

BIOLOGY 1620 - College Biology II  
Utah Valley University  
Spring, 2020

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**Instructor:** Geoffrey Zahn, PhD  
SB 243c

**Office Hours: Mon 10:00 - 10:50 ; Tue 9:00 - 9:50 ; or by appointment**

**Email: [zahn.geoff@gmail.com](mailto:zahn.geoff@gmail.com)** (or use Canvas messaging, though I check this less often)

**Course Description:**

BIOL 1620 provides the second semester material in the two semester introductory course designed for biology majors. We cover the origin and early evolution of life, plant structure and function, plant diversity, animal structure and function, animal diversity, and animal behavior.

**Text Book (Required):**

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

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

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

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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 protozans, 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.

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### **Americans with Disabilities Act:**

Students with disabilities that may negatively impact their ability to successfully complete this course should let the instructor know as soon as possible, with documentation from the ASD.

"Students who need accommodations because of a disability should contact the UVU Accessibility Services Department (ASD), located on the Orem Campus, in LC 312. To schedule an appointment, or speak with a counselor, call the ASD office at 801-863-8747, or for Deaf/Hard of Hearing individuals, use the video phone number, 886-760-1819."

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### **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.

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### **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 **before** class so you are prepared for the quizzes and lectures.

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### 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 pts)
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		700 (Total points possible)

### 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. If you email to ask about a grade bump at the end of the semester, I will deduct 2 points from your total for not following directions.

A = 600 - 700 points  
B = 540 - 599 points  
C = 480 - 539 points  
D = 400 - 479 points  
F = 0 - 399 points

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### 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 on one side 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 (I will check). 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. Making this reference sheet the day before an exam will not be helpful to you.

If you are thoughtful about what to put on there, at the end of the semester you will have a 4-page summary of the entire course.

Exams will be taken in-class on the Friday of the week they appear on the course schedule.

### 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. See the course schedule for when these will be given. They cannot be made up.

### Reading quizzes

These short 10-point quizzes will be given on Canvas and are due before noon on the Monday of the corresponding lecture week. No notes or books can be used. Questions will come from the assigned readings. The format will be multiple choice.

Check the course schedule below to see when quizzes are due and which textbook chapters they will cover.

You will take these on Canvas and will have 5 minutes to complete 5 questions worth 2 points each. Quizzes are available the Friday before each week that they are assigned and must be completed on Canvas before noon on Monday. No exceptions.

### 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 **before Thanksgiving Break** (see canvas for exact date).

Extra credit is not a last-minute thing. Any assignments turned in past the final deadline 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 lose a proportional amount of potential extra credit points. So, if you earn 40 points of Your-Choice by midterm, your extra credit opportunity drops from 50 to 40 points possible. See the "Assignments" tabs in Canvas for full descriptions of how to earn these points.

Greenhouse or herbarium visit	10
Zoo or Aquarium Visit (Photo/Ticket)	10
Bibliography on selected topic using Zotero (minimum 10 <u>primary</u> articles)	10
Mauna Loa Observatory Data and Insight	10
Interview transcripts (see Canvas for details)	up to 30
Book reviews (See below)	up to 150
Attend UVU Biology Colloquium Seminars (and write-up)	up to 35
Selected video write-ups	up to 20
Other options may come up as well	

## Book reviews

Short (~1000 words) reviews 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.

\*Note that audiobooks are fine **AS LONG AS THEY ARE UNABRIDGED.**

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
She Has Her Mother's Laugh	QH431 .Z53 2018	80
Last Chance to See	QL82 .A33 1991	30

## Advice

Read the textbook chapters *before* class. Look up concepts on-line from reputable sources to supplement the book and lectures. Quizzes over the book material before each week 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.

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, you will be reported, and I won't feel bad for you.

## Academic dishonesty

You are responsible for knowing the university policies and definitions regarding academic dishonesty. Any academic dishonesty, intentional or not, will earn you a zero on that assignment or test and will be reported. <https://www.uvu.edu/studentconduct/students/integrity.html>

## **Tentative Course Schedule (subject to change)**

**Week 1: Readings - Chapter(s) 25, 26** [*Canvas quiz 1 due 11am Friday of the first week*]  
Early earth, evolution, phylogenies

**Week 2:** [*No quiz this week*] **PRE-TEST Monday**  
What is life? Metabolism, thermodynamics, organisms, ways to make a living...

