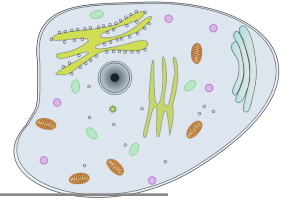


Biol: 1440

Principles of Biology 1

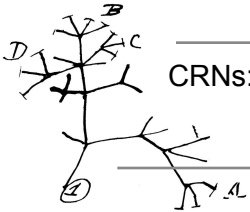
This Syllabus is subject to change



CRNs: 12451, 12463
12430, 12458

MWF 10-10:50
MWF 2-2:50

LSC 172
LSC 172



Course Description and Learning Outcomes

Every known form of life (including you) contains one or more cells. In this course we will study the biology of the cell; from the chemistry that makes life possible to the mutations that provide variation for evolution. We will also learn how scientists critically evaluate data, draw conclusions and communicate their findings. The information you learn in this course will prepare you for your future biology classes, understanding science in the news, and communicating with others no matter your major or career goals. This class will utilize active learning whenever possible, therefore students must keep up with course material including reading the textbook! This course is moderately structured, meaning that you will have assignments due on a fairly regular basis. These assignments are not busy work! This course is organized based on published evidence that this type of structure increases student retention and course performance! Biology 1440 is a core course designed for biology majors but also serves other programs. A grade of C or better will be required to move on to Principles of Biology 2 (Biol 1441).

Course Objectives:

- To instill an understanding of the nature of science and to apply the scientific method
- To develop critical thinking, communication and collaboration skills
- To understand the organization and function of the eukaryotic cell

By the end of this course

You will

- design experiments using the scientific method
- demonstrate proper equipment use and effective data collection and interpretation
- apply biological concepts to novel situations
- develop a hypothesis, conduct an experiment and write scientific papers based on experimental results
- describe the structure and biological function of major macromolecules and water
- describe the structure and function of cellular membranes and organelles

- explain the processes of cellular respiration, photosynthesis, transport, communication, mitosis, and meiosis
 - describe the fundamental principles related to DNA replication, transcription and translation
 - describe mutation and explain its relationship to genetic diversity and evolution
-

Your Instructor

(Professor K., He, Him, His)

My office is located in the Conway Corporation Center for Science (CCCS) room 205B.

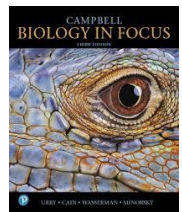
Email: _____ (preferred), Phone: _____ The best way to get ahold of me is via email or by coming to my office hours. I will contact you via email and the announcements tool in Blackboard.

My office hours are Monday 1-2, Tuesday 10-12 and Wednesday 11-12.

Every student can succeed in this course, it is designed to help keep you on track. It is my goal that we work as a learning community in the classroom where all students are welcome and feel safe. I expect that you will read your textbook and come to class prepared to take notes, engage in discussion and ask questions, otherwise, I will have to talk the entire class period and nobody wants that! Please do not hesitate to come to my office hours or email me with any questions or concerns. I typically reply to emails within 24 hours during the work week.

What do I need for the course?

- Urry et al. ***Campbell Biology In Focus*** 3rd Edition with modified Mastering Biology etext or physical text.



Please keep up with class readings and work and rework the questions associated with each chapter. Practice answering all the questions types you can as often as you can, this is key to success in the course!

- Karafit, Runge and Choinski ***BIOL 1440 Laboratory Manual 6th Edition***
- **Live Response** from Pearson and an internet capable device

A notebook and writing utensil for taking handwritten notes (if possible)

Attendance

Attending class is important, you will need to attend, participate and take notes. Lectures will not be recorded. After 3 unexcused lecture absences, your grade may be dropped by one letter grade. After 4 or more lecture absences, you may be dropped from the course. If 3 or more labs are missed you may be dropped from the course.

Absences

Lecture absences for documented cases of illness, emergency, sanctioned school functions, or other appropriate extenuating circumstances will typically be excused and documentation must be provided to the instructor. Students are responsible for notifying their lecture and lab instructors in a timely fashion and, if at all possible before an absence. If you must miss a lab, you are still responsible for turning in assignments due that day and the assignment and data collected during the missed lab. Contact your lab partners and instructor to ensure you do not miss the assignment. **Labs cannot typically be made up if you are absent.**

Supplemental Instruction (SI)

This course includes access to UCA's Supplemental Instruction (SI) program, and sessions with a SI Leader. SI is a study group approach to learning that helps you learn "what to learn" as well as "how to learn." SI consists of regularly scheduled, out-of-class group study sessions that are facilitated by trained peer SI leaders who will be attending class. SI is a free service offered to all students in this course. SI Session attendance is voluntary in this course, but attendance is strongly encouraged as a means for improving your success in the course. **Students may earn up to 5 bonus points on each exam score by attending SI (one point per visit).** In my experience, successful students visit SI as often as possible!

