**EVOLUTION (BIOL 318)**

**Class Meeting:** Monday, Wednesday, and Friday 2:00 PM – 2:50 PM

**Location:** Trani Life Sciences Bldg, room 151

**Professors:**
Dr. Andrew J. Eckert  
Trani Life Sciences Building room 340  
eaecert2+evolution@apps.vcu.edu  
Office hours: [removed]

Dr. J. M. (Clint) Turbeville  
Trani Life Sciences Building room 303  
jmturbeville+evolution@apps.vcu.edu  
Office hours: [removed]

**Pre-requisites:** BIOL and BIOZ 151 and BIOL and BIOZ 152, each with a minimum grade of C; and BIOL 200, MATH 200, MATH 201, STAT 210, STAT 212, STAT 314 or satisfactory score on the VCU Mathematics Placement Test within the one-year period immediately preceding the beginning of the course. Biology majors must have completed BIOL 200.

**Course web site:** All information will be available through VCU Blackboard.


**Course Description & Objectives:** Evolution is a fundamental scientific concept underlying all aspects of modern biological, environmental, and health-related research. The study of processes and mechanisms at every level of organismal biology through the lens of change over historical time helps us understand why these processes occur today and how we may better understand evolutionary responses to future environmental change. Specific course objectives are:

- Evaluate the historical scientific contributions of people to our understanding of evolutionary biology.
- Compare and contrast, using biological examples, the requirements for evolutionary mechanisms, such as natural selection and genetic drift, to operate within and among populations.
- Apply phylogenetic reasoning to interpret the process by which speciation occurs.
- Provide theoretical and empirical evidence for evolutionary change.
- Generate hypotheses in applying evolutionary approaches to the interaction and coevolution of organisms, populations, species, and communities.

**Grading & Assessment:** The professor will provide learning objectives for each class meeting. These will specifically include the content and knowledge base that is expected, as well as how this content will be evaluated throughout the semester. The evaluations will be based on and mirror these learning objectives. Evaluations are as follows:

1. **Three in-class multiple choice and short-essay exams (total 350 pts: 50% of overall grade).** These evaluations will comprise both multiple choice and short-answer, thought-
provoking questions (i.e., not simply content memorization) that enable the student to
demonstrate and apply the knowledge base to “real-life” scenarios. The final (150 points) will
be a mixture of new information (100 points) and cumulative information (50 points). It is
scheduled for 12/12/2016 from 1:00 PM to 3:50 PM and will occur in the normal classroom
assigned to this course (see above). The multiple-choice portions of each exam will require
scantrons. We will provide scantrons on exam days. See Exams Policy below for more
information.

2. Online homework assignments and quizzes (total 350 pts: 50.0% of overall grade).
These assignments are composed of weekly quizzes based on the assigned reading (14
quizzes at 10 points each) and homework assignments (5 assignments at 42 points each). All
quizzes and homework assignments are offered through Blackboard. Please carefully read the
Blackboard policy found after the course schedule.

Point totals will be calculated to the second decimal place. At the end of the semester, the total
number of points achieved will be rounded to the closest integer following normal rounding
conventions (i.e. 0.50 and up are rounded upwards, while less than 0.50 is rounded
downwards). This course is not curved. To determine your grade, simply add up your scores on
each exam, assignment, and quiz and compare them to the ranges below. To determine your
grade prior to completion of the final, please note that the point totals are percentage grades as
follows: 90-100%: A, 80-90%: B, 70-80%: C, 60-70%: D, <60%: F. This means that you would
add up the points achieved, divide by the points available by the date on which you are
calculating your grade, and multiply by 100%. You would then compare this number to the
percentage ranges stated previously to see what your grade would be at any given time
throughout the semester (see also Grades policy below).

630-700 pts: A
560-629 pts: B
490-559 pts: C
420-489 pts: D
<420 pts: F

Schedule of topics and assignments: The following table gives the tentative schedule of
topics for the entire course. All reading assignments should be completed by the date on which
they are listed. In the table below, when a chapter is listed it means the entire chapter, but when
a page range is given it means just the pages listed. The book is required for this course, so
please read it. It is your responsibility as a student to obtain the book in a timely manner. No
excuses will be accepted for the inability to purchase the textbook prior to start of this
course. It is an excellent text and written at an appropriate level for an undergraduate course
about evolutionary biology.

