

BIOL 1620

College Biology II

*2018-2019*

**Instructor**

**Instructor:**

**Phone:**

**Email:**

**Office Hours:**

**Course**

## Course Description

***This is a Concurrent Enrollment Course, offering both high school credit through \_\_\_\_\_\_\_\_\_\_\_\_\_\_ High School and college credit through Utah Valley University. Credit from this course is transferable to all colleges and universities. Contact the receiving institution for how the credits will be applied.***

**Catalog Description**

Provides the second semester material in the two-semester introductory course designed for biology majors. Covers origin and early evolution of life, plant structure and function, plant diversity, animal structure and function, animal diversity, and animal behavior.

**Course Prerequisites**

This class is available to all high school students in good academic standing. High school prerequisites apply.

**Co-requisite LABORATORY (BIOL 1625):**

 Concurrent enrollment in the laboratory section is **required**.

## Course Objectives or Learning Outcomes

Upon successful completion, students should be able to:

|  |  |
| --- | --- |
| **1 -**  | Describe how the chemical and physical conditions present on Earth about 4 billion years ago could lead to the origin of living organism, the evidence that supports current theories on origin of life, origin of metabolic diversity, and the mechanisms of evolution of eukaryotic organisms from prokaryotic ancestors;   |
| **2 -**  | Describe the diversity of prokaryotes, algae, fungi, and plants and their reproductive life cycles;   |
| **3 -**  | Describe the growth, metabolism, and anatomy of vascular plants, their growth and its control, transport of nutrients into and throughout the plant;   |
| **4 -**  | Describe the diversity of prokaryotes, algae, fungi, and plants and their reproductive life cycles;   |
| **5 -**  | Describe how the principles of bioenergetics and homeostasis with emphasis on temperature regulation and water balance;   |
| **6 -**  | Describe diversity of protozoans, invertebrate and vertebrate animals and the processes of gametogenesis, fertilization, and embryo development in animals;   |
| **7 -**  | Describe the scientific interpretation of animal behavior;   |
| **8 -**  | Describe the principles of population dynamics, species interactions, ecosystem structures, and biome characteristics;   |
| **9 -**  | Describe the major nutrient cycles and interaction of biotic and abiotic factors.    |

Upon successful completion, students should have the following attitude(s)/traits:

|  |  |
| --- | --- |
| **1 -**  | Confidence in understanding that scientific principles and processes of evolution are sufficient to describe how living organisms originated and diversified;   |
| **2 -**  | Appreciation of the diversity of living organisms, their structure and function;   |
| **3 -**  | Appreciation of the dynamics of interactions and interdependencies of biotic and abiotic components of the biosphere, the impact of humans on the biosphere.    |

**Required Text and Materials**

Campbell, Neil A. and Reece, Jane B. **Biology**. Benjamin Cummings. San Francisco.

**Department Policies**

**Assessment**

**Biology Department Policy**

Students in this class are expected to understand and use proper English grammar, sentence structure, and spelling. Use of dictionaries during quizzes and exams is NOT allowed. Students are also expected to have basic calculating skills that include fractions, decimals, exponents (e.g., squares & square roots, powers of ten) and the ability to solve simple algebraic expressions. In addition, they must be able to add, subtract, multiply, and divide small numbers without a calculator. Understanding of logarithms (logs) will be helpful. Course rigor level should be such that the average grade is about a C.

**Student Responsibility**

It is up to you to see that the requirements for this course are completed. This syllabus is your guide to those requirements. Make certain that you understand what is expected of you. It is up to you to attend class and arrange for time to complete the readings, assignments, and exams. This course is designed for biology majors. If you are not reading at a college level, you WILL have difficulty with this course. There is only one type of “excused” absence, and that is an absence for an official University activity, such as participation in athletics, not just watching but doing, field trip for another course, etc.

Make-up exams will NOT be given except for a situation beyond your control for which you provide **verifiable** (I will verify), **written documentation**. Family vacations, Illness, family crises, vehicle problems, legal problems, weddings, not studying, or forgetting to take an exam are NOT valid excuses or excused absences, even if you tell me beforehand; emergencies are. If such difficulties require a significant number of absences during the semester, you are advised to drop the course and take it at another time. You do not need to call me if you will not be in class, I don’t take roll. Class attendance and obtaining the information for the tests is your responsibility**.**

**Readings:**

 Chapters from the text are assigned every week and the material in those chapters will form the basis of the reading quizzes. The assigned chapters can be found on the weekly schedule below. I've been careful not to assign more than 2 chapters for any given week, and some weeks have no assigned readings (use this extra time to work on the your-choice assignments). Be sure to read the chapters ahead of time so you are prepared for the quizzes and lectures.

**Exams:**

Exams will strive to test your critical thinking skills and general knowledge of biological principles. They will not focus on memorizing and regurgitating "bold words," though it should be noted that you will need to *understand* the key terms and concepts from the readings and lectures.

