

**The UofS and Northlands have campuses situated on Treaty 6 and Treaty 10 Territories and the Homelands of the Métis. We pay our respects to the First Nations and Métis ancestors of this place and reaffirm our relationship with one another. We would also like to recognize all other Treaty Territories and Homelands within Saskatchewan.**

## COURSE SYLLABUS

|                          |   |                        |                           |
|--------------------------|---|------------------------|---------------------------|
| <b>COURSE TITLE:</b>     | Biology 120 The Nature of Life  |                        |                           |
| <b>COURSE CODE:</b>      | 23734   | <b>TERM:</b>           | 2                         |
| <b>COURSE CREDITS:</b>   | 3   | <b>DELIVERY:</b>       | Lecture & Practicum (Lab) |
| <b>CLASS SECTION:</b>    | C40   |                        |                           |
| <b>CLASS START DATE:</b> | Jan. 5 <sup>th</sup> , 2018   | <b>LAB START DATE:</b> | TBA                       |
| <b>CLASS LOCATION:</b>   | Northlands College  | <b>LAB LOCATION:</b>   | Northlands College        |
| <b>CLASS TIME:</b>       | Fri. 1 PM   | <b>LAB TIME:</b>       | TBA                       |
| <b>TUTORIAL TIME</b>     | TBA   |                        |                           |
| <b>WEBSITE:</b>          | <a href="http://www.usask.ca">www.usask.ca</a> and <a href="http://www.bblearn.usask.ca">www.bblearn.usask.ca</a> |                        |                           |

### Instructor Information

#### Contact Information

Kim Cross  
Lab Instructors

[kim.cross@usask.ca](mailto:kim.cross@usask.ca)  
Contact your local college

#### Office Hours

One hour before lecture. Please email questions to your lecturer if you cannot meet at that time. PAWS WebEx online meetings can also be set up if in-depth explanations are required. Please contact your lab instructor if you have concerns about labs.

### Course Description

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 for several programs in different colleges at the University of Saskatchewan.

Prerequisites: Biology 30 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 your critical thinking skills and problem-solving abilities.
2. Understand the basics of a cell and the cell theory.
3. Understand cell division and genetics.
4. Understand the molecular basis for variation and natural selection.
5. Understand enzymes and bioenergetics.
6. Obtain laboratory experience to help link these topics together, with hands-on exercises leading to your understanding the use of microscopes to visualize cells and tissues, and how to solve basic genetics problems.

Information on literal descriptors for grading at the University of Saskatchewan can be found at: <http://students.usask.ca/current/academics/grades/grading-system.php>

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](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:

[http://www.usask.ca/university\\_secretary/LearningCharter.pdf](http://www.usask.ca/university_secretary/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 will be televised (live stream) to local campuses. There will also be an hour long on-line tutorial session provided, TBA. Labs will be delivered face-to-face at local campuses (exact location of labs TBA). Please contact your lab instructors concerning problems with the lab. 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, 3rd Can. Ed., by Russell*, Nelson Pub. (either printed copy or e-text). Highly recommended. **Please note:** If you 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 on the next page.

*2017-2018 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 are available from the University of Saskatchewan Bookstore:

[www.usask.ca/bookstore/](http://www.usask.ca/bookstore/)

Reading the textbook prior to lecture and the lab manual prior to lab will ensure greater understanding of the material. **Please pay attention to the ‘purple pages’, F2 to F56, in your textbook. There will not be a lot of class time dedicated to these pages, but questions about this information and how this information pertains to other topics will appear on exams.**

| LECTURE TOPIC                               | TEXTBOOK READINGS   |
|---|---|
| Additional readings                         | Purple Pages (Section F)  |
| Water<br>Life & Life History<br>Microscopes | Purple Pages (F-6 to F-7, F-15 to F-21)<br>Chapter 2, intro & Sec. 2.1a<br>Chapter 3  |
| Cell Biology & Central Dogma                | Chapter 2<br>Chapter 8, p. 169 & Sec. 8.4<br>Chapter 12, Sec. 12.1, 12.2, 12.5<br>Chapter 13, Sec. 13.4h<br>Purple Pages (F-28 to F-39) |
| Cell membranes & Transport                  | Chapter 5   |
| Cell Cycle, Replication, Mitosis & Cancer   | Chapter 8<br>Chapter 12<br>Chapter 14, Sec. 14.4  |
| Ploidy, Meiosis & Recombination             | Chapter 8, Sec. 8.3a<br>Chapter 9<br>Chapter 11, Sec. 11.3  |
| Genetics & Genetic Technologies             | Chapter 10<br>Chapter 11<br>Chapter 15  |
| Gene Expression & Mutations                 | Chapter 13<br>Chapter 14, Sec. 14.2-14.3  |
| Energy & Enzymes                            | Purple pages<br>Chapter 1, Sec. 1.1 to 1.4<br>Chapter 4   |
| Cellular Respiration;<br>Photosynthesis     | Chapter 6<br>Chapter 7  |

### Electronic Resources, Downloads & Supplementary Resources

There are several online resources to help support your learning in Biol120. We highly recommend the use of these resources 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, syllabus, online quizzes and other resources from your instructor.