Lecture Grade (60% of Course Grade)

| | |
|--------------|------------------------|
| Exams | (4x75 pts each) |
| Final | (150 pts) |

Lecture Assignments

| | |
|----------------------|-----------------|
| Participation | (30 pts) |
| Mastering | (85 pts) |
| Quizzes | (35 pts) |

Lab Grade (40% of Course Grade)

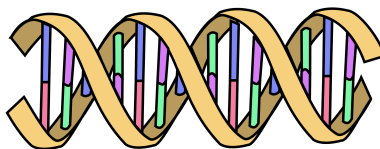
| | |
|------------------------|--------------|
| Lab Assignments | (80%) |
| Lab Quizzes | (20%) |

Your Course grade is a combination of your lecture and lab grades and will be calculated as follows:

Lecture Grade 60%

Lab Grade 40%

Your final grade will reflect what you have earned in the class, do not count on extra credit, curving or rounding to impact your grade; work on it from day one! Grades will be posted on Blackboard periodically. If you believe something has been graded incorrectly, please bring it to my (or your TA's) attention after 24 hours of receiving it and within 96 hours of the day it was graded, after this time, grades will be permanent.



Lecture Exams: There will be five lecture exams, each with a value of 75 points. Your lowest lecture exam will be dropped at the end of the semester. Bring a #2 pencils for each exam. The lecture exams will consist of analytical, application and comprehension questions over material covered in lecture, lab and the Active Reading Guide during a particular section of the course. Some exam questions will require you to remember subjects from earlier portions of the course. The format of the questions may vary: essay, short answer, fill-in-the-blank, matching, labeling, diagramming, multiple choice, etc. Each exam will cover material from lecture or in assigned readings. Questions will demand more than simple regurgitation of lecture material, **please study actively** (practice tests, concept maps etc; rereading notes or looking at flashcards will not be sufficient! Cell phones, translators and graphing calculators may not be used during tests. No late exams will be given. If you must miss an exam for an excused reason, notify your instructor well in advance and provide proper documentation. In these cases, you may be able to take the exam early, or the missed exam will be your dropped exam. Exams will not be returned, but you may visit your lab instructor's office hours to review them.

Final Exam : The final exam will cover the entire course including any new material. Students should organize their notes throughout the semester to prepare for the final. The final exam grade will not be dropped. The final exam will be Monday Dec. 12th at 8:00 AM for the 10:00 lecture and Friday Dec. 16 at 10:00 AM for the 2:00 lecture. All final exams will take place in the normal lecture room.

Lecture Assignments : Participation grades will consist of Live Response questions and participation in class discussions and activities and Blackboard and ARG assignments. Your LR grade will be based on participation (you must be present in class to participate). ARG questions (will be graded based on completion. Doing this work dishonestly will affect your course performance.

These assignments will ensure you are prepared for class and understand the reading material and will allow you to assess your understanding of previous course material. Assignments will include timed quizzes or untimed assignments and are typically due at 11:59pm on T, R and Sundays. There are also numerous built-in study tools on this platform that you should take advantage of. If you have any issues with your account, please email Cynthia Clark, cynthia.clark@pearson.com. Note, I will drop a few lecture assignment grades to make up for technical issues etc.

Lab: Labs will allow you to practice the scientific method, critical thinking and scientific communication skills while reinforcing lecture material. To properly be prepared you must read pre-lab materials/view videos before taking the quiz! Labs will be taught at a level that assumes you have completed the pre-lab reading. Students who have not read the lab ahead of time, are not dressed appropriately, or arrive more than 10 min. late to a lab may be asked to leave. Lab quizzes will be due 10 minutes after the start of lab. Food and drink and open-toed shoes are not allowed in the lab room. See the lab manual for more details.

