



"Biology is the most powerful technology ever created. DNA is software, protein are hardware, cells are factories."

-- Arvind Gupta

BIOL 1214
Fall 2019

Fundamentals of Biology

**Lecture: MWF 9:00–9:50 AM
or MWF 1:30–2:30 PM**

Room: LO 208

**Lab: M or T 2:30–5:15PM
Room: LO 102**

Dr. Adam K. Ryburn
SSM 202B
aryburn@okcu.edu
405.208.5044

OFFICE HOURS:

T 9–noon & W 2:30–4:30pm, by
appointment.

TEXT & REQUIRED MATERIALS

- **Biology, 2nd Edition** (2019) from OpenStax. Access information is found on **D2L**.
- Fundamentals of Biology Lab Manual. Purchase through TriBeta website (www.ocutriba.org).
- Three-ring notebook (1 ½") to hold standard 8.5" x 11" paper. Used for handouts and lab manual.
- Pack of 3"x5" notecards

INTERNET RESOURCES

It is highly encouraged that students attempt to utilize the online resources located on the course's Desire2Learn site (<https://ocunonline.okcu.edu>). Here you will find an updated schedule of upcoming events in class, copies of handouts and homework assignments, access to textbook and related materials, and to check the current status of your grade in the course. To log in you will need to use your university user ID and password.

REMIND

Each student is required to sign up for the course's REMIND service that will be used to send announcements and reminders of class activities via text to your cell phones. More info can be found on D2L.

Course Description & Objectives

This is a fundamental class for students **majoring in Biology or related areas**, or as a pre-requisite for certain professional medical related degree programs. The course will focus on the principles that form the basis for all biologic disciplines. This four credit-hour course includes two 75-minute lectures and one 165-minute laboratory meeting weekly. Additionally, this course satisfies the second lab science required by the School of Liberal Arts and Sciences liberal arts core.

The following course objectives and sub-objectives (learning outcomes) will be emphasized this semester:

- 1) Gaining a basic understanding of the subject (e.g., factual knowledge, methods, principles, generalizations, theories).
 - a. You will be expected to form the basis for developing a scientific vocabulary by learning both fundamental terms and relevant word parts that will be used throughout the study of biology.
 - b. You will be expected to become intimately acquainted with the scientific method and to use the scientific method in performing research.
 - c. You will be expected to become familiar with the properties of scientific nomenclature and the classification of living organisms.
- 2) Developing specific skills, competencies, and points of view needed by professionals in the field most closely related to this course.
 - a. You will be expected to understand the concepts that are foundational to further study in biology, including (a) basic chemistry principles, (b) cell structures and functions of sub-cellular structures, (c) metabolism, including cellular respiration and photosynthesis, (d) genetics, including DNA structure and transmission of genetic information, (e) evolution, (f) ecology, and (g) classification of living organisms.
 - b. You will be expected to gain experience in the laboratory, including (a) the use of equipment such as the microscope, (b) following the scientific method, and (c) interpreting scientific data.
- 3) Learning to apply course material (to improve thinking, problem solving, and decisions).
 - a. You will be expected to develop study skills that will benefit you throughout the study of science.
 - b. You will be expected to examine living and preserved examples of plant and animal structures.
 - c. You will be expected to be aware of people's great dependence upon and manifold uses of plants and animals.

Lecture & Lab Procedures

This course is offered in the liberal arts tradition; thus you are expected to learn a body of facts and concepts. Topics will be discussed in depth in order that you will have an understanding of the discipline's origins and present diversity.

Course content is offered in a variety of methods that include, but are not limited to, classroom or online lecture, animation and video, and in-class and out-of-class activities. In all, this method of instruction will hopefully provide a greater understanding and respect for the material. A tentative schedule of lecture and laboratory topics is attached. Reading assignments will be made periodically. You are responsible for all assigned material. Complete assigned readings prior to their discussion in lecture. The material presented in the course can be difficult, but will be easier to understand if you read the assigned material first. It is additionally imperative that you complete and turn in all assignments on-time. **Late assignments will not be accepted.**

Conduct in Lectures

Since all students are entitled to an environment that is conducive to learning, you are expected to keep disruptions to a minimum. You should be in class and ready to begin on time. If you do come in late, be as quiet as possible. Please place all cell phones on silent before class begins. Disruption of class, whether by latecomers, noisy devices, or inconsiderate behavior (e.g. talking), will NOT be tolerated. Repeated violations by individuals may result in penalties, including being dropped from the class. If any electronic devices are found to be operating during any exam or quiz, this action will result in failure of the assignment.

