

BIOL 152: Introduction to Biological Sciences II

Instructor: Dianne Jennings, Ph.D.

Office: [Removed]

COURSE OVERVIEW:

This course will focus on biological diversity from an evolutionary perspective. Along with basic principles and mechanisms of evolution, the role of natural selection in the evolution of life forms, taxonomy and phylogenies, and the introduction/learning of specific vocabulary, details, and concepts, emphasis will be placed on the development of critical thinking skills including the application of the material to novel scenarios and the analysis of novel information. This course is intended to help cultivate a passion for the biological sciences and facilitate the synthesis of existing student knowledge with new topics for a more comprehensive understanding of biological concepts, thereby preparing students for more advanced courses in biology. Designed for biology majors.

PREREQUISITES:

The prerequisites for BIOL 152 are a minimum grade of C in both BIOL 151 and CHEM 101. In this course, you will be expected to have mastered the key concepts from BIOL 151 and there will be questions related to topics from BIOL 151 during class, in online assignments and on assessments. If you have questions about the prerequisites please contact the professor.

COURSE OBJECTIVES:

By the end of this course students should be able to:

- 1) Explain the basic principles and mechanisms of evolution
- 2) Distinguish evolutionary relationships between organisms on phylogenetic trees
- 3) Explain the evolution and diversity of different groups of organisms (prokaryotes, eukaryotes; plants, animal, and fungi)
- 4) Describe some key systems in plants, fungi and animals and explain how they are thought to have evolved
- 5) Assess the connections between organisms, adaptations, evolutionary trends and environments
- 6) Apply evolutionary and ecological principles to novel situations

REQUIRED MATERIALS

Textbook:

We will be using a free online textbook this semester housed in Tophat (see below). Links to individual readings will be provided in each assignment.

Top Hat

We will be using Top Hat which is a platform for in class participation. Information regarding this platform will be provided to you. There is a cost associated with this platform and you ARE required to have a Top Hat Account. In addition, you will need to bring a reliable device (cell phone, smart phone, tablet or computer) to class each day so that you can participate in Top Hat assignments. You must enroll for Top Hat using the Blackboard link.

Packback

This discussion board platform allows students to interact with all BIOL 152 students this semester. Packback allows each student to apply their knowledge, ask big, open-ended questions, and critically think in order to understand the course content better, synthesize information, and prepare you for exams.

The questions you ask each week may:

- 1) Clarify materials that went over your head in lecture or in your work outside of class... but if you are asking these sorts of questions, you should explain in great detail what you do not understand so that both your colleagues and I can help you out.
- 2) Go beyond the lecture – application, synthesis and relationship making
- 3) Discuss current events

The due date for these weekly Packback questions will be decided by the class. Please go to <https://www.packback.co/> and sign up for a student account (cost = \$25). The join code for our discussion board is:

[Removed]

The section you should list upon registration is either [Removed]. Once your group number has been assigned you will also be asked to add it to Packback.

Reliable Computer Access to the Internet/Blackboard:

This course will make heavy use of Blackboard for homework assignments, course announcements, and testing. It is your responsibility to make sure that you have a reliable computer (some items do not work with iPads and cell phones), access to

Blackboard, that you are using the appropriate browser and a reliable connection to the internet. *Loss/lack of internet, computer issues, and browser issues are not acceptable excuses for failure to complete online assignments.*

COURSE EXPECTATIONS

This is what is expected of you as a student in the course and what you can expect of your professor(s):

- This section of BIOL 152 meets twice a week for 75 minutes. During class you will be expected at a minimum to participate in group work, answer questions on TopHat and verbally and potentially volunteer for in class demonstrations.
- Outside of class you will be expected to complete reading assignments, graded reading question sets and additional assignments posted on the course Blackboard site.
- You are expected to show up for class on time and to remain for the entire class period. If you must leave early or arrive late do so in a non-disruptive manner (enter/exit quietly, sit at the back on the end of the rows, minimize the disturbance you may cause).
- During the class period you are expected to behave courteously to your classmates and to your professor(s), this includes being quiet during lecture. Individuals who are disruptive may be asked to leave the classroom and will not be allowed to re-enter the class until the next class period. Disruptive behavior may include, talking during lecture, surfing the Internet, texting, or a cell phone ringing/buzzing during class.
- You are expected by both VCU and your professor(s) to check your email on a daily basis.
- In addition you are expected to check the course Blackboard on a daily basis. Course announcements will routinely be sent through email as well as posted on blackboard.
- You will be notified in a timely manner of any changes to the course schedule or due dates for assignments.
- When contacting your professor(s) please be sure to indicate the course you are in and to make sure that your email is courteous. *Whenever possible* emails will be replied to within 24hrs, however this does not include weekends or holidays. If you do not receive a response in a timely manner given the day and time that you sent it, please resend the email to ensure that it was in fact received.
- Please make sure that you are familiar with the VCU policies that are included in the course syllabus as well as the material in the Academic Integrity module that you complete at the beginning of this course. You are expected to know these policies and will be held accountable for the information within them.