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<th>Date</th>
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<td>8/29/16</td>
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<td>9/7/16</td>
<td>W</td>
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<td>Eckert</td>
<td>Chapter 3</td>
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*No excuses will be accepted for the inability to purchase the textbook prior to start of this course.
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<td>Final Exam</td>
<td>Eckert &amp; Turbeville</td>
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*Both Quiz 1 and Quiz 2 can be turned in later than the date listed, but not later than the due date and time for Quiz 3. Starting with Quiz 3, there are NO late assignments allowed (even for partial credit).

**COURSE POLICIES, PROCEDURES, AND EXPECTATIONS**

This section of the syllabus outlines policies, procedures and expectations that are specific to this course. The goal of these policies is to set clearly defined rules and expectations so that all of us can best utilize our time together to learn about evolutionary biology. Please keep in mind that the student to professor ratio in this course is approximately 300:1, with no teaching assistants provided by the VCU Department of Biology or the VCU College of Humanities and Sciences, so that these rules and expectations are based on maximizing our effectiveness as teachers in this kind of environment.

1. **E-mail policy:**
   i) We will only respond to e-mails sent to the addresses listed at the beginning of the syllabus. E-mails not sent to these addresses will be ignored.
   
   ii) E-mails about course material or to set up an appointment outside of office hours will be responded to within 48-72 hours. Please note that questions about course mechanics (e.g. When is the test?) and policies (e.g. Can I wear a hat to the exam?) are not course materials, so e-mails of this form will be ignored (see also point iii). All pertinent information is contained within this syllabus, so questions can be answered by reading it.

   iii) E-mails about problems with your schedule, excuses for missing class, issues with Blackboard, feelings about your grade, problems with your grade (please see Grades policy), course policies, or the structure of exams will be ignored.

   iv) If you do e-mail, please remember to politely address your professor, state your question clearly, and to use an informative statement in the subject line. Rude, unintelligible, or urgent e-mails will be ignored.

2. **Blackboard policy:**
   i) It is the responsibility of the student to maintain access to Blackboard. This means you are responsible for using Blackboard correctly, obtaining a suitable wireless or Internet connection using a reliable device, and to begin assignments prior to the due dates listed on the syllabus. If you experience issues with Blackboard, contact the VCU IT Support Center (itsc@vcu.edu).

   ii) All Blackboard assignments will close on the listed due dates and times. Beginning on 09/02/2016, late work is not permitted for any reason, not even for partial credit. Prior to 09/02/2016, Blackboard quizzes can be turned in late for full credit, but must be turned in by the due date for Quiz 3. As for the time listed as the due date, it is exact. This means that when 11:55 PM is listed, you must submit your assignment by 11:55 PM exactly and not at 11:55 PM and 1 second. No matter how close to a
due date and time (e.g. 1 second late), submission of a late assignment will not qualify for any amount of credit.

iii) Please do not use a smartphone to access Blackboard. If you do and there is a problem then you will have to suffer the consequences of your choice to use technology prone to creating issues with Blackboard assignments (see point i). The consequence in these cases is to accept whatever grade was achieved on the assignment prior to the issue created due to use of a smartphone. There will be no exceptions to this rule.

iv) If you encounter a problem with Blackboard, it is your responsibility to contact the VCU IT Support Center (itsc@vcu.edu) and/or the Blackboard help desk to remedy your situation.

v) No exceptions will be made to individual students unable to complete an assignment on Blackboard. You will have approximately one to two or more weeks of time to complete a given assignment, so please plan accordingly.

vi) The only exception to missing a Blackboard assignment is if Blackboard experiences a system-wide problem for more than 12 hours during the last 24 hours prior to a due date for an assignment. If such an event does occur, we will provide details on the new due date via e-mail.

vii) Blackboard assignments will be of three types: (1) homework assignments, (2) reading comprehension quizzes, and (3) extra credit assignments. All types of assignments are open book.