Attendance

Punctual attendance is essential to success in this course because of the integrated nature of the lectures and labs and the quizzes and exams. It is assumed that excessive absence will result ultimately in inferior academic achievement by the student. If you are not in class, you are not learning! Missed lectures, labs, homework assignments, examinations, and quizzes cannot be made up unless justification for being absent from class is provided and accepted beforehand, regardless of the excuse of the absence. **Arrive to class on time and do not leave class early.**

Exams, Quizzes, and Class Assignments

LECTURE EXAMS: Five exams will be given on the dates below. The 1st four (worth 100 points each) will cover all the material presented in lecture and lab and assigned readings since the last exam. The lowest lecture exam score of these exams will be dropped at the end of the semester; **you must however take each exam for this happen.** The final exam (worth 200 points) is **comprehensive**, thus covering all material presented during the semester.

Wednesday, September 11 - Exam 1

Wednesday, October 9 - Exam 2

Wednesday, November 6 – Exam 3

Wednesday, December 4 – Exam 4

Wednesday, December 11 – Comprehensive Final Exam (8:00-10:00am or 12:00-2:00pm)

POLICY ON MISSED EXAMS: If you are unable to take an exam you must contact Dr. Ryburn prior to the exam or within 12 hours of the time of the exam and provide a valid, documented excuse (doctor's note, arrest report, etc.) as to why you cannot take the exam in order to schedule a make-up. Failure to do so will result in a grade of zero for that exam.

LECTURE QUIZZES AND ASSIGNMENTS: Quizzes and in-class and take-home assignments (including online assignments) will be given periodically in the lecture throughout the semester. These short exercises will cover your knowledge on current topics from lecture and laboratory. It will be each student's responsibility to bring to class and use 3" x 5" note cards for many of these exercises. **Exercises may or may not be announced ahead of time so always come to class prepared.**

Exam and quiz questions are designed to assess whether one has learned all of the factual material presented; whether one understands it; whether one has learned all of the principles that provide a conceptual framework for it; and finally whether one can use these principles and facts to generate new thoughts and answers to problems in biology.

Exams and quizzes will include a mix of questions in various formats: multiple choice, identification, short answer, fill-in-the-blank, labeling of drawings or diagrams, and essay. Identifications represent short answers—generally written as sentence fragments or phrases—that include specific factual information as who, what, when, where, why, how, and the scientific significance of the item. Each exam and quiz will be evaluated in terms of spelling, grammar, clarity of expression, and creativity, as well as technical expertise. Students are expected to be able to present scientific information with accuracy and clarity appropriate for the college level.

LAB ASSIGNMENTS: Each week students will take part in laboratory exercises that may or may not coincide with the current lecture topics. Upon completion of labs, students will be required to complete and submit laboratory exercises or written reports. Although completion of some exercises will require collaborative efforts, you are required to prepare your own assignments. **Those not prepared according to the instructions given or submitted late will not be accepted.** Unless indicated otherwise, completed assignments are due at the beginning of the following lab period. See tentative lab schedule for details.

LABORATORY EXAMS: Two laboratory exam will be given during week 5 and week 10 of the semester. The exams will cover material presented during the previous week's exercise. More details will be given later. Each lab exam is worth 50 points.

No individual extra credit will be given for papers, readings, reports, etc. for the purpose of grade improvement.

Student Athletes

Student athletes shall not miss any regularly scheduled classes for any practice activities. Student athletes are required to provide documentation from their coach regarding any missed class periods. All assignments, including exams, are to be completed prior to being excused for missing class due to competition.

Honors Contracts

Students in the OCU Honors Program are welcome to contract this course for honors credit. Contact Dr. Karen Youmans about the honors contract paper work and Dr. Ryburn will help coordinate an additional class experience that meets the needs of each student and satisfies honors requirements.

Class Points

Lecture Exams – 100 pts. ea.(40%)	300 pts.
Lab Exams – 2 x 50 pts. (13.3%)	100 pts.
Lecture/Lab Exercises (20%)	150 pts.
<u>Final Exam (26.7%)</u>	<u>200 pts.</u>
Total	750 points

Grading Scale (%)

93–100	A
90–92	A-
87–89	B+
83–86	B
80–82	B-
77–79	C+
73–76	C
70–72	C-
67–69	D+
63–66	D
60–62	D-
Below 60	F

IN CASE OF EMERGENCIES: In the event of an emergency that requires police notification, call 405.208.5911. In the event of evacuation of the building during lecture (room LO208), exit door, turn right, exit door at end of hall, down the stairs and out the west door. In the event of evacuation of the building during lab (room LO102), exit door, turn left, exit door at end of hall, and out west door. In either situation, assemble at the entrance to the baseball field west of the building. In the event of a tornado, take shelter in the downstairs hallway leading to room LO110.

