

<b>Course ID:</b>	<b>Course Title:</b>	<b>Fall 2021</b>
<b>BIO 131</b>	<b>Introduction to the Cellular Basis of Life</b>	<b>Prerequisite: Biology or Chemistry 30</b>
		<b>Credits: 3</b>

Class Information		Instructor Information		Important Dates	
<b>Delivery:</b>	In Class	<b>Instructor:</b>	Dr. Chris Wang	<b>First Day of Classes:</b>	September 8, 2021
<b>Days:</b>	Wednesday and Friday	<b>Email:</b>	Chris.Wang@ambrose.edu	<b>Last Day to Add/Drop:</b>	September 19, 2021
<b>Time:</b>	11:45 – 1:00 PM	<b>Phone:</b>	(403) 410-2000 ext. 6910	<b>Last Day to Withdraw:</b>	November 22, 2021
<b>Room:</b>	A1085-2	<b>Office:</b>	L2113	<b>Last Day to Apply for Extension:</b>	November 23, 2021
<b>Lab/ Tutorial:</b>	Instructor: Dr. Ted Pike ( <a href="mailto:Ted.Pike@ambrose.edu">Ted.Pike@ambrose.edu</a> ) 3 hours/week Monday (3:45 – 6:30 PM) A2151 Tuesday (1:30 – 4:30 PM) A2151	<b>Office Hours:</b>	<b>Date:</b> Wednesday <b>Time:</b> 2 – 3 pm <b>Room:</b> L2084  or by appoint	<b>Last Day of Classes:</b>	December 13, 2021
<b>Final Exam:</b>	<b>Date:</b> Saturday, December 18 <b>Time:</b> 9 am – 12 pm <b>Room:</b> A1085-2				

### Important Dates and Information

For a list of all important dates and information regarding participating in classes at Ambrose University, please refer to the Academic Calendar at <https://ambrose.edu/academic-calendar>.

### Course Description

This course will cover the fundamental principles of cellular biology including organelle structure and function, metabolism, genetics, cell division, protein synthesis, and molecular biology of eukaryotic cells. It will examine the basic principles of biological systems, including the biology and function of viruses and bacteria. This course consists of 3 hours of lectures per week, plus a 3-hour lab.

Students *cannot* take both BIO 105 and BIO 131 or BIO 133 for credit in one degree.

### Expected Learning Outcomes

It is the aim of the course that students acquire the following skills:

1. Students will gain a greater understanding of fundamental biological principles and be able to apply these principles to biological problems and questions.
2. Students will be able to discuss the evolutionary history, biological diversity and modern relationships between prokaryotes and eukaryotes, as well as cellular function and DNA technology
3. Students will learn laboratory techniques essential to research in biology-related fields.
4. Students will collaborate with peers to design and carry out research and be able to present this in written and oral formats.

**Required Textbook and Digital Learning Resources:**

- textbook: Biology: Exploring the Diversity of Life 4<sup>th</sup> Ed (Russell et al, 2018) and MindTap
  - eTextbook + MindTap - ISBN: 978-0-17-677091-4
- it is **required** to sign up for **MindTap**:
  - please refer to the “MindTap Day One.pdf” document for registration guidance
  - course link: <https://login.nelsonbrain.com/course/MTPPDFGQ8T6K>
  - MindTap course key: **MTPNTQ9Q2922**
- it is **required** to sign up for **Poll Everywhere** in-class response system at (*free subscription*)
  - **free** subscription at <https://www.polleverywhere.com/>
  - <https://www.polleverywhere.com/guides/student>
  - Poll Everywhere apps are available for iPhone and Android

## Lecture Schedule

The following schedule provides a general guideline and timetable for topics and tests. It may change depending on the progress throughout the semester.

**Currently, lectures are designated to be delivered in person. However, please be aware that the delivering mode, the syllabus, schedule, and assessment and evaluation items and methods may be modified abruptly as the COVID pandemic evolves. Any changes will be communicated to you via Ambrose email and Moodle announcement. Please regularly check for any changes to the syllabus, schedule, or whether classes are moved to online format.**