1) Homework assignments are practice problems on which you are allowed unlimited attempts. Each homework assignment, of which there are five, is worth 42 points. The grades for homework assignments will be the average score achieved on all attempts. Please also see the table given on Blackboard where the exact material for each homework assignment is listed. Homework assignments will open at 11:56 PM on the closing date of the previous assignment and remain open until 11:55 PM on the closing date. The only exception is homework assignment 1, which opens on 08/25/2016 at 8:00 AM.

2) Reading comprehension quizzes are sets of 10 questions taken directly from the reading materials. After studying the chapter on your own time, you should be able to answer these easily. There will be 14 reading comprehension quizzes each worth 10 points. All reading comprehension quizzes will be due at 11:55 PM on Wednesday night. The material covered in these quizzes is the material you should have read for the upcoming week. Please also see the table given on Blackboard where the exact material for each quiz is listed. You get exactly one attempt on these quizzes. There is also no backtracking allowed and questions will be presented one at a time. To accommodate the issues encountered with Blackboard access that tend to be common for some students, each quiz will have a 7-hour time limit. This means once you start the quiz, you will have 7 hours to complete it. If you experience a technical problem with Blackboard and need to logout, your answers will be saved. The timer, however, will continue to run, so at your earliest convenience (but within 7 hours), please log back onto Blackboard to complete the quiz. Remember, there is no backtracking. The only
exception to the timer being of length 7 hours is when you begin the quiz within 7 hours of the deadline. In this case, you will have the number of hours and minutes in the timer equal to the difference between your start time and the due date and time. There are no other exceptions to these rules. Quizzes will open at 11:56 PM on the closing date of the previous quiz and remain open until 11:55 PM on the closing date. The only exceptions are quizzes 1 and 2, which open on 08/25/2016 at 8:00 AM and remain open until the due date of Quiz 3 (09/07/2016 at 11:55 PM).

(3) Extra credit assignments will be available from time to time. They will be simple exercises, surveys, or extra questions on quizzes. Each extra credit assignment will be worth 0.50 points. There will be a total of 20 extra points available throughout the semester, so there will be a total of 40 opportunities to earn extra credit throughout the semester. Remember that some of these will be extra questions on the reading comprehension quizzes. Announcements will be made via Blackboard about these assignments when not part of a quiz. Extra credit cannot be made-up for any reason, including missing class or adding the class late into the semester.

(3). Grades policy:
i) The determination of grades will be made following the descriptions provided above under Grades & Assessment. There will be no exceptions to this plan (i.e. no curve). Grades are also not determined through bargaining, so if you are 3 points short of a desired letter grade, there is no use in asking for more. There are ample opportunities, including extra credit, in this course to achieve your desired grade.

ii) Grades for all assignments will be reported via Blackboard Center. It is your responsibility to understand how to access your grades on Blackboard (e.g. through the link labeled “My Grades” is one way, but if you cannot find your grades please contact the VCU IT Support Center or Blackboard IT).

iii) Grades are easily calculated in this course (see Grades and Assessment above). Please do not ask your professor to do this for you or to calculate how many assignments you can miss and still get a certain grade.

iv) Problems with grades will only be discussed in person during office hours. If you discover an error in grading on either a Blackboard assignment or an exam, please bring a description of the error to office hours. If it is indeed an error, the error will be fixed immediately and the extra points will be added to the assignment or exam via the Blackboard Grade Center. Grades will not be discussed before or after lecture or through e-mail.

v) If you ask to have a question re-evaluated, we will happily re-grade the question. However, by asking for a re-evaluation, you accept the fact that your score on this question may also decrease if further errors in your original answer are discovered. This means that you should probably have a fairly clear idea of why your score was the way it was before you ask to have it re-evaluated.
(4) **Lecture policy:**

i) You will not get points for coming to lecture. Other than exams, there will not be graded in-class assignments. Students who come to lecture, however, consistently perform better in this course. We will also spend large amounts of time learning how to solve problems that commonly occur on exams and homework assignments during lecture.