You can bring in ONE legal-sized sheet of paper with **hand-written** notes for the exams. Anything you want to put on there is fine... definitions, graphs, drawings, whatever! Notes printed from a computer are not acceptable for exams. The point is that the act of writing/drawing the notes yourself helps you to learn the concepts. Allowing you to have a curated reference also enables me to write exam questions that try to apply your knowledge and to actually see if you *understand* the material without getting bogged down in memorization questions. If you are thoughtful about what to put in your exam notes, at the end of the semester you will have a 4-page summary of the entire course.

All exams are comprehensive in nature. They will focus mostly on the material covered since the previous exam, but some questions will require you to remain familiar with topics covered earlier in the course.

Exams will be taken at the testing center.

**Pre- and Post-tests**

These smaller tests are worth 50 points each. Everyone who turns in a pre-test gets the full 50 points. The post-test will be graded and will cover the same material as the pre-test. You will not be allowed to use notes for the 50-point post-test. This is my way of comparing your knowledge before and after the course.

**Reading quizzes**

These short 10-point quizzes will be given at the beginning of class periods. No notes or books can be used. Questions will come from the assigned readings. The format will be a combination of multiple choice and short answer.

**Extra Credit**

Any "Your-Choice" assignments that you turn in whose cumulative possible point value exceeds 100 points will be counted as extra credit, up to 50 points. These assignments must be turned in **two weeks before the final exam.**

Extra credit is not a last-minute thing. Any assignments turned in the last two weeks of the course will not be graded.

**Your-Choice Assignment Options**

Half of these (50 points) are due at midterm. If you earn more than 50 points by midterm, those extra points will roll over into the second half of the course. If you earn fewer than 50 points by midterm you will not have a chance to earn those missing points during the second half of the course. We will discuss specifically how to earn these points in class and details will be available on Canvas.

Zoo Visit (Photo/Ticket) 10

Greenhouse inventory 10

Bibliography on selected topic using Zotero (minimum 10 primary articles) 10

DataCamp certificate - Free introduction to R

 https://www.datacamp.com/courses/free-introduction-to-r 30

Obtain official plots of CO2 concentration from MLO 10

Interview a farmer about crop pests/pathogens

 How does biology help them? 10

Interview a health professional

 What are current biological challenges/frontiers in health care? 10

Interview a Biology Professor

 What does s/he think are some of the most exciting

 questions in biology today? 10

**Book reports**

Short (<1000 words) reports on the books below are worth varying amounts of points, based on the length/difficulty of the book. To earn credit, you will have to 1) Convince me you actually read the book, and 2) Have something intelligent to say about it. Outside readings like these are the best way to enrich your education, build real knowledge, and uncover fascinating questions

These books are easily found in the library, used book stores, or Amazon. Where available, I have included the Orem Campus Library call numbers.

Plagiarism earns an automatic ZERO and gets you reported to the office of academic integrity.

 **Book Title Call No. (if available) Points Possible**

 Demon in the Freezer RA644.S6 P74 2002 30

 Silent Spring QH545 .P4 C38 1987 30

 Sand County Almanac QH81 .L56 2013 30

 The Ancestor's Tale QH361 .D39 2004 191519 80

 What is Life? QH331 .S3557 1989 20

 The Origins of Virtue QH366.2 .R527 1997 30

 The Poisoner's Handbook HV6555 .U62 N373 2010 30

 Bad Science - Ben Goldacre 30

 Genome - Matt Ridley QH431 .R475 2000 30

 Why Big Fierce Animals are Rare QH541 .C64 1978 20

**Advice**

Read the book chapters *before* class. Look up concepts online from reputable sources to supplement the book and lectures. Quizzes over the book material at the start of class periods account for a full letter grade worth of points. Do the reading, and come to class. It will seriously help you to understand what is going on in lectures and discussions...and you'll get those points.

Do the Your-Choice assignments early and throughout the semester whenever you find the time. No need to cram them all into the first month, but make sure that at the end of the semester you have them and any extra credit turned in. Get started reading one of those optional books ASAP.

A picture can be worth a thousand words. . . sometimes key concepts are better represented visually than written down. A few solid drawings can be worth more than a whole page of definitions for your exam notes.

Don't plagiarize. You will get caught and you will be reported.

**Grading:**

**ITEM VALUE TOTAL**

Pre- and Post-tests 50 pts each 100 (All completed pre-tests receive full credit)

4 exams 100 pts each 400

10 reading quizzes 10 pts each 100

Your-Choice Varies 100 (See below for how to earn these points)

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 700 (Total points possible)

There will be no differential weighting of exams or grades, including the final.