Date	Lecture Topic	Readings (Russell's 4 <sup>th</sup> Ed)
Sept. 08	Introduction to BIO 131	
Sept. 10	Topic 1: Scientific Method and Organization of Matter	Purple Pages: F2 - F42
Sept. 15	Topic 1: Scientific Method and Organization of Matter	
Sept. 17	Topic 2 - An Overview of Structure and Function of Cells	Ch 2: 24 – 50
Sept. 22	Topic 2 - An Overview of Structure and Function of Cells	Ch 2: 24 - 50
Sept. 24	Topic 2 - An Overview of Structure and Function of Cells	Ch 2: 24 - 50
Sept. 29	Topic 3 - Cell Membranes and Signalling	Ch 4: 76 – 98
Oct. 01	Topic 3 - Cell Membranes and Signalling	Ch 4: 76 – 98
Oct. 06	<i>Spiritual Emphasis Day (No Class)</i>	
Oct. 08	Topic 3 - Cell Membranes and Signalling	Ch 4: 76 – 98
Oct. 13	Topic 4 - Energy and Enzyme	Ch 3: 52 – 74
Oct. 15	Topic 5 - Cellular Respiration	Ch 5: 101 – 124
Oct. 20	Topic 5 - Cellular Respiration	Ch 5: 101 – 124
Oct. 22	Topic 6 - Photosynthesis	Ch 1: 4 – 23 Ch 6: 124 – 146
Oct. 27	Topic 6 - Photosynthesis	Ch 1: 4 – 23 Ch 6: 124 – 146
Oct. 29	Topic 7 - Cell Cycle - Mitosis	Ch 7: 148 – 171
Nov. 03	Topic 7 - Cell Cycle - Mitosis	Ch 7: 148 – 171
Nov. 05	<b>Midterm (include materials from Topic 1 to 6)</b>	
Nov. 10	No Lecture due to Reading Week	
Nov. 12	No Lecture due to Reading Week	
Nov. 17	Topic 8 - Cell Cycle - Meiosis	Ch 8: 172 – 197

<b>Nov. 19</b>	Topic 8 - Cell Cycle - Meiosis	<i>Ch 8: 172 – 197</i>
<b>Nov. 24</b>	Topic 9 - DNA Structure, Replication, and Organization	<i>Ch 11: 251 – 275</i>
<b>Nov. 26</b>	Topic 9 - DNA Structure, Replication, and Organization	<i>Ch 11: 251 – 275</i>
<b>Dec. 01</b>	Topic 10 - Gene Structure, Expression, and Mutation	<i>Ch 12: 277 – 305</i>
<b>Dec. 03</b>	Topic 10 - Gene Structure, Expression, and Mutation	<i>Ch 12: 277 – 305</i>
<b>Dec. 08</b>	Topic 11 - Control of Gene Expression	<i>Ch 13: 306 – 331</i>
<b>Dec. 10</b>	Topic 11 - Control of Gene Expression	<i>Ch 13: 306 – 331</i>

## Laboratory Schedule

Date	Laboratory of the Week	Assignment Due Date
<b>Sept 13 - 14</b>	Organic Molecule Detection	<i>September 20 - 21</i>
<b>Sept. 20 -26</b>	Measurement in Science	<i>September 27 - 28</i>
<b>Sept. 27 - Oct. 3</b>	Microscopy	<i>October 4 – 5</i>
<b>Oct. 4 -10</b>	Cell Membrane Structure: Scientific method	<i>October 11 – 12</i>
<b>Oct. 11 - 17</b>	Osmosis and Diffusion	<i>October 18 – 19</i>
<b>Oct. 18 - 24</b>	Enzyme Function: Catalysis with catalase	<i>October 25 – 26</i>
<b>Oct. 25 - 31</b>	Fermentation	<i>November 1 - 2</i>
<b>Nov. 1 - 7</b>	Rate of Cellular Respiration	<i>November 15 - 16</i>
<b>Nov. 8 - 14</b>	<i>No Lab due to Reading Week</i>	
<b>Nov. 15 – 21</b>	Rate of Photosynthesis	<i>November 22 - 23</i>
<b>Nov. 22 - 28</b>	Duration of stages in the cell cycle	<i>November 29 - 30</i>
<b>Nov. 29 – Dec. 5</b>	DNA extraction	<i>November 29 - 30</i>
<b>Dec. 6 - 12</b>	Transcription and Translation	<i>December 6 - 7</i>

**Attendance:**

- although attendance will not be taken in lectures, *students, who absent from lecture(s) are responsible for the course materials covered*
- doctor's notes are required for deferred assignments and exams
- **lab attendance is required!**

**Assessment and Evaluation:**

Evaluation Methods	Due Date	Weighting
MindTap Assignments	multiple	20%
Midterm	November 5, 2021	20%
DNA Technology Project	December 10, 2021	10%
Laboratory Components	multiple	30%
Final Exam ( <i>cumulative</i> )	December 15, 2021	30%
Total		100%

- students are encouraged to read the corresponding chapter prior to attending lectures
- students are encouraged to generate their own notes according to their learning styles
- lecture materials, except fill-in slides, and assignments will be posted on Moodle
  
