| Course ID: | Course Title: | Winter 2021 |
|---|---|---|
| BIO 231 | Cellular and Molecular Biology | Prerequisite: BIO 131, BIO 133, and BIO 211 |
| | | Credits: 3 |

| Class Information | | Instructor Information | | Important Dates | |
|---|---|---|---|---|---|
| **Days:** | Wednesday and Friday | **Instructor:** | Dr. Chris Wang | **First day of classes:** | Mon, Jan 11 |
| **Time:** | 13:30 – 14:45 | **Email:** | chris.wang@ambrose.edu | **Last day to add/drop, or change to audit:** | Sun, Jan 24 |
| **Room:** | Online | **Phone:** | (403) 410-2000 ext. 6910 | **Last day to request revised final exam:** | Mon, Mar 8 |
| **Tutorial** | Friday | **Office:** | L2113 | **Last day to withdraw from course:** | Fri, Mar 19 |
| | 15:15 – 16:30 | **Office Hours:** | by appointment (open door policy) | **Last day to apply for coursework extension:** | Mon, Mar 29 |
| **Final Exam:** | | | | **Last day of classes:** | Fri, Apr 16 |

**Course Description**

This course examines the principles of cellular structure and function, as well as the interaction of cells with their environment.

**Further Course Information:**

A cell is the smallest unit of life. It is highly complex and organized so that cellular activities are precise and efficient. This course introduces students to the basic cell structures and their functions. Cellular processes including energy production, gene expression, reproduction and communication will be discussed.

**Expected Learning Outcomes**

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

1. Students will be able to identify basic cellular structures and explain their functions.
2. Students will be able to describe details of essential cellular activities.
3. Students will be able to corroborate etiology of some diseases to aberrant cellular component.

**Textbooks (Required):**

- Gerald Karp. Cell and Molecular Biology: Concepts and Experiments. 8th Edition. John Wiley & Sons, Inc.

- WileyPLUS Course ID: **A43832**
  - sing-up video link: https://players.brightcove.net/4931690914001/default_default/index.html?videoId=6069132602001

- students are required to sign up for Poll Everywhere's free subscription at https://www.polleverywhere.com/

**Tentative Course Schedule**

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

| Date | Lecture Topic | Readings (Karp's 8th Ed) |
|---|---|---|
| | **Tutorial Objective** | |
| **Jan. 13** | Introduction to BIO 231 | |
| **Jan. 15** | Topic 1: The Structure and Function of the Plasma Membrane | Ch. 4 |
| | Tutorial 1: Experiments/Techniques for Studying Plasma Membrane | |
| **Jan. 20** | Topic 1: The Structure and Function of the Plasma Membrane | Ch. 4 |
| **Jan. 22** | Topic 1: The Structure and Function of the Plasma Membrane | Ch. 4 |
| | Tutorial 2: Assignment 1 – Plasma Membrane (Topic 1) | |
| **Jan. 27** | Topic 1: The Structure and Function of the Plasma Membrane | Ch. 4 |
| **Jan. 29** | Topic 1: The Structure and Function of the Plasma Membrane | Ch. 4 |
| | Tutorial 3: Experiments/Techniques for Studying Endomembrane Trafficking | |
| **Feb. 03** | Topic 2: Cytoplasmic Membrane Systems: Structure, Function and Membrane Trafficking | Ch. 8 |
| **Feb. 05** | Topic 2: Cytoplasmic Membrane Systems: Structure, Function and Membrane Trafficking | Ch. 8 |
| | Lecture Overflow<br>Tutorial 4: Assignment 2 – Endomembrane Trafficking Assignment (Topic 2) | |
| **Feb. 10** | Topic 2: Cytoplasmic Membrane Systems: Structure, Function and Membrane Trafficking | Ch. 8 |
| **Feb. 12** | ***In-Class Midterm Exam (Topic 1 and 2)*** | |
| | Tutorial 5: Chapter 18 – Techniques in Cell and Molecular Biology – students work on this topic during reading break by assigning a WileyPLUS assignment | Ch. 18 |
| **Feb. 17** | *Winter Reading Week (No Class)* | |
| **Feb. 19** | *Winter Reading Week (No Class)* | |
| | *Winter Reading Week (No Class)* | |
| **Feb. 24** | Topic 3: Cytoskeleton and Cell Mobility | Ch. 9 |
| **Feb. 26** | Topic 3: Cytoskeleton and Cell Mobility | Ch. 9 |
| | Tutorial 6: Lecture Overflow<br>Topic 3: Cytoskeleton and Cell Mobility | Ch. 9 |
| **Mar. 03** | Topic 3: Cytoskeleton and Cell Mobility | Ch. 9 |