**Grading Scale**

There won't be any rounding and there won't be any exceptions. There are plenty of opportunities to earn points and the cutoff for an A is 85.7%, so if at the end of the semester you suddenly realize that you have 599 points, you have earned a B.

A = 600 - 700 points

B = 540 - 599 points

C = 480 - 539 points

D = 400 - 479 points

F = 0 - 399 points

**Grades and Credit**

Your grade for this class will become part of your permanent college transcript and will affect your GPA. A low grade in this course can affect college acceptance and scholarship eligibility.

Grades are determined by instructors, based upon measures determined by the instructor and department and may include: evaluation of responses, written exercises and examinations, performance exercises and examinations, classroom/laboratory contributions, mastery of pertinent skills, etc. The letter grade “A” is an exceptional grade indicating superior achievement; “B” is a grade indicating commendable mastery; “C” indicates satisfactory mastery and is considered an average grade; “D” indicates substandard progress and insufficient evidence of ability to succeed in sequential courses; “E” (failing) indicates inadequate mastery of pertinent skills or repeated absences from class.

**University Policies**

**Academic Integrity**

Utah Valley University expects all students to maintain integrity and high standards of individual honesty in academic work, to obey the law, and to show respect for others. Students of this class are expected to support an environment of academic integrity, have the right to such an environment, and should avoid all aspects of academic dishonesty. Examples of academic dishonesty include plagiarizing, faking of data, sharing information during an exam, discussing an exam with another student who has not taken the exam, consulting reference material during an exam, submitting a written assignment which was authored by someone other than you, and/or cheating in any form.

In keeping with UVU policy, evidence of academic dishonesty may result in a failing grade in the course and disciplinary review by the college.  Any student caught cheating will receive, at minimum, zero points on that particular assignment for the first offense.  A second offense can result in failing the course and will entail being reported to Student Advising.  Academic dishonesty includes, in part, using materials obtained from another student, published literature, and the Internet without proper acknowledgment of the source.   Additional information on this topic is published in the student handbook and is available on the UVU website.

### **Student Code of Conduct**

All UVU students are expected to conduct themselves in an appropriate manner acceptable at an institution of higher learning. All students are expected to **obey the law**, to **perform contracted obligations**, to **maintain absolute integrity and high standards** of individual honesty in academic work, and to observe a **high standard of conduct for the academic environment**.

The Student Rights and Responsibilities Code, or Code of Conduct, outlines for students what they can expect from the University and what the University expects of them.

Students should review their Rights and Responsibilities. The Code of Conduct also outlines the process for academic appeals, and appeals related to misconduct and sanctions. It can be found at <http://www.uvu.edu/studentconduct/students/>

**Student Responsibilities**

You are expected to take an active role in the learning process by meeting course requirements as specified in written syllabi. Faculty members have the right to establish classroom standards of behavior and attendance requirements. You are expected to meet these requirements and make contact with faculty members when unable to do so.

**Withdrawal Policy**

If you do not wish to take this course or find that you are unable to continue, you should officially withdraw by the deadline stated in the current semester UVU Student Timetable.

You can officially withdraw from a course by dropping it through the online registration system or the campus One Stop desk (BA 106) by the listed date. If you officially withdraw from a course by the "Last Day to Drop and Not Show on Transcript," the course will not appear on your academic transcripts. If you officially withdraw from a course by the "Last Day to Withdraw," a "W" will appear on your transcripts. Although your GPA will not be affected — a "W" will indicate that you chose to withdraw. If you fail to complete the course and do not drop it before the "Last Day to Withdraw," a "UW" or "E" (a failing grade) will appear on your transcripts.

Withdrawing from a course may impact your financial aid status. For more information, see: UVU Financial Aid.

**Cheating and Plagiarism Policy Procedures**

This document was taken from the Utah Valley University Policy 541, The Student Rights and Responsibilities Code

5.4.4 Each student is expected to maintain academic ethics and honesty in all its forms, including, but not limited to, cheating and plagiarism as defined hereafter:

1) Cheating is the act of using or attempting to use or providing others with unauthorized information, materials, or study aids in academic work. Cheating includes, but is not limited to, passing examination answers to or taking examinations for someone else, or preparing or copying another's academic work.

2) Plagiarism is the act of appropriating another person's or group's ideas or work (written, computerized, artistic, etc.) or portions thereof and passing them off as the product of one's own work in any academic exercise or activity.

3) Fabrication is the use of invented information or the falsification of research or other findings. Examples include but are not limited to:

a) Citation of information not taken from the source indicated. This may include the incorrect documentation of secondary source materials.

b) Listing sources in a bibliography not used in the academic exercise.

c) Submission in a paper, thesis, lab report, or other academic exercise of falsified, invented, or fictitious data or evidence, or deliberate and knowing concealment or distortion of the true nature, origin, or function of such data or evidence.

 d) Submitting as your own any academic exercise (written work, printing, sculpture, etc.) prepared totally or in part by another.