This is a moderately structured class and will require you to be an active participant! You might wonder why you must have a quiz or assignment over material we haven't yet covered in lecture. Scientific research on learning has shown that by doing this you increase your ability to retain information long term which is in your best interest!

| | |
|--------------|---|
| Before Class | Read the assigned textbook pages, answer the guided reading questions. Do the assigned Mastering questions (ideally without looking at your notes!) |
| During Class | Answer L.R. questions, take handwritten notes, participate in discussion, write down questions that you have during lecture! |
| After | Attend SI, Mastering assignments or other post lecture assignments, |

| | |
|-------|--|
| Class | rewrite your notes if needed, study in groups, study this course each day, come to office hours! |
|-------|--|

Professionalism. Lecture attendance is crucial for success in the course, **four missed lectures or arriving late or leaving early four times** may result in being dropped from the class. If you miss more than **two labs** you may be dropped without warning. If you are sleeping or texting, wearing earbuds or talking in class you may be marked as absent and/or your participation grade may be lowered. There will be group work conducted in this classroom, we will endeavor to create a classroom of scholars and each group member deserves to be respected and to feel welcome.

If we must switch to online instruction, I will communicate with you via email.

Honor Code. All academic work will be conducted under the policies in the Student Handbook and the honor codes which states: **“I have neither given nor received aid for this work, nor am I aware of anyone giving or receiving aid for this work.”** In addition, plagiarism from peers and/or sources (including websites such as Chegg) will not be tolerated and is considered a violation of the honor code stated above. If you have questions about what constitutes plagiarism please see me. Every time you submit your academic work you are acknowledging that you have followed this academic policy. Any student in violation of the academic policy for any assignment/exam/quiz will likely be dropped from the course with an F and an academic integrity violation report will be made to the University. This policy is in accordance with the policy from the Student Handbook (below).

Academic Integrity. It is vital for your learning and success in this course that you do your own work at all times and that proper citations be used for information that you use in your work. The purpose of assignments and tests in this course are to develop and assess your understanding and skills; taking shortcuts or copying material does not advance your understanding. If a violation occurs I may have to report it to the University. When in doubt ask me before turning in an assignment!

The University of Central Arkansas affirms its commitment to academic integrity and expects all members of the university community to accept shared responsibility for maintaining academic integrity. Students in this course are subject to the provisions of the university’s Academic Integrity Policy, approved by the Board of Trustees as Board Policy No. 709 on February 10, 2010, and published in the Student Handbook. Penalties for academic misconduct in this course may include a failing grade on an assignment, a failing grade in the course, or any other course-related sanction the instructor determines to be appropriate. Continued enrollment in this course affirms a student’s acceptance of this university policy.

Students with Disabilities. The University of Central Arkansas adheres to the requirements of the Americans with Disabilities Act. If you need an accommodation under this Act due to a disability, please contact the Office of Accessibility Resources at 450-3613 at the beginning of the semester. Remember this office is there to remove barriers to your learning, please take advantage of their services

Counseling. If personal problems are keeping you from completing your coursework, you may find it beneficial to visit the counseling center. All students are entitled to free, confidential, professional counseling. The office is located in suite 327, Student Health Center (450-3138). If you ever need someone to walk with you to help you make an appointment please don't hesitate to ask 1

Title IX Disclosure. If a student discloses an act of sexual harassment, discrimination, assault, or other sexual misconduct to a faculty member (as it relates to "student-on-student" or "employee-on-student"), the faculty member cannot maintain complete confidentiality and is required to report the act and may be required to reveal the names of the parties involved. Any allegations made by a student may or may not trigger an investigation. Each situation differs and the obligation to conduct an investigation will depend on those specific set of circumstances. The determination to conduct an investigation will be made by the Title IX Coordinator. For further information, please visit: <https://uca.edu/titleix>. *Disclosure of sexual misconduct by a third party who is not a student and/or employee is also required if the misconduct occurs when the third party is a participant in a university-sponsored program, event, or activity.

Emergencies. An Emergency Procedures Summary (EPS) for the building in which this class is held will be discussed during the first week of this course. EPS documents for most buildings on campus are available at <http://uca.edu/mysafety/bep/>. Every student should be familiar with emergency procedures for any campus building in which he/she spends time for classes or other purposes.

Evaluations. Student evaluations of a course and its professor are a crucial element in helping faculty achieve excellence in the classroom and the institution in demonstrating that students are gaining knowledge. Students may evaluate courses they are taking starting on the Monday of the twelfth week of instruction through the end of finals week by logging in to myUCA and clicking on the Evals button on the top right. Your constructive feedback is appreciated!

Withdraw. November 16: Final date to officially withdraw from the course or the university with a W grade unless already dropped for non-attendance. After this date, only grades of A, B, C, D, F will be received.