| | | |
|---|---|---|
| **Mar. 05** | Topic 3: Cytoskeleton and Cell Mobility | Ch. 9 |
| | Tutorial 7: Lecture Overflow<br>Topic 3: Cytoskeleton and Cell Mobility | Ch. 9 |
| **Mar. 10** | Topic 4 - Cell Signalling and Signal Transduction | Ch. 15 |
| **Mar. 12** | Topic 4 - Cell Signalling and Signal Transduction | Ch. 15 |
| | Tutorial 8: Lecture Overflow<br>Topic 4 - Cell Signalling and Signal Transduction | |
| **Mar. 17** | Topic 4 - Cell Signalling and Signal Transduction | Ch. 15 |
| **Mar. 19** | Topic 5 - Control of Eukaryotic Gene Expression | Ch. 12 |
| | Tutorial 9: Topic 4 - Control of Eukaryotic Gene Expression (WileyPLUS) | |
| **Mar. 24** | Topic 5 - Control of Eukaryotic Gene Expression | Ch. 12 |
| **Mar. 26** | Topic 5 - Control of Eukaryotic Gene Expression | Ch. 12 |
| | Tutorial 10: Topic 5 - Cell Signalling and Signal Transduction (WileyPLUS) | |
| **Mar. 31** | *Ambrose Research Conference (No Class)* | |
| **Apr. 02** | *Good Friday (No Class)* | |
| | *Good Friday (No Class)* | |
| **Apr. 07** | Topic 6 - Cell Division | Ch. 14 |
| **Apr. 09** | Topic 6 - Cell Division | Ch. 14 |
| | Tutorial 11: Lecture Overflow | |
| **Apr. 14** | Topic 6 - Cell Division<br>Topic 7 – Cancer | Ch. 14<br>Ch. 16 |
| **Apr. 16** | Topic 7 – Cancer | Ch. 16 |
| | Tutorial 12: Final Exam Review Session | |

**Requirements**:

• WileyPLUS subscription (please see the textbook section above)
• Poll Everywhere subscription (please see the textbook section above)
• 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
• all lecture PowerPoints and tutorial assignments will be posted on Moodle
• lecture and tutorial attendance are required. Tutorials are designed: (1) to understand the landmark experiments in cellular and molecular biology; and (2) to review the lecture topics and key concepts in preparation for tests. Tutorial assignment submission deadlines are on the day of the tutorial
• doctor's notes are required for deferred midterm exam (final exam is scheduled by Registrar's Office, please inform the office if any arrangement was to be made)
• classroom communications will be posted on the "announcement" section in Moodle and emails will be sent to the Ambrose account, please check your Ambrose email periodically

**Attendance:**

• students, who absent from lecture(s), are responsible for the course materials covered

• attendance is required to obtain marks for in-tutorial assignments

**Evaluation Methods:**

| Evaluation Methods | Due Date | Weighting |
|---|---|---|
| WileyPLUS Assignments | multiple | 25% |
| Tutorial Assignments | multiple | 10% |
| Midterm Exam | Feb. 12th | 30% |
| Final Exam (cumulative) | | 35% |
| Total | | 100% |

**WileyPLUS Assignments:**
• types of assignment include: pre-lecture and post-lecture assignments
• these are individual assignments, but students are encouraged to work as a group
• deadline will be announced in the "Announcement" section of Moodle and email will be sent via the announcement in Moodle to student's Ambrose email account

