAcademicIntegrity>

Students are encouraged to complete the Academic Integrity Tutorial to understand the fundamental values of academic integrity and how to be a responsible scholar and member of the USask community - <https://library.usask.ca/academic-integrity.php#AcademicIntegrityTutorial>

Lecture and Lab Schedule

(Approximate number of 50-minute lectures indicated in brackets)

WEEK	LECTURE TOPIC	LAB TOPIC	EVALUATION
1 (Sept. 2-4)	NO LIVE LECTURE but web-based lecture covering Purple Pages on Canvas	NO LAB	
2 (Sept. 7-11)	Introduction (1) What is Biology & Life (1), Life Origins (1)	NO LAB, but Week 3A - Microscopy & Cell Biology (1.5)	
3 (Sept. 14-18)	Cell Biology (3)	NO LAB, but ... Week 3E – Cell Biology (1.5)	Lecture Quiz 1, on Week 1/2 material
4 (Sept. 21-25)	Cell Membranes & Functions (3)	LAB 1 - Introduction, Microscopy, and Cells	Lecture Quiz 2, on Week 3 material
5 (Sept. 28 - Oct. 2)	Cell Cycle (1), Mitosis (1), Related topics (1)	LAB 2 - Eukaryotic Cell Structure and Function	<i>Lab Quiz 1</i>
6 (Oct. 5-9)	Cell Cycle & Meiosis (1), Ploidy & Chromosomal Genetics (1)	LAB 3 - Osmosis and Cell Division	Lecture Quiz 3, on Weeks 4/5 material
7 (Oct. 12-16)	Mendelian Genetics (1), Human Genetics (2)	NO LAB	Midterm 1 Oct 13, 2pm
8 (Oct. 19-23)	DNA structure (1) & Replication (2)	LAB 4 - Sexual Life Cycles and Meiosis	Lecture Quiz 4, on Week 6 material
9 (Oct. 26-30)	Gene expression – Transcription (3)	LAB 5 - Intro to Genetics	<i>Lab Quiz 2</i>
10 (Nov. 2-6)	Gene expression – Translation (3)	LAB 6 - Human Genetics and Gene Linkage	Lecture Quiz 5, on Week 8/9 material
11 (Nov. 9-13)	Midterm Break		
12 (Nov. 16-20)	Energy (1), Metabolism (1), Enzymes (1)	NO LAB	Midterm 2, Nov. 17, 2pm
13 (Nov. 23-27)	Cellular Respiration (3)	LAB 7 - Biotechnology: Techniques and Applications	Lecture Quiz 6, on Week 12 <i>Lab Quiz 3</i>
14 (Nov. 30-Dec.4)	Photosynthesis (3)	Lab review	Lecture Quiz 7, on Week 13
15 (Dec. 7)	Last day of classes		Research Assignment Due