- final exam is *comprehensive* (i.e. cumulative)

## MindTap Assignments:

- the assignments should be available a week prior to its due date
- all the MindTap assignments are due at 11:59 PM MST of the date assigned (*Don't procrastinate and leave it to the last minute!*)
- the lowest two of each pre- and post-lecture assignments will be drop off for final grade calculation
- *optional 1 (Chapter 9 – The Chromosomal Basis of Mendelian Genetics) and 2 (Chapter 10 – Genetic Linkage, Sex Linkage, and Other Non-Mendelian Inheritance Mechanisms)* assignments will be available from November 7<sup>th</sup> to December 13<sup>th</sup> – marks of these 2 optional assignments can be used to further replace the other 2 lowest assignments as you wish (*please send me an email for the ones that you would like to replace*)
- **no deferred or late assignments will be accepted unless pre-arrangement was made**

	Corresponding Chapter(s)	Assignment Due Dates	
		Pre-Learning	Post-Learning
<b>Topic 1</b>	<i>purple pages</i>	<i>No assignment (get ready for real Uni. life)</i>	
<b>Topic 2</b>	2	Thursday, Sept. 16	Sunday, Sept. 26
<b>Topic 3</b>	4	Tuesday, Sept. 28	Sunday, Oct. 10
<b>Topic 4</b>	3	Thursday, Oct. 12	<i>optional: Oct. 24</i>
<b>Topic 5</b>	5	Tuesday, Oct. 14	Sunday, Oct. 24
<b>Topic 6</b>	6	Thursday, Oct. 21	Sunday, Oct. 31
<b>Topic 7</b>	7	Thursday, Oct. 28	Monday, Nov. 14
<b>Topic 8</b>	8	Tuesday, Nov. 16	Sunday, Nov. 21
<b>Topic 9</b>	11	Tuesday, Nov. 23	Sunday, Nov. 28
<b>Topic 10</b>	12	Tuesday, Nov. 30	Sunday, Dec. 05
<b>Topic 11</b>	13	Tuesday, Dec. 07	Monday, Dec. 13
<b>optional 1</b>	9	-	Monday, Dec. 13
<b>optional 2</b>	10	-	Monday, Dec. 13

**topic 1**

**pre-learning assignment**

**post-learning assignment**

*This is just an example, time and date may be varied. Refer to the current course syllabus for exact time and date.*

## DNA Technology Project:

- detail documents, such as requirements and rubrics, are posted on Moodle
- ITP Metrics (<https://www.itpmetrics.com/>). *The instructor will send a notification once an invitation from ITP is sent to your Ambrose email address, which may end up in the junk mailbox.*
- the project is due on **Friday, December 10<sup>th</sup>**
- ITP survey for group formation due on **Monday, September 13<sup>th</sup>**
- team contract (available on Moodle) due on **Monday, September 27<sup>th</sup>**
- ITP peer review due dates:
  - **October 12<sup>th</sup>**
  - **November 5<sup>th</sup>**
  - **December 10<sup>th</sup>**
- suggestive dates for monitoring project progress:



**Grade Summary:**

<b>Percent (%) to Letter Grade Conversion</b>	<b>Grade</b>	<b>Grade Point</b>	<b>Description</b>
95.00% - 100%	A+	4.0	Excellent
87.00% - 94.99%	A	4.0	
80.00% - 86.99%	A-	3.7	
77.00% - 79.99%	B+	3.3	Good
73.00% - 76.99%	B	3.0	
70.00% - 72.99%	B-	2.7	
67.00% - 69.99%	C+	2.3	Satisfactory
63.00% - 66.99%	C	2.0	
60.00% - 62.99%	C-	1.7	
55.00% - 59.99%	D+	1.3	Minimal Pass
50.00% - 54.99%	D	1.0	
00.00% - 49.99%	F	0	
			Fail

Because of the nature of the Alpha 4.00 system, there can be no uniform University-wide conversion scale. The relationship between raw scores (e.g. percentages) and the resultant letter grade will depend on the nature of the course and the instructor's assessment of the level of each class, compared to similar classes taught previously.

Please note that final grades will be available on student registration system. Printed grade sheets are not mailed out.

**Other:**

**Classroom Etiquette:**

**Electronic Devices**

Although computers and tablets can be used in the class for taking lecture notes. Please turn off the ring tone of cellular phone - it is very distracting to hear someone's phone go off in class. Texting and movie watching are prohibited in class.

**Attend every class**

You will find that students who attend every class, listen to the instructor and take good notes will be more likely to pass (with a higher grade). If you have an emergency or illness, please contact me ahead of time to let me know that you will be absent.