COURSE POLICIES

Attendance:

You are expected to attend class. Keep in mind that if you miss a class you may also miss a class participation opportunity.

- If you miss your assigned class meeting time you must submit a Notification of Absence form within 48hrs. This includes providing the needed documentation (see below)
- Excused absences will be accepted with a legitimate reason (severe illness, death in the family, accident) and with documentation of reason (Dr.'s note, obituary, police report) turned in *within 48 hrs* of the absence.
- There are no makeups for missed participation but with appropriate documentation submitted on time, you may be granted an exemption in which the grade for the associated assignment(s) is not included in grade calculations.
- If at the end of the semester your grade is borderline, your attendance record will be taken into account and may affect your final grade
- Please use the following link and fill out the form if you would like to submit an excused absence:

[Removed]

Class Participation:

This is an important component of this course. It will provide both of us with feedback on how well you understand the material that is being covered and allow one or both of us to make adjustments prior to any tests.

- You must come to class prepared, failure to complete homework before coming to class may result in a zero for any in-class assignments done that day.
- During class, you are expected to actively participate in any group assignments that are given. Failure to do so may result in you being assigned a zero for the work.
- If you are seen to be using your computer or other electronic devices for purposes other than completing in-class assignments, following lecture on Top Hat or answering Top Hat questions you may be asked to leave the classroom and zeros will be recorded for any class assignments for that class period.
- ***Should you miss more than four consecutive online assignments, four consecutive classes or fail to access the course Blackboard for more than five days you may be administratively dropped from the class.***

Unit Assessments:

These will be given in two parts.

- One part will be in multiple choice/multiple answer/true-false, matching, ordering, fill in the blank format and taken on a computer in class during specific dates. For

each of these parts, questions for each student will be pulled from a random pool and there will be a designated time limit. Instructions for successful completion of the online portion will be provided for each online unit assessment.

- The second part of each assessment will consist of a set of short answer questions that will be completed during the class period on the scheduled assessment dates.
- If for some reason you find that you cannot possibly be in class on the designated assessments dates *you must notify the professor within 24hrs* (this is different from the regular attendance notification policy) with a *legitimate reason* (severe illness, death in family, accident) and with *documentation of reason* (Dr.'s note, obituary, police report).
 - Travel plans, including vacations, are not legitimate excuses.
 - The format of all makeup exams is at the discretion of the professor and must be taken within 3 days of the original date of the exam.
 - Alternate testing formats may be requested and will be given at the instructors' discretion.

Lecture Exam policies:

Failure to comply with any of these policies may result in the forfeiture of the exam or the involvement of the honor system

-If you do not have a laptop computer that you can use for the exams you must notify the instructor in advance so that arrangements for a paper exam can be made.

- Memorize your V# prior to your first exam.

- Bring a photo ID for each exam.

- No cell phones during the exam... for any reason.

- No hats

- No ear devices or any other electronic devices

- No clipboards or any other materials may be out during the exam

- You may leave the class during an exam only with the permission of the

instructor

- Do not look at any exam but your own, you may be asked to move or your exam may be taken if this appears to be occurring

- Do not speak to your classmates once the exam has commenced.

- Turn in all exam materials to the Instructor or preceptors, to include extra exams.

-Once you have turned in your exam leave the classroom unless otherwise instructed.

- No duplication/copying of exams in any way, you may not write down any questions/answers that you remember from the exam nor may you share your knowledge of the questions with any other student.

-Individuals who violate any of these policies will have their exams taken may receive a zero for the exam and may be reported for an academic integrity violation

Online work:

Each week you will have several online assignments that must be completed.