**In-Tutorial Assignments:**
• work in a group of 2-3 students, except WileyPLUS assignments, which have to be answered individually but can work together as groups
*e.g.* critical thinking questions, problem solving questions, simple experimental design
• assignment is due on the day of the tutorial or otherwise agreed between students and the instructor
• attendance is required to obtain marks for assignments
• NO deferred assignment due to absence (unless pre-arrangement was made or evidence of legitimate excuses was presented)

**Midterm Exam: (30%)**
• focus on understanding the biological concepts rather than detail memorization
• NO make-up or deferred exam unless evidence of legitimate excuse, such as doctor's notes, is presented

**Final Exam: (35%)**
• final exam is *comprehensive (i.e. cumulative)*

**Grade Summary:**

| Percent (%) to Letter Grade Conversion | Grade | Grade Point | Description |
|---|---|---|---|
| 92.00% - 100% | A+ | 4.0 | Excellent |
| 85.00% - 91.99% | A | 4.0 | |
| 80.00% - 84.99% | 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 | |
| 50.00% - 54.99% | D | 1.0 | Minimal Pass |
| 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, cell phone usage is not permitted. Please turn cellular phones off - 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 meet with the instructor, outside of regular class time, to determine a plan 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.

**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 Academic Policies:

**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. If students do not wish to use their Ambrose accounts, they will need to forward all messages from the Ambrose account to another personal account.

**Registration**
During the **Registration Revision Period** students may enter a course without permission, change the designation of any class from credit to audit and /or voluntary withdraw from a course without financial or academic penalty or record. Courses should be added or dropped on the student portal by the deadline date; please consult the List of Important Dates. After that date, the original status remains and the student is responsible for related fees.
Students intending to withdraw from a course after the Registration Revision Period must apply to the Office of the Registrar by submitting a "Request to Withdraw from a Course" form or by sending an email to the Registrar's Office by the **Withdrawal Deadline;** please consult the List of Important Dates on the my.ambrose.edu website. Students will not receive a tuition refund for courses from which they withdraw after the Registration Revision period. A grade of "W" will appear on their transcript.

Students wishing to withdraw from a course, but who fail to do so by the applicable date, will receive the grade earned in accordance with the course syllabus. A student obliged to withdraw from a course after the Withdrawal Deadline because of health or other reasons may apply to the Registrar for special consideration.

**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 List of Important Dates. 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.

**Electronic Etiquette**
Students are expected to treat their instructor, guest speakers, and fellow students with respect. It is disruptive to the learning goals of a course or seminar and disrespectful to fellow students and the instructor to use electronics for purposes unrelated to the course during a class session. Turn off all cell phones and other electronic devices during class. Laptops should be used for class-related purposes only. Do not use iPods, MP3 players, or headphones. Do not text, read, or send personal emails, go on Facebook or other social networks, search the internet, or play computer games during class. Some professors will not allow the use of any electronic devises in class. The professor has the right to disallow the student to use a laptop in future lectures and/or to ask a student to withdraw from the session if s/he does not comply with this policy. Repeat offenders will be directed to the Dean. If you are expecting communication due to an emergency, please speak with the professor before the class begins.

**Academic Policies**
It is the responsibility of all students to become familiar with and adhere to academic policies as stated in the Academic Calendar. 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.

**Extensions**
Although extensions to coursework in the semester are at the discretion of the instructor, students may not turn in coursework for evaluation after the last day of the scheduled final examination period unless they have received permission for a course Extension from the Registrar's Office. Requests for course extensions or alternative examination time must be submitted to the Registrar's Office by the deadline date; please consult the List of Important Dates. Course extensions are only granted for serious issues that arise "due to circumstances beyond the student's control."

**Appeal of Grade**
An appeal for change of grade on any course work must be made to the course instructor within one week of receiving notification of the grade. An appeal for change of final grade must be submitted to the Registrar's Office in writing and providing the basis for appeal within 30 days of receiving notification of the final grade, providing the basis for appeal. A review fee of $50.00 must accompany the appeal. If the appeal is sustained, the fee will be refunded.

**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.

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