**Week 3: Readings - Chapter(s) 22, 23** [*Canvas quiz 2 due Wednesday before 11am*]  
Mechanisms of evolution (**No class Monday – MLK Jr. Day**)

**Week 4: Readings - Chapter(s) 27** [*Canvas quiz 3 due Monday before 11am*] **EXAM 1 Friday**  
Bacteria and Archaea Jan 31

**Week 5: Readings - Chapter(s) 28** [*Canvas quiz 4 due Monday before 11am*]  
Eukaryotic supergroups, overview of protist groups

**Week 6: Readings - Chapter(s) 32** [*Canvas quiz 5 due Monday before 11am*]  
Animals - defining characteristics, evolution, phylogeny, metabolism, life cycles

**Week 7: Readings - Chapter(s) 33, 34** [*Canvas quiz 6 due Monday before 11am*]  
Invertebrates / Vertebrates classes (**No Class Monday – Washington and Lincoln Day**)

**Week 8: Readings - Chapter(s) 31** [*Canvas quiz 7 due Monday before 11am*] **EXAM 2 Friday**  
Fungi - defining characteristics, evolution, phylogeny, metabolism, life cycles Feb 28

**Week 9:** [*No quiz this week*]  
Amoebae/ Slime molds / Other weird ways of making a living / GMOs / Soils / Plant nutrition

**Week 10: Readings - Chapter(s) 29, 30** [*Canvas quiz 8 due Monday before 11am*]  
Plants - defining characteristics, evolution, phylogeny, metabolism, life cycles

**Week 11: Spring Break**

**Week 12: Readings - Chapter(s) 35, 37** [*Optional reading, no quiz this week*]  
Major plant groups / anatomy

**Week 13: Readings - Chapter(s) 39, 51** [*Optional reading, no quiz this week*] **EXAM 3 Friday**  
How do groups detect and respond to their environments? Mar 27

**Week 14: Readings - Chapter(s) 52, 53** [*Canvas quiz 9 due Monday before 11am*]  
Populations (ecology and evolution)

**Week 15: Readings - Chapter(s) 54, 55** [*Canvas quiz 10 due Monday before 11am*]  
Communities (ecology) and symbioses / microbiomes / thermodynamics

**Week 16:** [*No quiz this week*] **POST-TEST Friday**  
Biogeochemistry - Climate, feedbacks, nutrient cycling Apr 24

**Exam 4 is your final exam.** Consult the university final exam schedule for the exact date and time.  
[https://www.uvu.edu/asc/exam\\_schedule.html](https://www.uvu.edu/asc/exam_schedule.html)

## Academic Honesty and 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.

Situation of academic dishonesty will be reported to the [Student Conduct and Conflict Resolution](#) office as, at a minimum, an informational item and potentially as an item for investigation, resolution, or other.

## 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. It can be found at <http://www.uvu.edu/studentconduct/students/>

## Student Timelines

You are responsible for being aware of and abiding by the dates and deadlines on the student timelines for this term found at [UVU Schedule](http://www.uvu.edu/schedule/) (<http://www.uvu.edu/schedule/>)

## Understand When You May Drop This Course

It is the student's responsibility to understand when they need to consider dropping from a course. Dates and deadlines for dropping a course can be found in the student timetables located at <http://www.uvu.edu/schedule/>. After the period specified, a serious and compelling reason is required to

drop from the course and would need approval from not just the faculty but also the department chair as well as the Dean's Office.

## Incomplete Policy

An Incomplete (I) Grade is only given due to an extenuating circumstance. The final decision to issue an Incomplete grade is up to the instructor. Review the following criteria taken from [Policy 523](#) at for information on when an incomplete grade can be given:

The student was unable to complete the course due to extenuating circumstances:

- Incapacitating Illness
- Death in the immediate family
- Change in the student's work schedule by the employer
- Other deemed acceptable by the instructor
- **The student must have completed a minimum of 70% of the required work**

An Incomplete Grade form indicating work completed and work to be completed must be signed by the department chairperson, and turned into the [Registrar's Office](#) at the end of the semester. Incomplete Grade forms can be obtained from the Registrar's Office.

## Unofficial Withdrawals

UW will be given only when a **student stops attending and completing work before the regularly scheduled date to officially withdraw** as found in the [Student Timetable](#) but did not actually officially withdraw. Rationale: The assumption here is that the student did not realize the necessity to physically withdraw or made an error in this process, but all intentions of the student were to withdraw from the class prior to the withdrawal deadline

See also [Academic Policies and Standards](#) in the UVU Catalog which notes, "If a student stops attending (but does not officially withdraw) before the last day to withdraw, he/she should receive a UW."

## Late Work

Late work will not be accepted without a doctors or lawyers note unless *previously* discussed with and approved by your instructor. Computer problems, work schedule, lack of internet access, traffic, travel, or similar do not constitute rationale for late homework. Your instructor has the right to modify their handling of late work.

## Individual versus Group Work

All work is to be done individually unless it is clearly identified as group work. By default all assignments are not group work. This means that you cannot work on assignments with others, even if your spouse, friends or family, and turn them in as your own. A "group" in this context means more



persons than yourself. You also cannot have others complete the work for you or in part on your behalf.