- It is your responsibility to check the course Blackboard site for any assignments and to make sure that assignments are **completed before due dates**.
- *No make-ups for missed work will be given nor will late assignments be accepted.*
- Loss of internet access, computer issues, browser issues or other technology related problems are not legitimate excuses for failure to complete assignments before due dates.
- Individuals that do not complete required online assignments prior to class time may not receive credit for any class activities done during that class period even if they participate in the activity.
- Individuals that do not complete online assignments before posted due dates may receive a zero for the assignment at which time subsequent attempts will not be recorded.
- In addition, any incomplete attempts will also be counted as zeros.
- All assignments for a unit must be completed before the unit assessment.

GRADING

Grades in the course will be based off the following

1. Five (5) Unit Assessments: 60% of the final course grade

Each Unit Assessment will consist of an online portion and a written portion which is predominately short answer questions.

Each Unit Assessment will be comprehensive (contain information from any previous units that connects to the unit being assessed)

2. Participation and Homework 40% of final grade

TBD% Online work on Blackboard and TopHat (Reading assignments, quizzes, homework, etc.)

TBD% Packback Participation

TBD% In-class work (TopHat Qs, quizzes, group work, etc.)

3. Optional Final: This will be given during the scheduled finals time and cover materials in Units I-IV. If taken, it will replace the lowest test grade OR a missing exam (you must provide documentation for an excused absence and the instructor must approve it in order to be eligible, please see course policies).

Grading Scale:

90-100% A

80-89.9% B

70-79.9% C

60-69.9% D

<60% F

Course grades **will not be rounded** at the end of the semester.

TOPIC SCHEDULE

This schedule is not set and will be updated. Students will be notified in advance of any changes.

Week	Dates	Topic	Textbook Section
1	[Removed]	Introduction to the Evolutionary Theory	Processes and Patterns of Evolution Evidence of Evolution Mutations and Genetic Diversity
2	[Removed]	MicroEvolution	Population Evolution Population Genetics Adaptive Evolution
3	[Removed]	MacroEvolution	Formation of New Species Reconnection & Rates of Speciation Reviewing Genetics

UNIT I assessment	[Removed]	Evolutionary Theory, Mutations, Evolution of populations, speciation	
4	[Removed]	Phylogenetics and Early Life	Introduction to Phylogenetics Evolution of Early Life
5	[Removed]	Bacteria and Archaea; Form, function, and diversity	TBA
6	[Removed]	Evolution of multicellularity	TBA
UNIT II Assessments	[Removed]	Phylogenetics, Evolution of Early, Prokaryotic Evolution and Diversity, Evolution of Multicellularity	
7	[Removed]	Fungal Biology and Evolution	Fungal Biology Ecology of Fungi Sexual Reproduction (Review of Life Cycles)
8	[Removed]	Spring Break	No classes
9	[Removed]	Evolution of Plants: Green Algae to Angiosperms	Early Plant Life Bryophytes and Ferns Gymnosperms and Angiosperms
10	[Removed]	Plant Form and Function	TBA
UNIT III Assessments	[Removed]	Evolution and Biology of Fungi, Plant evolution from algae to angiosperms, How plants grow and function	
11	[Removed]	Introduction to animals	Features of the Animal Kingdom Features used to classify animals Animal Form & Function
12	[Removed]	Evolution of Animals: Invertebrates, Nervous systems, and skeletons	TBA

13	[Removed]	Evolution of Animals II: Vertebrates, circulatory and respiratory systems	TBA
Unit IV Assessment	[Removed]	Evolution of animals: early life through complex vertebrates, nervous, skeletal, circulatory and respiratory systems	
14	[Removed]	Population Ecology	TBA
15	[Removed]	Communities and Ecosystems	TBA
Unit V Assessment	Short Answer Computer section	End of class [Removed] First 70 minutes of schedule finals time	

REQUIRED SYLLABUS STATEMENTS

The required syllabus statements originally included here are maintained by the Office of the Provost and are regularly updated. To prevent the dissemination of information which may no longer be accurate or complete, the full text of the required syllabus statements have been removed from this document.

Students should visit <http://go.vcu.edu/syllabus> and review all syllabus statement information. The full university syllabus statement includes information on safety, registration, the VCU Honor Code, student conduct, withdrawal and more.