Important note: if you miss a class it is your responsibility to to make up the missed work.

**Get to Class On Time**

Students, who walk into the classroom late or leave early, distract other students and disrupt the learning environment.

**Do Not Have Private Conversations**

The noise is distracting to other students. Also, talking to classmates during lecture and presentations disrupts the normal learning environment.

**Do Not Get Up and Walk Out Halfway Through the Class**

It disturbs people and gives the unmistakable impression that you don't respect the class, the other students or the instructor. The instructor has the right to finish his or her thought at the end of the class period and conclude the class in an orderly fashion without people standing up and walking out

**Your Classmates Deserve Your Respect and Support**

Others may have different ideas and opinions from yours, they may ask questions you perceive to be "stupid," but they deserve the same level of respect from you as you wish from them.

## **Academic Misconducts:**

please refer to Ambrose Undergraduate Academic Calendar <https://ambrose.edu/undergrad-academic-calendar/academic-information/academic-misconduct>

### **Plagiarism:**

Plagiarism is a very serious academic offence that involves presenting work in a course as if it were the result of one's own study and investigation when, in fact, it is the work of someone else. Plagiarism takes place when:

- an essay or other work is copied from another source, including your peer's work, and submitted as one's own
- parts of a work, including words, ideas, images or data, are taken from a source without acknowledgement of the originator
- work presented for one course is also submitted for another course without prior agreement of the instructors involved
- another person prepares the work that is submitted as one's own
- substantial editorial or compositional assistance from another person is received on work that is submitted as one's own

### **Cheating:**

Cheating is also a very serious academic offence. Cheating on examinations, assignments and/or labs may take a number of forms, including:

- tampering or attempting to tamper with examination scripts, class work, grades or class records
- obtaining unauthorized assistance from anyone during the course of an examination
- impersonating another student during examinations
- falsifying or fabricating lab reports
- communicating with other students during an examination
- bringing unauthorized written material or electronic devices to an examination
- possessing, distributing, or attempting to possess or distribute unauthorized material in respect to examinations
- attempting to read the examination papers of other students
- deliberately exposing one's own examination papers to another student

## **Ambrose University Important Information:**

### **Communication**

All students have received an Ambrose e-mail account upon registration. It is the student's responsibility to check this account regularly as the Ambrose email system will be the professor's instrument for notifying students of important matters (cancelled class sessions, extensions, requested appointments, etc.) between class sessions.

### **Exam Scheduling**

Students who find a conflict in their exam schedule must submit a Revised Examination Request form to the Registrar's Office by the deadline date; please consult the Academic Calendar. Requests will be considered for the following reasons only: 1) the scheduled final examination slot conflicts with another exam; 2) the student has three final exams within three consecutive exam time blocks; 3) the scheduled final exam slot conflicts with an exam at another

institution; 4) extenuating circumstances. Travel is not considered a valid excuse for re-scheduling or missing a final exam.

### Standards of Behaviour in the Classroom Setting

Learning is an active and interactive process, a joint venture between student and instructor and between student and student. Some topics covered within a class may lead to strong reactions and opinions. It is important that Students understand that they are entitled to hold contradictory beliefs and that they should be encouraged to engage with these topics in a critical manner. Committing to this type of "active learning" significantly increases the learning experience for both teacher and student, and reflects the Christian imperative to pursue truth, which lies at the heart of the Ambrose educational experience. However, active discussion of controversial topics will be undertaken with respect and empathy, which are the foundations of civil discourse in the Classroom Setting. Primary responsibility for managing the classroom rests with the instructor. The instructor may direct a student to leave the class if the student engages in any behaviour that disrupts the classroom setting. If necessary, Ambrose security will be contacted to escort the student from class. Please refer to your professor regarding their electronic etiquette expectations.

### Academic Integrity

We are committed to fostering personal integrity and will not overlook breaches of integrity such as plagiarism and cheating. Academic dishonesty is taken seriously at Ambrose University as it undermines our academic standards and affects the integrity of each member of our learning community. Any attempt to obtain credit for academic work through fraudulent, deceptive, or dishonest means is academic dishonesty. Plagiarism involves presenting someone else's ideas, words, or work as one's own. Plagiarism is fraud and theft, but plagiarism can also occur by accident when a student fails or forgets to acknowledge to another person's ideas or words. Plagiarism and cheating can result in a failing grade for an assignment, for the course, or immediate dismissal from the university. Students are expected to be familiar with the policies in the current Academic Calendar that deal with plagiarism, cheating, and the penalties and procedures for dealing with these matters. All cases of academic dishonesty are reported to the Academic Dean and become part of the student's permanent record.