There are many resources available online and in app stores, for example, Khan Academy. However, always use the course notes to determine the relevance of the information found outside the main resources provided.

## Class Schedule

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

| WEEK               | LECTURE TOPIC   |
|--------------------|---|
| 1 (Jan. 3-5)       | Introduction (0.5); Water, Life & Life History (2); Microscopes (0.5)                 |
| 2 (Jan. 8-12)      | Introduction to Cell Biology (3)  |
| 3 (Jan. 15-19)     | Cell Biology & Central Dogma (3)  |
| 4 (Jan. 22-26)     | Cell Membranes & Transport (3)  |
| 5 (Jan. 29-Feb. 2) | Cell Cycle, DNA Replication, Mitosis & Cancer (3)                                     |
| 6 (Feb. 5-9)       | Ploidy, Meiosis, Recombination & Evolution (3)  |
| 7 (Feb. 12-16)     | Genetics (3)  |
| 8 (Feb. 19-23)     | <i>MIDTERM BREAK</i>  |
| 9 (Feb. 26-Mar.2)  | <b>Midterm (Covers Weeks 1-6)</b><br>Genetics & Genetic Technologies (2)              |
| 10 (Mar. 5-9)      | Genetics & Genetic Technologies (1)<br>Gene Expression, Central Dogma & Mutations (3) |
| 11 (Mar. 12-16)    | Gene Expression, Central Dogma & Mutations (1)<br>Energy & Enzymes (2)                |
| 12 (Mar. 19-23)    | Cellular Respiration (2), Catch-up & review   |
| 13 (Mar. 26-30)    | <b>No Lecture, Good Friday</b>  |
| 14 (Apr. 2-6)      | Photosynthesis (2), Catch-up & review   |

## Lab Schedule

The lab schedule consists of 10 lab periods, each period is three hours in length (except for exam periods). The exact lab dates and times are yet to be determined, however, you can expect the labs to start in January and follow this layout:

|            |  |
|------------|--|
| Lab 1      | Microscopes and Cells                      |
| Lab 2      | Eukaryotic Cell Structure and Function     |
| Lab 3      | Osmosis and Cell Division                  |
| Lab Exam 1 |  |
| Lab 4      | Sexual Life Cycles and Meiosis             |
| Lab 5      | Introduction to Genetics                   |
| Lab 6      | Human Genetics and Gene Linkage            |
| Lab 7      | Biotechnology: Techniques and Applications |
| Review     |  |
| Lab Exam 2 |  |

## Examination Scheduling

The lecture midterm, lecture final and lab final examinations must be written on the date scheduled, and at the location scheduled. See above schedule for midterm exam and lab exam dates. Final examinations may be scheduled at any time during the final examination period (Apr. 9<sup>th</sup> to Apr. 28<sup>th</sup>, 2018); students should therefore avoid scheduling travel plans, employment, or other commitments for this period.

If a student is unable to write an exam through no fault of his or her own for medical or other valid reasons, documentation must be provided and an opportunity to write the missed exam may be given. Students absent for a midterm exam must advise their lecturer in person, by telephone or by e-mail and initiate arrangements for writing a deferred midterm exam or lab exam. Contact must be made within **three days** of the missed exam and **supported by appropriate documentation**. Students not arranging a deferred midterm or lab exam will be assigned a grade of zero for the exam. Similar rules apply for a Deferred Final Exam, but applications are made to the Dean's Office of your college. Additionally, if a student does not write the final lecture exam, an INF will be applied to their transcript.

As a student, you must bring your current College or University of Saskatchewan student ID card to all exams and be prepared to present it for verification purposes.

It is forbidden for you to utilize, in any way during an exam, any electronic device (e.g. cell phone, smart phone, tablet, laptop, electronic dictionary or translator) other than a simple calculator (if required by the examiner) for solving mathematical problems.

Students are encouraged to review all examination policies and procedures:

<http://students.usask.ca/academics/exams.php>

## Grading Scheme

|   |             |
|---|-------------|
| 10 Lecture Quizzes (approx. every week) | 10%         |
| Midterm Exam                            | 12.5%       |
| Final Exam                              | 37.5%       |
| Lab Assignments and Quizzes             | 15%         |
| Lab Exam 1                              | 10%         |
| Lab Exam 2                              | 15%         |
| <b>Total</b>                            | <b>100%</b> |

## Evaluation Components

### 10 Lecture Quizzes

**Value:** 10% of final grade

**Due Date:** Start Week 2 or 3 of course, typically due every week.

**Type:** Multiple choice. Take-home

**Description:** 10 quizzes with 10 multiple choice questions per quiz, done online, preferably without the aid of resources. Questions will be based on information from the lecture and textbook. Each week a new quiz will be posted online after lecture and must be completed before the beginning of the next lecture. Each quiz will go offline and will not be accessible if not completed within time provided.