ii) We will not schedule meetings or discuss grades before or after lecture. Please follow the rules of e-mail correspondence and attendance at office hours to address these concerns.

iii) Please be respectful of other students and your professor during lecture. This means that you should not be talking to your classmates during lecture, listening to music, or watching videos. If we have to ask you to stop talking more than once, you will be required to leave the lecture.

iv) Questions are always welcomed, but please raise your hand and wait to be called upon prior to asking your question.

v) You are permitted to record lectures if that helps you to learn the material. If you would like to place a recording device close to the podium, please ask prior to doing so.

vi) Lecture material will be provided via Blackboard in the form of PowerPoint slides and/or PDFs. Typically, these materials will be available prior to lecture.

(5) **Exam policy:**

i) Exams in this course are in-class events. It is your responsibility to bring to lecture on exam day, a #2 pencil for the Gradelt answer sheet, an alternative writing utensil for free response questions and, if needed, a calculator. Cell phones cannot be used as a calculator for exams.

ii) Exams have multiple versions, so please avoid cheating. It is extremely easy for us to spot cheaters and all students caught cheating will be subjected to the full weight of the University's policy (see VCU Honor System below) on ethical behavior (or lack thereof in this example).

iii) Hats cannot be worn in class on exam day. If you refuse to remove your hat then you cannot take the exam and will receive a score of 0. Turning your hat around is not the same as not wearing it.

iv) All bags and items brought to class on exam day must remain closed.

v) If you experience an emergency that makes you miss an exam, please stay calm and refrain from sending urgent e-mails to your professors. Your priority should be dealing with your emergency. Once you have dealt with your emergency, please calmly attend office hours or, if that is not possible, please calmly e-mail us to set up an appointment to discuss your emergency. We will not discuss or schedule meetings to discuss emergencies before or after lectures. **Emergencies are defined as unavoidable events that are unable to be predicted.** Good examples of emergencies are deaths in your family, severe and sudden illnesses, unexpected deployments for military personnel, and serious car accidents. Good examples of non-emergencies are colds, upset stomachs, family vacations or trips, scheduled visits to the doctor (e.g. an appointment at the dentist), work schedules, having
multiple exams on the same day (we all had this be true while attending a university), being in jail, being hung over, or any other event that can be predicted with reasonable accuracy or is the result of illegal behavior. If an emergency qualifies as a true emergency, and we will be the sole judge of whether an event does or does not qualify as such, then we will ask for appropriate documentation so as to verify that the emergency described actually happened. This is in no way a reflection on our belief about you as a person, but is our way to ensure that all grades in this course are determined fairly and accurately. Documentation includes notes from health facilities, police, or superiors. Make up exams will not be scheduled via e-mail.

vi) Each exam will be composed of three sections – (1) multiple-choice questions \( n = 20 - 25 \) questions, 2 – 3 points/question), short answer questions \( n = 1 - 3 \) questions, 3 – 8 points/question), and essay questions \( n = 1 \) question, 10 – 15 points). Exams 1 and 2 are not cumulative. Exam 3, given as the final, will be composed of a part with material that is new since Exam 2 \( n = 100 \) points) and a part that is cumulative \( n = 50 \) points). Each part on Exam 3 will have the three previously mentioned question sections. Please consult the schedule of lectures above to determine the material on the non-cumulative portions of exams (i.e. Exams 1 and 2, as well as the first 100 points of Exam 3). In the event that we are behind in the coverage of material during lecture, the material appearing on the exam will be that which was covered through the end of the last lecture prior to the exam date. If possible, the material not covered will be moved to the next exam.

vii) All mathematical equations will be provided on the front of each exam. It is your responsibility to be able to recognize and correctly use an equation to achieve an answer.

viii) When possible, partial credit will be given on short answer and essay questions. Partial credit will not be given on multiple-choice questions.