### Academic Policies

It is the responsibility of all students to become familiar with and adhere to academic policies as stated in the Academic Calendar. The academic calendar can be found at <https://ambrose.edu/content/academic-calendar-2>

### Privacy

Personal information (information about an individual that may be used to identify that individual) may be required as part of taking this class. Any information collected will only be used and disclosed for the purpose for which the collection was intended. For further information contact the Privacy Compliance Officer at [privacy@ambrose.edu](mailto:privacy@ambrose.edu).

### Coursework Extensions

Should a request for a time extension on coursework exceed the end of the term, a *Coursework Extension Application* must be completed and submitted to the Office of the Registrar. The extension (if granted) will be recorded on the student record. Extensions are granted at the discretion of the instructor and are normally granted for 30 days beyond the last day of the term.

Normally, Course Extension Applications will be considered only when all of the following conditions are met:

- the quality of prior course work has been satisfactory;
- circumstances beyond your control, such as an extended illness or death of a family member, make it impossible for you to complete the course work on time; and
- you submit *Coursework Extension Application* to the Office of the Registrar on or before the deadline specified in the Academic Schedule.

If granted, time extensions do not excuse you from a final examination where one has been scheduled for the course.

A temporary grade of TX will be assigned until a final grade is submitted in accordance with the new deadline. A final grade of F will apply to:

- all course work submitted after the end of the semester unless a coursework extension has been granted; and all course work submitted after the revised due date provided by an approved extension to coursework.

## Academic Success and Supports

### Accessibility Services

Academic accommodation is provided to Ambrose students with disabilities in accordance with the Alberta Human Rights Act and the Canadian Charter of Rights and Freedoms. Provision of academic accommodation does not lower the academic standards of the university nor remove the need for evaluation and the need to meet essential learning outcomes. Reasonable accommodations are tailored to the individual student, are flexible, and are determined by considering the barriers within the unique environment of a postsecondary institution. It can take time to organize academic accommodations and funding for disability-related services. Students with a disability who wish to have an academic accommodation are encouraged to contact Accessibility Services as early as possible to ensure appropriate planning for any needs that may include accommodations. Staff can then meet with students to determine areas to facilitate success, and if accommodations are required, ensure those accommodations are put in place by working with faculty.

### Ambrose Writing Services

Ambrose Writing services provides academic support in the four foundational literacy skills—listening, speaking, reading, and writing. It also assists students with critical thinking and the research process. Throughout the academic year, students can meet with a writing tutor for personalized support, or they can attend a variety of workshops offered by Academic Success. These services are free to students enrolled at Ambrose University. Academic Success serves all students in all disciplines and at all levels, from history to

biology and from theatre to theology. To learn more, please visit <https://ambrose.edu/writingcentre>

### **Ambrose Tutoring Services**

Ambrose Tutoring Services provides support in specific disciplinary knowledge, especially in high-demand areas such as chemistry, philosophy, math and statistics, and religious studies. These tutors also coach students in general study skills, including listening and note-taking. During the academic year, Ambrose Tutoring Services offers drop-in tutoring for courses with high demand; for other courses, students can book a one-to-one appointment with a tutor in their discipline. These services are free to students enrolled at Ambrose University. To learn more, please visit <https://ambrose.edu/tutoring>.

### **Mental Health Support**

All of us need a support system. We encourage students to build mental health supports and to reach out when help is needed.

#### On Campus:

- Counselling Services: [ambrose.edu/counselling](https://ambrose.edu/counselling)
- Peer Supportive Listening: One-to-one support in Student Life office. Hours posted at [ambrose.edu/wellness](https://ambrose.edu/wellness).
- For immediate crisis support, there are staff on campus who are trained in Suicide Intervention and Mental Health First Aid. See [ambrose.edu/crisissupport](https://ambrose.edu/crisissupport) for a list of staff members.

#### Off Campus:

- Distress Centre - 403-266-4357
- Sheldon Chumir Health Care Centre - 403-955-6200
- Emergency - 911

### **Sexual Violence Support**

All staff, faculty, and Residence student leaders have received *Sexual Violence Response to Disclosure* training. We will support you and help you find the resources you need. There is a website with on and off campus supports – [ambrose.edu/sexual-violence-response-and-awareness](https://ambrose.edu/sexual-violence-response-and-awareness).

#### Off Campus:

- Clinic: Sheldon Chumir Health Centre - 403-955-6200
- Calgary Communities Against Sexual Abuse - 403-237-5888

**Note:** Students are strongly advised to retain this syllabus for their records.