CANCELLING CLASSES: In the event that a regularly scheduled lecture or lab period has to be cancelled for any reason, an alternate online assignment will be made available on the course's Desire2Learn site (<https://ocuonline.okcu.edu>) and an email and REMIND text will be sent out describing the cancellation and assignment due.

INCOMPLETE GRADE POLICY: A grade of Incomplete ("I") will only be assigned if documented extraordinary circumstances preclude you from completing the course, and only if the circumstances are beyond your control. Procrastination specifically is not a reason. Also, it is OCU's policy that retroactive withdrawals or assignment of incompletes will not be allowed after the semester's end. The "I" will be removed in accordance with university policy stated in the 2019-2020 web-based undergraduate catalog (pg. 39).

University Policies

ACADEMIC HONESTY: The University's codes of academic honesty and conduct (stated in the 2019-2020 web-based undergraduate catalog, pgs. 31-32) will be rigorously observed. In addition to the university criteria, the instructor makes the following provisos: any incident of academic dishonesty or academic misconduct, including plagiarism, copying someone else's work, group work (if not assigned), etc., when confirmed **will result in a failing grade for the particular assignment and possible failure of the course.** It is the responsibility of each individual to insure that other individuals do not see his or her homework, report, exam, or quiz answers, etc., and that other individuals do not plagiarize or otherwise misuse his or her work. Passive cooperation is unacceptable; it will be considered academic dishonesty. All cases of academic dishonesty, regardless of perceived severity, will be reported to the student academic dean and the Provost/VPAA of the University.

ACADEMIC COMPLAINTS: Students are encouraged to utilize Oklahoma City University's internal complaint policies through the Office of the Provost/Vice President for Academic Affairs prior to filing a complaint with any external entity. Students may submit an official Academic Complaint at <http://www.okcu.edu/academics/complaints>. Academic complaints submitted will be received by the Office of the Provost/Vice President for Academic Affairs, and will be investigated by that office for action or further resolution. Submitting an academic complaint via this form does not initiate a formal appeal process under the student handbook or University catalogue. For information on submitting a complaint related to the accreditor of your program, please visit <http://www.okcu.edu/admin/academic-affairs/accreditation>. For information on submitting a complaint for distance education courses, please visit <http://www.okcu.edu/academics/distance-learning-complaints>. For information on submitting a complaint related to the accreditor of your program, please visit [Accreditation - Oklahoma City University](#).

NONDISCRIMINATION POLICY: The Nondiscrimination Policy prohibits discrimination in the University community, including students, faculty, staff, guests, and visitors. Acts of discrimination, including harassment based on a protected category, may limit, deprive, or deny educational/employment access, benefits, and opportunities. This policy prohibits discrimination based on race, ethnicity, national origin (including ancestry), religion, sex, gender identity, gender expression, sexual orientation, pregnancy, age, disability, domestic violence victim status, veteran or military status, and other protected categories under federal law. For a complete list of prohibited forms of discrimination, definitions, and examples, please visit [University Policies - Oklahoma City University](#) to access the Nondiscrimination Policy. The University's Civil Rights Investigator, Dr. Kristi Pendleton, oversees prevention and response programs addressing discrimination in our community. To make a report, ask questions, or learn more, please contact Dr. Kristi Pendleton at (405) 208-6301 or kapendleton@okcu.edu.

SEXUAL HARASSMENT AND MISCONDUCT (TITLE IX): The Nondiscrimination Policy also prohibits a number of forms of sex discrimination, including sexual harassment, sexual misconduct, intimate partner violence, and stalking. That policy includes definitions and examples of these terms as well as the procedures for the investigation and resolution of Complaints. Many of these issues are also prohibited by Oklahoma criminal law and may be reported to campus or local police in addition to the University. When the University receives a report, the reporting party will be contacted by a Title IX administrator to discuss options for confidential support, interim measures to address safety/access concerns, and formal and informal procedures for resolving Complaints as appropriate. To make informed choices, it is important to be aware of mandatory reporting requirements for campus resources. Nearly all University employees, including faculty, are required to report known/suspected discrimination to the Compliance Coordinator within 24 hours. Confidential options including University Counseling and advocacy services can maintain privacy. They do not disclose information about reports to university officials without explicit permission. Please visit [Title IX Information - Oklahoma City University](#) for more information about confidential resources, reporting options, policies and procedures, and contact information for University Title IX administrators. For emergencies, please call campus police at (405) 208-5911 or local police at 911.