### **Students with Disabilities**

**Students who need accommodations because of a disability** may contact the UVU Office of Accessibility Services (OAS), located on the Orem Campus in LC 312. To schedule an appointment or to speak with a counselor, call the OAS office at 801-863-8747. Deaf/Hard of Hearing individuals, email [nicole.hemmingsen@uvu.edu](https://owa.uvu.edu/owa/redir.aspx?C=r3xUa4y2bkalWljgIj1VXM3KzYlusNIIESMqIpkF5USfG-H3cUMstYl8DNScKc_quB49PvOQ-l0.&URL=mailto%3anicole.hemmingsen%40uvu.edu) or text 385-208-2677.

**Religious Accommodations**

At the beginning of each semester, you shall promptly review the course syllabus and class schedule and notify faculty to request an accommodation for sincerely held religious beliefs and practices using the *Religious Accommodation Request Form*.

**Dangerous Behavior**

The faculty member has the right to demand and secure the immediate removal of any person from the classroom whenever the faculty member determines, to the best of his or her knowledge or belief, that the person's actions are threatening or dangerous to students or themselves. If the faculty member cannot resolve a disruptive situation, the faculty member may request that the disruptive person(s) leave the classroom. If the disruptive person(s) will not leave voluntarily, the faculty member may call University Police for assistance. The incident shall be reported to the Dean of Students and to the Director of Judicial Affairs in accordance with Policy 541 *Student Rights and Responsibilities Code*.

**Discriminatory, Exclusionary, or Disruptive Behavior**

Faculty members observing discriminatory, exclusionary, or disruptive behavior follow procedures described in UVU Policy 541 *Student Rights and Responsibilities Code.* 5.6

**Attendance**

Attendance in this class is not mandatory due to the different learning preferences with each student. However, class will be held according to the schedule on the top of this syllabus. Chapters will be covered in class as listed in the semester schedule below. Class will consist of chapter reviews, discussion and group activities.

**Policies/References**

1. Policy 541: Student Rights and Responsibilities Code <https://www.uvu.edu/catalog/current/policies-requirements/student-rights-and-responsibilities.html>
2. Policy 601: Classroom Instruction and Management. <https://policy.uvu.edu/getDisplayFile/5750ed2697e4c89872d95664>
3. Policy 635: Faculty Rights and Professional Responsibilities. <https://policy.uvu.edu/getDisplayFile/563a40bc65db23201153c27d>

**Definitions**

* 1. Syllabus: An agreement between faculty and students that communicates course structure, schedule, student expectations, expected course outcomes, and methods of assessment to students.

### **Dropping the Class**

### \_\_\_\_\_\_\_\_\_ is the last day to drop the course without it showing on your transcript.

\_\_\_\_\_\_\_\_\_ is the last day to withdraw from the class.
If you drop the high school class, you must also withdraw from the UVU class to avoid receiving a failing grade.

Due dates and this syllabus may change at the instructor’s discretion due to the needs of the class members.

**Tentative Course Schedule**

Week 1: Readings - Chapter(s) 25, 26 **PRE-TEST**

Early earth, evolution, phylogenies

Week 2: Readings - Schrodinger, "What is life?" (Recommended)

What is life? Metabolism, thermodynamics, organisms, ways to make a living...

Week 3: Readings - Chapter(s) 22, 23

Mechanisms of evolution

Week 4: Readings - Chapter(s) 27 **EXAM 1**

Bacteria and Archaea

Week 5: Readings - Chapter(s) 28

Eukaryotic supergroups, overview of protist groups

Week 6: Readings - Chapter(s) 32

Animals - defining characteristics, evolution, phylogeny, metabolism, life cycles

Week 7: Readings - Chapter(s) 33, 34

Invertebrates / Vertebrates classes

Week 8: Readings - Chapter(s) 31 **EXAM 2**

Fungi - defining characteristics, evolution, phylogeny, metabolism, life cycles

Week 9:

Amoebae/ Slime molds / Other weird ways of making a living

Week 10: Readings - Chapter(s) 29, 30

Plants - defining characteristics, evolution, phylogeny, metabolism, life cycles

Week 11: Readings - Chapter(s) 35, 37

Major plant groups / anatomy

Week 12: Readings - Chapter(s) 39, 51 **EXAM 3**

How do groups detect and respond to their environments?

Week 13: Readings - Chapter(s) 52, 53

Populations (ecology and evolution)

Week 14: Readings - Chapter(s) 54, 55

Communities (ecology) and symbioses / microbiomes / thermodynamics

Week 15: **POST-TEST**

Biogeochemistry - Climate, feedbacks, nutrient cycling

**EXAM 4 is your final exam.**  Consult the university's final exam calendar for the exact date and time:

<https://www.uvu.edu/asc/exam_schedule.html>