### Midterm Exam

**Value:** 12.5% of final grade

**Date:** See Course Schedule on page 4.

**Length:** 50 minutes

**Type:** Multiple choice. Closed book, hand marked.

**Description:** 40 multiple choice questions, based on information presented between Weeks 1-6 in the schedule listed on pg 4. During the exam, it is forbidden for you to utilize any electronic device other than a simple calculator (if required).

### Final Exam

**Value:** 37.5% of final grade

**Date:** See UofS Final Exam Schedule when posted online.

**Length:** 3 hours

**Type:** Multiple choice, comprehensive. Closed book, hand marked.

**Description:** 100 multiple choice questions, based on all course information. Approximately 30% on Weeks 1-6 and 70% on Weeks 7-14 (from the schedule listed on pg. 4). During the exam, it is forbidden for you to utilize any electronic device other than a simple calculator (if required).

### Lab Assignments

**Value:** 15% of final grade

**Due Date:** Lab schedule provide during first lab.

**Type:** Spot test, short answer, fill in blanks, T/F, diagrams, microscope set-up.

**Description:** Between 4 to 6 small assignments, 10-20 minutes in length, to be completed during lab time.

### Lab Exam I

**Value:** 10% of final grade

**Due Date:** Lab schedule provide during first lab.

**Type:** Spot test (slide show Q&A), short answer, project.

**Description:** Focus on Labs 1-3 material. More details given in lab.

### Lab Exam II

**Value:** 15% of final grade

**Due Date:** Lab schedule provide during first lab.

**Type:** Spot test (slide show Q&A), short answer.

**Description:** Focus on Labs 4-7 material. More details given during lab.

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

Grades from all assignments, quizzes and exams will be tallied at the end of term, and a total grade of 50% is required to pass this course.

Lab exam attendance is mandatory and final lecture exam attendance is mandatory. Please refer to the current lab manual for other policies around missed labs or lab exams. Please see pages 4-5 for other rules and regulations around missed lecture exams.

The 10 Lecture Quizzes are to be completed online within the week they are accessible online, see page 5. All other assignments and exams are to be completed during the assigned class or lab time. Any incomplete quizzes, assignments and exams will be assigned a mark of zero. **Additionally, INF for the entire course will be applied to those students not attending the lecture final exam, and INF may be applied to those missing a lab final.** 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 you attend the section number in which you are enrolled, as content can vary from section to section.

## **Student Feedback**

All marked lab assignments will be returned to the student within one week (5 working days) of the assignment date. The 10 Lecture quizzes will be marked and results shown immediately upon completion of the quiz. Lecture and lab exams will be marked within two weeks (10 working day) and grades will be posted on Blackboard and PAWS. Students must make arrangements with the instructor to see the lecture midterm, lecture final, and the two large lab exams, as these are not returned to the students.

## **Examinations with Access and Equity Services (AES)**

Students who require accommodations based on disability, religion, family status and gender identity are strongly encouraged to register with Access and Equity Services (AES), if they have not already done so. Students who suspect they may require accommodations should contact AES for advice and referrals, as soon as possible. To access AES programs and supports, students must follow AES policy and procedures. For more information, check <https://students.usask.ca/health/centres/access-equity-services.php>, or contact AES at 966-7273 or [aes@usask.ca](mailto:aes@usask.ca).

Students will provide a copy of their AES letter to the instructor at the beginning of term, or as soon as it is available. This letter may allow for certain accommodations for lab exams and mid-term and final lecture exams. However, to receive accommodation **students must provide AES documentation to the instructor and to college staff 14 days prior to the midterm exam date or lab exam dates, and a minimum of 3 weeks before the start of final exams.** Accommodations not listed in the AES letter will be denied, unless agreed upon by all parties prior to the exam date.

You may record lectures, but please give the instructor notice if you intend to do so, as fair warning to other students must be given.

### **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 read and be familiar with the Regulations on Academic Student Misconduct (<http://www.usask.ca/secretariat/student-conduct-appeals/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/secretariat/student-conduct-appeals/StudentNon-AcademicMisconduct.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/secretariat/>

### **Special note on plagiarism**

You are plagiarizing if you present the words or thoughts of someone else as if they were your own — exceptions are proverbial sayings or common knowledge — or if you submit without approval of the instructor any work for which credit has previously been obtained or is being sought in another course.

Avoid charges of plagiarizing by acknowledging your sources in the essay and including them in the list of works cited. When quoting, make sure that all words and phrases from the source are in quotation marks. When paraphrasing, acknowledge the source of the idea but rewrite in your own language.

Plagiarism, whether from the web, from other students, or from published sources, is a serious academic offense. Acts of plagiarism will have consequences, depending on the nature of the offense. Less serious instances may be handled by instructors. Instructors may also report more serious offenses to the Dean, to be investigated by a College committee. Penalties can range from a "0" on an assignment to a reduced mark for the course to expulsion from the University. Records of penalties assessed by the College committee are kept on file by the University Registrar; penalties become more severe for subsequent offences. For more information on plagiarism follow the links above.