DISABILITY ACCOMMODATIONS (ADA / SECTION 504): If you believe that you need reasonable accommodations for a documented physical, psychiatric, and/or learning disability or attention disorder, please make sure to register with Campus Disability Services by filling out the New Student Application at the following link: [OKCU Disability Information Form - DSV4-LionHead](#). The Senior Coordinator for Access and Academic Support is responsible for coordinating student disability-related accommodations and, if approved, will issue students a Letter of Accommodation. Reasonable accommodations may require early planning and are not provided retroactively, so please start this process as soon as possible. If you have general questions about reasonable accommodations, you may contact the Senior Coordinator for Access and Academic Support, Jenny Minsberg, at jlminsberg@okcu.edu and in DBL 106C.

RELIGIOUS ACCOMMODATION: Oklahoma City University seeks to be supportive of religious observance among the members of our diverse campus community and to be as accommodating as possible. Students should discuss with their instructor at the beginning of the semester forms of religious observance (dress, fasting, specific prayer times) that may affect their full participation in the course. Students should also compare the class schedule to their own religious calendar to determine if there will be any class days in which the student expects to be absent due to the observance of a religious holiday. Students must notify the instructor, in writing, of the expected absence within the first two weeks of the semester. The instructor will then work with the student to develop a plan to reschedule any exams, assignments, or course activities for that day. The instructor, at his/her own discretion, will make reasonable accommodations wherever possible. Students should recognize, however, that there may be some course aspects that cannot be rescheduled or accommodated, and it will therefore rest upon the student to determine whether they wish to remain enrolled in the course or have their grade potentially affected.

Tentative Schedule of Lecture Activities

Chapter 1 A Study of Life
Chapter 2 The Chemical Foundation of Life
Chapter 3 Biological Macromolecules
Chapter 4 Cell Structure
Chapter 5 Structure and Function of Plasma Membranes

Wednesday, September 11 - Exam 1

Chapter 6 Metabolism
Chapter 7 Cellular Respiration
Chapter 8 Photosynthesis
Chapter 10 Cell Reproduction
Chapter 11 Meiosis and Sexual Reproduction
Chapter 12 Mendel's Experiments and Heredity

Wednesday, October 9 - Exam 2

Chapter 14 DNA Structure and Function
Chapter 15 Genes and Proteins
Chapter 18 Evolution and the Origin of Species
Chapter 19 The Evolution of Populations
Chapter 20 Phylogenies and the History of Life
Chapter 21 Viruses

Wednesday, November 6 – Exam 3

Chapter 22 Prokaryotes: Bacteria and Archaea
Chapter 23 Protists
Chapter 24 Fungi
Chapter 25 Seedless Plants
Chapter 26 Seed Plants
Chapter 27 Introduction to Animal Diversity

Wednesday, December 4 – Exam 4

Wednesday, December 11 – Comprehensive Final Exam

Tentative Schedule of Lab Activities

Week 1 (8/19 & 8/20) Practicing Biology – Part 1
Week 2 (8/26 & 8/27) Practicing Biology – Part 2
Week 3 (9/2 & 9/3) Labor Day – No Lab Classes
Week 4 (9/9 & 9/11) Mathematical Relationships in Science & Correlations: Using Computers for Data Analysis
Week 5 (9/16 & 9/17) Cellular Respiration & Photosynthesis
Week 6 (9/23 & 9/24) Using a Compound and Dissecting Scope & Mitosis & Meiosis
Week 7 (9/30 & 10/1) A Study of Mendelian Genetics
Week 8 (10/7 & 10/8) A Study of Human Genetics
Week 9 (10/14 & 10/15) Fall Break – No Lab Classes
Week 10 (10/21 & 10/22) Biological Classification
Week 11 (10/28 & 10/29) A Branch From the Tree of Life
Week 12 (11/4 & 11/5) A Study of Algae, Fungi, and Lichens
Week 13 (11/11 & 11/12) A Study of Plant Diversity
Week 14 (11/18 & 11/19) A Study of Animal Diversity
Week 15 (11/25 & 11/26) Senior Capstone Presentations
Week 16 (12/2 & 12/3) Comprehensive Course Review

The instructor reserves the right to modify the requirements of the course, the format of the examinations, and the scheduling of activities as necessary to enhance the learning process.

The Petree College of Arts and Sciences is dedicated to cultivating in all students the intellectual capacity, critical thinking ability, aesthetic sensitivity, and moral awareness essential for academic excellence, professional success, and meaningful community membership.