## Inclusivity Statement

We understand that our members represent a rich variety of backgrounds and perspectives. The Technology Management department is committed to providing an atmosphere for learning that respects diversity. While working together to build this community we ask all members to:

- share their unique experiences, values and beliefs
- be open to the views of others
- honor the uniqueness of their colleagues
- appreciate the opportunity that we have to learn from each other in this community
- value each other's opinions and communicate in a respectful manner

## Academic Freedom

For the purposes of this class, academic freedom is generally defined as follow: For faculty and students alike, you have the freedom to disagree with the views and statements of others, but academic freedom should entail tolerance and respect for others, professionalism, and, to the degree possible, fact-based information. Intellectual vigor is best sustained when the free exchange of ideas is carried on within an environment supportive of human dignity and self-esteem. For full guidelines see <http://www.uvu.edu/tm/pages/department/acad-freedom.html>

## Discrimination / Harassment / Sexual Misconduct

**It's On Us to prevent discrimination/harassment** against members of protected classes. **If you see something, step up and say something.** If you encounter discrimination, harassment, or gender-based discrimination (including discrimination or harassment based on pregnancy, pregnancy related conditions, sexual orientation or gender identity) or sexual violence (dating violence, domestic violence, stalking including unwanted electronic contact), please contact the Office for Equal Opportunity/Affirmative Action and Title IX. Additional information regarding options and services can be found at: <http://www.uvu.edu/equalopportunity/> and <http://www.uvu.edu/studentconduct/docs/title9optionsbrochure.pdf>

Consistent with State and Federal Law such as Title VI of the Civil Rights Act of 1964 and Title IX of the Education Amendments of 1972, Utah Valley University is committed to maintaining a respectful and safe environment for its students, faculty, staff, and visitors. UVU policies 162 and 165 define and prohibit all forms of unlawful discrimination, harassment, sexual misconduct and retaliation in its programs services and activities. Utah Valley University policy 165 prohibits any form of:

- (a) Discrimination based on one or more protected classes, (Race, color, religion, national origin, sex, sexual harassment, sexual orientation, gender identity, age (40 and over), disability,

veteran status, pregnancy, childbirth, or pregnancy-related conditions, genetic information, or other bases protected by applicable federal, state, or local law)

- (b) Harassment based on one or more protected classes, including sexual harassment (policy 162), or
- (c) Retaliation (a negative action or discouraging someone from reporting discrimination/harassment or participating in a University internal investigation).

If you need accommodations, please see the appropriate contact below:

- ADA: Students who need accommodations because of a disability may contact the UVU Accessibility Services Department (ASD), located on the Orem Campus in LC 312. To schedule an appointment or to speak with a counselor, call the ASD office at 801-863-8747. Deaf/Hard of Hearing individuals, email [nicole.hemmingsen@uvu.edu](mailto:nicole.hemmingsen@uvu.edu) or text 385-208-2677.
- Pregnancy: Accessibility Services or Office for Equal Opportunity & Affirmative Action (EOAA) - <http://www.uvu.edu/equalopportunity/>, ext. 5704, BA 203.
- Religious: You may begin by asking your professor. If you have questions or concerns, contact the EOAA.
- Veterans (Military Leave, Course Withdraw, or Other Assistance): Veteran Services - <http://www.uvu.edu/veterans/>, ext. 8212, WB100.
- As the result of unwanted sexual harassment, contact, stalking, dating or domestic violence:
- EOAA or Student Ombuds - ext. 7237, SC 107
- Student Health Services, if Anonymity is desired- ext. 8876, SC 221
- UVUPD, if you wish to press criminal charges - ext. 5555, GT 331

Information about **gender neutral facilities or gender personal pronouns**: You may ask professor/supervisor to use your personal name and pronouns. If you are unclear about pronouns or identifiers, you may request clarification. If you have questions or concerns contact LGBT Student Services - <https://www.uvu.edu/multicultural/lgbt/> LA 126, ext. 8885 or the EOAA.

## Disability Services

Students who need accommodations because of a disability may contact the UVU Accessibility Services Department (ASD), located on the Orem Campus in LC 312. To schedule an appointment or to speak with a counselor, call the ASD office at 801-863-8747. Deaf/Hard of Hearing individuals, email [nicole.hemmingsen@uvu.edu](mailto:nicole.hemmingsen@uvu.edu) or text 385-208-2677.

## Veteran's Services

UVU is committed to providing a working and learning atmosphere for student veterans and their families. If you are a student veteran or a family member of a student veteran, you are eligible for support services from the Veterans Success Center and may be eligible for Post-9/11 GI Bill benefits. For help receiving your benefits, please contact the Veterans Success Center in the Woodbury Business

Building, room 100, via email at [veterans@uvu.edu](mailto:veterans@uvu.edu) or by calling 801-863-8212. Learn more: <http://www.uvu.edu/veterans/>