(6) Preparedness policy:

i) This is a 300-level course about evolutionary biology at a four-year, research-level university in a department of general biology. There are several pre-requisite courses that are required (please see above). We expect that you have either mastered or at least have a working knowledge of the material presented in these pre-requisite courses. As an example, you will be required to have basic algebra skills, reading comprehension skills, and the ability to construct written sentences in the English language.

ii) The information presented in this course will not be unique to the technical aspects of human health. VCU has wonderful programs (i.e. not Biology) in applied human health fields if this is your passion.

iii) There are many resources on this campus to help you if you find that the material from pre-requisite courses is unfamiliar. We strive to provide as much review material as possible to help you succeed, but success is ultimately up to you and your ability to master concepts in this course, including those concepts relying on information from pre-requisite courses.
(7) **Textbook policy:**

i) The textbook is required for this course. You are responsible for obtaining access to this resource by the first day of lecture, which is set for 08/29/2016.

ii) No extensions will be provided for any reason related to the inability to obtain the textbook prior to the first lecture. This includes reasons related to summer travel and money.

iii) A copy of the textbook will be placed on reserve at the library and will be available by 08/25/2016. This book also has numerous online versions available for purchase through either VCU bookstore or the publisher’s website.

**TIPS AND RECOMMENDATIONS TO SUCCEED IN THIS COURSE**

(1) Read the textbook by the dates assigned. Often students equate reading with skimming, but reading is used here to denote reading and comprehension, not just scanning of words on a page. This will enable you to better ask questions during lecture.

(2) Attend and participate in lecture.

(3) Take notes during lecture. Notes represent a powerful way to refresh your memory about the topics covered, so that you can study after lecture (see point 5 below). Notes can take any form, ranging from simple bullet point lists to full transcripts of what was stated.

(4) Begin the course by putting all due dates for homework assignments, quizzes, and exams into your personal calendar. Using alarms to remind you of when an assignment is due within 24-48 hours of its due date is also helpful.

(5) Attempt the homework assignments multiple times, especially those on which you struggled.

(6) Use your own time to study. A good rule of thumb to use is to multiply the number of hours spent in class per week (3 hours for this course) by three and use the resulting number (9 hours) as the amount of time needed to study for this course outside of class. This time should be above and beyond that which is spent on Blackboard assignments and quizzes. Of course, this varies by student, but a university-level education cannot occur along the sidelines of your life. There are ample opportunities in our society to obtain an online education if your home and work lives dictate impossible conditions for you to attend class and study as a full time student.

(7) Good study habits often include but are not limited to the following: reading the assigned materials multiple times prior to attending lecture, taking notes while you read the textbook, construction of flash cards, formation of weekly study groups, answering the questions at the end of the assigned chapters, beginning Blackboard assignments prior to an hour before the due date, and use of additional materials (e.g. dictionaries, suggested readings from lecture or the textbook) to study.
VCU POLICIES AND PROCEDURES

These are general VCU policies that address pertinent issues from the perspective of the University.

VCU E-mail Policy

Email is considered an official method for communication at VCU because it delivers information in a convenient, timely, cost-effective, and environmentally aware manner. Students are expected to check their official VCU email on a frequent and consistent basis in order to remain informed of university-related communications. The university recommends checking email daily. Students are responsible for the consequences of not reading, in a timely fashion, university-related communications sent to their official VCU student email account. This policy ensures that all students have access to this important form of communication. It ensures students can be reached through a standardized channel by faculty and other staff of the university as needed. Mail sent to the VCU email address may include notification of university-related actions, including disciplinary action.

VCU Honor System: Upholding Academic Integrity

The VCU Honor System policy describes the responsibilities of students, faculty and administration in upholding academic integrity, while at the same time respecting the rights of individuals to the due process offered by administrative hearings and appeals. According to this policy, "Members of the academic community are required to conduct themselves in accordance with the highest standards of academic honesty and integrity." In addition, "All members of the VCU community are presumed to have an understanding of the VCU Honor System and are required to:

- Agree to be bound by the Honor System policy and its procedures;
- Report suspicion or knowledge of possible violations of the Honor System;
- Support an environment that reflects a commitment to academic integrity;
- Answer truthfully when called upon to do so regarding Honor System cases;
- Maintain confidentiality regarding specific information in Honor System cases."

