



# BIO 131

## Introduction to Cellular Biology

Number of credits: 3

Prerequisite:  
Biology 30

Semester: Winter, 2015  
Days: Tues. / Thurs. 1:00-2:15  
Room: A 2131  
Lab – day: Tuesdays: 2:30 and 4:00  
Lab–Room: A 2151

Instructor: Dr. Carol Gibbons Kroeker  
Email: ckroeker@ambrose.edu  
Phone: 403-410-2000, 5910  
Office: A 2156  
Office hours: By appointment  
Tues / Thurs 11-1

### Course Description:

This course examines the basic principles of biological systems, including the biology and function of viruses and bacteria.

### Further Course Information:

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
2. Students will be able to discuss the evolutionary history, biological diversity and modern relationships between prokaryotes and eukaryotes
3. Students will learn laboratory techniques essential to research in biology-related fields.
4. Students will collaborate with peers to design and carry out a research project and be able to present this in written and oral formats

### Important Dates:

First day of classes: January 7, 2015  
Registration revision period: January 18, 2015  
Last day to request revised examination: March 2, 2015  
Last day to withdraw from course: March 20, 2015  
Last day to apply for time extension for coursework: March 30, 2015  
Last day of classes: April 10, 2015

**Final Exam: Wed. April 15, 2015**  
**Time: 1:00-4:00 PM**  
**Room: Airhart Theatre**

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## Outline:

<u>Dates</u> <u>Week of</u>	<u>Topic</u>	<u>Text Chapters</u>
Jan. 7	Introduction to Biology 131 Scientific Method	1
Jan. 12	Cellular basis of life and cell structure	5, 6, 7
Jan. 19	Metabolism, energy, and life	8
Jan. 26	Fermentation and cellular respiration	9
Feb. 2	Respiration and photosynthesis	9, 10
Feb. 9	Photosynthesis and nutrient cycling Midterm I	10
Feb. 16	Reading Week – no lectures	
Feb. 23	Cell cycle of prokaryotes and eukaryotes Genetic recombination in prokaryotes and Eukaryotes	12 13
Mar. 2	Genetics	14, 15
Mar. 9	DNA structure, replication, and cellular location Genome organization / Midterm II	16
Mar. 16	RNA transcription and translation in prokaryote and eukaryote / control of gene expression	17
Mar. 30	Virology Bacteriology	18
Apr. 6	Immune Response DNA Technology	19, 20, 21

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## Laboratory Schedule

Attendance at the laboratory sessions is **COMPULSORY**. Any lab missed without a valid excuse cannot be made up. A valid excuse (such as illness, death in the family etc.) must be validated by written proof from a doctor or counselor. Lab coats are not required but are strongly recommended. Labs will begin the week of January 12<sup>th</sup>. Laboratory topics covered will enhance course material.

The lab portion of this course will consist of 5 lab reports worth 4% each.

Jan.	Intro to Scientific investigation (Tutorial) Basic Microscopy – with forensics application Scientific Writing (Tutorial) Membranes and particle movement (Lab report)
Feb.	Enzyme Activity (Lab report) Cellular respiration / Midterm Review Fermentation (Lab report)
Mar.	Genetics I and II / Epigenetics (Lab report) DNA extraction DNA replication – case study lab Bacteriology (2 weeks) – Lab report
Apr.	Review

On the 3 weeks without a formal lab, there will be scheduled tutorials.

## Requirements:

The lecture portion of the course will be evaluated with 2 midterm exams (20% each) plus a final exam (worth 40%). The lab portion of this course will consist of 3 lab assignments and 2 lab reports worth 4% each. Case studies and inquiry-based learning will be used in the class - Student participation is expected in the form of discussion and presentation.

## Submission of Assignments:

Assignments will be handed in during class time. There will be a 10% deduction in grade per day that an assignment or lab report is handed in late. No assignments will be accepted past one week late. If there are extenuating circumstances resulting in the lateness, please contact the instructor.

## Attendance:

While attendance at lectures is not mandatory, it will help ensure success on course exams and assignments. Attendance at laboratory sessions is mandatory. Lab reports will not be accepted unless the lab has been attended or exceptions have been made with the instructor.

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## Evaluation:

<b>Mark Distribution</b>	:	2 Midterm Exams (in class)	40%
		5 Lab Reports / Assign.	20%
		Final Exam	40%

(Scheduled by registrar)

The midterm and final exam will be a combination of multiple choice questions, as well as short and long answer questions. While most questions will be based on lecture material, the textbook reading will absolutely help in the understanding of this material.

## Grade Summary:

The available letters for course grades are as follows:

Grade	Percent	Grade Point Value	Description
A+	96-100	4.00	Outstanding
A	92-95	4.00	Excellent - superior performance, showing comprehensive understanding of subject matter.
A-	88-91	3.70	
B+	83-87	3.30	
B	78-82	3.00	Good-clearly above average performance with knowledge of subject matter generally complete.
B-	73-77	2.70	
C+	68-72	2.30	
C	64-67	2.00	Satisfactory – basic understanding of the subject matter. Grade point average below 2.00 is not sufficient for promotion.
C-	60-63	1.70	Minimum grade required if needed as a prerequisite course
D+	55-59	1.30	
D	51-54	1.00	Minimal pass – marginal performance; generally insufficient preparation for subsequent courses in the same subject.
F	<50	0	Fail – unsatisfactory performance or failure to meet course requirements.

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## Textbook:

Campbell Biology, Tenth Edition  
Reece, Urry, Cain, Wasserman, Minorsky, and Jackson)  
Pearson Publishing, 2014

An earlier edition will also suffice:  
Biology, by Campbell and Reece (edition 7, 8, or 9)

Lab Hand-outs will be provided in lieu of a lab manual.

## Policies:

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, it is highly recommended that they forward all messages from the Ambrose account to the other account.

During the **Registration Revision Period** students may to 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. These courses will not appear on the student's transcript. 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 by the **Withdrawal Deadline**, please consult the List of Important Dates. Withdrawal from courses after the Registration Revision period will not be eligible for tuition refund. A grade of "W" will appear on the student's 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.

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) 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 engage in electronically-enabled activities unrelated to the class during a class session. Please turn off all cell phones and other electronic devices during class. Laptops should be used for class-related purposes only. Please 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. 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.

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## 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, that is information about an individual that may be used to identify that individual, may be collected as a requirement 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).

### 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 Office of the Registrar in writing 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 to review final grades. 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 give credit 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.

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

### Other

### Classroom Etiquette:

It is expected that students will take an active role in the learning process. This includes: (a) regular class attendance, (b) reading course material in advance of class, and (c) engaging in discussions during class.

In respect to the professor and to your fellow students, we ask that you:

- a) Turn your phone off during class and that you don’t use it for texting during lecture or lab
- b) Not have conversations with the people beside your during lecture – it is very distracting to the people around you
- c) Use your laptops for lecture material and assignments only – that you are not using the internet or facebook during class time.
- d) Arrive to lecture and lab on time
- e) Don’t come to class or lab with your ipod or equivalent.

These will help to maximize the learning experience for you and your fellow students (and will keep your professor in a good mood).