Tentative Schedule

Please complete chapter readings before coming to lecture!

| Monday | Wednesday | Friday | Lab |
|--|---|---|--|
| | | August 26 Introduction Ch: 1.1 | No laba |
| August 29 Science and Evolution 1.1-1.2 | August 31 Science and Evolution/Chemistry 1.3; 2.1 | September 2 Chemistry 2.2-2.3 | No labs |
| September 5 No Class Labor Day | September 7 Chemistry 2.4-2.5 | September 9 Organic chemistry 3.1-3.2 | Online Lab Scientific Communication Assignment: Piranha Paper Summary (10 pts) (Lab quizzes 80 pts) |
| September 12 Organic Chemistry 3.3-3.4 | September 14 Organic Chemistry 3.5-3.7 | September 16 Cells 4.1-4.5 | Lab 1 Graphing Results (20 pts) |
| September 19 Exam 1 | September 21 Cells and Membranes 4.6-4.8; 5.2 | September 23 Membranes 5.3-5.4 | Lab 2 Standard Curves Intro and Results (20 pts) |
| September 26 Membranes 5.5-5.6 | September 28 Energy 6.1-6.2 | September 30 Energy 6.3-6.4 | Lab 3 Membranes Lab Report (50 pts) |
| October 3 Energy | October 5 Respiration | October 7 Respiration | Lab 4 Osmosis Lab Summary (20) |

| | | | |
|---|---|---|---|
| 6.5 | 7.1-7.2 | 7.3-7.4 | Pts) |
| October 10 Exam 2 | October 12 Respiration 7.5-7.6 | October 14 Photosynthesis 8.1-8.2 | Lab 5 Enzymes 1 Lab Summary (20 pts) |
| October 17 Photosynthesis 8.3-8.4 | October 19 Photosynthesis/R espiration Review | October 21 No Class Fall Break | No Labs |
| October 24 Exam 3 | October 26 Mitosis 9.1-9.2 | October 28 Mitosis 9.2 | Lab 6 Enzymes 2 Lab Report (100 pts) |
| October 31 Mitosis 9.3 | November 2 Meiosis 10.1-10.3 | November 4 Meiosis 10.3 | Lab 7 Respiration Lab Summary 20 pts) |
| November 7 Meiosis 10.4 | November 9 Mendelian Genetics 11.1-11.2 | November 11 Mendelian Genetics 11.2-11.4 | Lab 8 Photosynthesis Lab Summary (20 Pts) |
| November 14 Exam 4 | November 16 DNA 13.1-13.2 | November 18 DNA 13.2-13.3 | Lab 9 Classic Genetics Worksheet (20 Pts) |
| November 21 <u>DNA and Gene Expression*</u> 13.4; 14.1-14.2 | November 23 <u>Gene Expression*</u> 14.3-14.4 | November 25 No Class Thanksgiving | No Labs |
| November 28 Gene Expression 14.5 | November 30 Viruses 17.1-17.2 | December 1 Evolution 19.2-19.3 | Lab 10 Forensic Biology Worksheet (20 pts) |
| December 5 Exam 5 | December 7 Review/Catchup | December 9 No Class Study Day | No Labs |
| Final Exam Week | | | |

*=Virtual Lecture (Asynchronous on Blackboard)

Note: Lab assignments and point values may change based on learning needs and circumstances during the semester

Advice from Past Students from past course evaluations.

Q: : What advice would you give to another student who is considering taking this course (or section)?

- Read, read, review, and read.
- Pay close attention to the questions listed in the Active Learning Guide and to what he mentioned repeatedly in lecture. Those topics usually ALWAYS end up on the exams. Be willing to visit with him and ask questions if you're confused because he will gladly help however he can.
- Make sure you read the book!
- Take the class seriously and actually study. Tests are not too hard but can be hard if you have not spent the time to learn the material.
- Stay ahead, read ahead, keep up with the ALG, it is an excellent study tool. I got the ebook and I really enjoyed that. I wasn't counting the pages until I would be done like I do with paper books. There are also videos built into the text that correspond to the section you are reading, this is great for seeing what you are reading, like in cellular respiration or photosynthesis. I know I used these videos every time I was reading the text.
- Do not procrastinate on studying. Study every night the material that you learned in class that day. If you put off studying you will not get the results that you want in the class. Also, take the class seriously at all times. It is a challenging class, and you will have to work hard for your grade, but it is possible to make an A if you put all your effort into it.
- Definitely read the book and do the guided reading questions because that is where a lot of his test questions come from. Also, go to class everyday because he does a lot of white board lecturing to visually explain things to us and it helps piece everything together.
- Go to lectures, talk to Professor if you do not understand the material, he will explain it. Study any and everything for the tests.
- Make sure you look over the topics after lecture the same day or at least be thinking about what was taught in class.
- Do the active reading guide questions! Come to class every day!
- Come to class everyday, ask for help when you need it inside and outside of class, do all your homework, and don't cram the night before for a test.