Student Conduct in the Classroom

According to the Faculty Guide to Student Conduct in Instructional Settings, “The university is a community of learners. Students, as well as faculty, have a responsibility for creating and maintaining an environment that supports effective instruction. In order for faculty members (including graduate teaching assistants) to provide and students to receive effective instruction in classrooms, laboratories, studios, online courses, and other learning areas, the university expects students to conduct themselves in an orderly and cooperative manner." Among other things, cell phones and beepers should be turned off while in the classroom. The Student Code of Conduct also prohibits the possession of or carrying of any weapon.

Students with Disabilities

Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990, as amended, require that VCU provide "academic adjustments" or "reasonable accommodations" to any student who has a physical or mental impairment that substantially limits a major life activity. To receive accommodations, students must request them by contacting the Disability
Support Services Office on the Monroe Park Campus (828-2253) or the Division for Academic Success on the MCV campus (828-9782).

Any student who has a disability that requires an accommodation should schedule a meeting with the instructor at the student's earliest convenience. Additionally, if coursework requires the student to work in a lab environment, the student should advise the instructor or a department chairperson of any concerns that the student may have regarding safety issues related to a disability. Students should follow this procedure for all courses in the academic semester.

**Statement on Military Short-Term Training or Deployment**
If military students receive orders for short-term training or for deployment/mobilization, they should inform and present their orders to Military Student Services and to their professor(s). For further information on policies and procedures contact Military Services at 828-5993 or access the corresponding policies.

**Excused Absences for Students Representing the University**
Students who represent the university (athletes and others) do not choose their schedules. Student athletes are required to attend games and/or meets. All student athletes should provide their schedules to their instructors at the beginning of the semester. The Intercollegiate Athletic Council strongly encourages faculty to treat missed classes or exams (because of a scheduling conflict) as excused absences and urges faculty to work with the students to make up the work or exam.

**Campus Emergency Information**
What to Know and Do to Be Prepared for Emergencies at VCU:

- Sign up to receive VCU text messaging alerts. Keep your information up-to-date. Within the classroom, the professor will keep his or her phone on to receive any emergency transmissions.
- Know the safe evacuation route from each of your classrooms. Emergency evacuation routes are posted in on-campus classrooms.
- Listen for and follow instructions from VCU or other designated authorities. Within the classroom, follow your professor's instructions.
- Know where to go for additional emergency information.
- Know the emergency phone number for the VCU Police (828-1234).
- Report suspicious activities and objects.
- Keep your permanent address and emergency contact information current in eServices.

**Important Dates**
You can view important dates for the Fall 2016 semester in the university calendar (http://academiccalendars.vcu.edu/default.asp).

**VCU Mobile**
The VCU Mobile application is a valuable tool to get the latest VCU information on the go. The application contains helpful information including the VCU directory, events, course schedules, campus maps, athletics and general VCU news, emergency information, library resources, Blackboard (please see the course policy on Blackboard issues with smartphones) and more.

**Class Registration Required for Attendance**
Students may attend only those classes for which they have registered. Faculty may not add students to class rosters or Blackboard. Therefore, if students are attending a class for which they have not registered, they must stop attending.

Withdrawal from Classes
Before withdrawing from classes, students should consult their instructor as well as other appropriate university offices. Withdrawing from classes may negatively impact a student's financial aid award and his or her semester charges. To discuss financial aid and the student bill, visit the Student Services Center at 1015 Floyd Avenue (Harris Hall) and/or contact your financial aid counselor regarding the impact on your financial aid. Contact information for the University Financial Aid Office is available at http://www.enrollment.vcu.edu/finaid/contact-us/.

Student Financial Responsibility
Students assume the responsibility of full payment of tuition and fees generated from their registration and all charges for housing and dining services, and other applicable miscellaneous charges. Students are ultimately responsible for any unpaid balance on their account as a result of the University Financial Aid Office or their third party sponsor canceling or reducing their award(s).