Biology 211–01 & 02
Biodiversity, Ecology and Conservation Biology

College of Charleston, Department of Biology, Fall 2021

Lecture: 12:15 am - 1:30 pm T/R; RHSC 152
Discussion: sec 01 – 9:00 am - 12:00 pm T; RHSC 271
sec 02 – 9:00 am - 12:00 pm R; RHSC 271

Instructor: Dr. Daniel McGlinn
Office: 239 RHSC
Email: mcglinndj@cofc.edu

Office hours: 1:30-2:20 pm T/R over Zoom – 10m meetings
Sign up for office hours 4 hours prior to schedule slot.
https://calendly.com/mcglinndj/biol211-one-on-one

Course Description: This course focuses on biology at the level of the whole organism and above, including how organisms interact with their environment, how organisms are related, and how human activity affects the diversity of life on Earth. During the semester, you will be introduced to three areas of focus: (1) population biology, including population ecology and evolution; (2) interactions among organisms and their environments at the community, ecosystem and biosphere levels, and (3) biodiversity and the study of how groups of organisms are related by common descent.

Course Structure: Biology requires understanding concepts and using practical skills to develop and test those concepts. To address both of these features, this course includes two essential components – lecture and discussion – which contribute to a single grade (see section on COURSE ASSESSMENT).

Lecture will introduce you to key concepts in ecology, biodiversity and conservation biology as well as examples of the research involved in developing and testing these concepts.

Discussion will help you develop many of the practical skills used in doing science. You will gain experience examining primary scientific literature; organizing, visualizing and analyzing data; identifying research questions and designing experiments; and presenting scientific information in a written scientific paper, a poster, and an oral presentation.

Required Text: Biological Science 5th, 6th, or 7th editions. S. Freeman
Digital e-book access is at https://www.pearson.com/mastering
course ID: mcglinn98311

Prerequisites: Biology 111, 112 – Please note: It is highly advised that students earn at least a C in Biology 111 and 112 before enrolling in Biology 211. Please see your instructor if you have any questions or concerns regarding your preparedness for this course.

Please read this syllabus carefully and keep it for future reference. The information in this document is important to your success in this course.
**Instructional Objectives**

This course is intended to foster an understanding of the diverse ways organisms interact with the environment, the fundamental principles of ecology, evolution, and conservation biology, and to learn about the three domains of biodiversity on Earth. More specifically as a student in this course you will

- review the theory of evolution
- explore the modern synthetic view of evolution which integrates genetics, molecular biology and many other areas of biology into an explanation of how evolution occurs.
- explore mechanisms (or processes) of evolution including
  - how populations evolve at the genetic level (evolutionary genetics).
  - how new species arise (speciation)
  - how biologists are revealing the way life diversified on earth and what the current “tree of life” looks like (systematics & phylogeny)
- explore the evidence in support of evolutionary theory and processes.
- explore the features of the diverse species that inhabit the planet to discover
  - the anatomical, physiological and behavioral associations between related groups of organisms
  - the contributions of the diverse groups of living organisms to ecological systems and human welfare
  - an astonishing variety of lifestyles, traits, and solutions to the challenges of life
- explore how populations of organisms change in abundance and distribution (population ecology)
- explore ecological interactions between species within communities (community ecology)
- explore processes and changes that occur at the level of ecosystems.
- apply evolutionary and ecological concepts and theories to issues related to the conservation of biodiversity on earth (conservation biology).

**Student Learning Outcomes**

At the end of this course, students are expected to be able to:

- describe the processes by which populations of organisms change in size
- explain the forces that lead to evolutionary change in populations and diversification among species
- interpret phylogenetic trees to comprehend the evolutionary relationships they depict
- discuss how interactions with the physical environment and with other organisms influence populations and communities
- build a foundation of knowledge about life’s diversity and its interrelatedness
- apply ecological and evolutionary principles to the conservation of biodiversity
- apply the following skills used by professional biologists: use primary literature, generate scientific questions and pose testable hypotheses, analyze data to evaluate hypotheses, use quantitative models to describe biological processes, and communicate these to a scientific audience.

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How will the ongoing pandemic affect the classroom?

We are still in a state of emergency and the pandemic will fundamentally shape what the semester looks like, how we inhabit the class, and how we relate to each other and the course material. COVID-19 poses a risk to those that are immunocompromised, the elderly, the young, pregnant individuals and the unvaccinated. You do not know the health or vaccine status of your classmates. As such, I ask that you take reasonable efforts to protect yourself and those around you that cannot be vaccinated within the College and Charleston area community. If there are many COVID related absences, I will move the course online for the duration of the necessary quarantine period(s).

As the pandemic continues, please remember that not everyone has been impacted to the same degree. Many have lost loved ones and members of their community whereas others have not. Many of you may have had mild COVID symptoms, others might have required long hospital stays and there are others in our College community that have long COVID. Together we can make this semester as safe, thoughtful, and insightful as we can in light of the ongoing pandemic.

As COVID continues to spread and new variants are arising, take personal responsibility to wear masks indoors and while in close contact with other individuals. Until we have less community spread of COVID and the variants, I will wear my mask in class, and I hope you do the same.

General Classroom Policies

- Masks must be worn to always cover both your nose and mouth in the classroom.
- You should be in your seat, prepared for the day and ready to begin class on time. Late entrances and early departures are disruptive to your fellow students. Please be respectful and arrive on time.
- Absences due to illness or emergencies are sometimes unavoidable. If you have COVID-like symptoms or close contact with a COVID positive individual, please do not come to class and go get tested. Instruction will be available remotely on zoom or on OAKS as a recorded video. Remember that the inoculation period for COVID is 5 days after exposure for an accurate test result.
- If you are displaying COVID symptoms such as sneezing and coughing, I will ask that you remove yourself from the classroom. Please get tested.
- No food or drink should be consumed in the classroom. If you need refreshment, please quietly excuse yourself from the classroom.
- Make-up exams will be provided if there is an emergency at test time, or due a university-sanctioned event, such as participation in sporting events or academic conferences. Make-up exams will be written & oral and will be given at a time we deem appropriate. If you are going to miss an exam due to a university-sanctioned event, it is your responsibility to contact me at least one week prior to the scheduled test date.
- Lectures will be recorded and posted to oaks within 12 hours of class completion. However, it is your responsibility to get any additional notes or lecture materials from your classmates or from the oaks page.

Lecture – You are expected to engage with every lecture face-to-face (F2F), synchronous remote (SR), or asynchronous remote (AR). Participation will contribute to your grade and it will be evaluated in different ways for each teaching mode (see Table in the COURSE ASSESSMENT section). If you must miss lecture, use the zoom or recorded lecture options. Also please reach out to the
instructor to let him know how long you expect to be virtually attending; All students are encouraged to use office hours to ask questions. Please use this link to sign up for a slot: https://calendly.com/mcglinndj/biol211-one-on-one

Discussion – You will conduct two main projects during discussion. Some of the work on these projects will be completed individually, in pairs, or in small groups. Part of your grade will be based on working effectively with peers, and I will use peer evaluations of your work. However, you will complete most assignments individually, and most of your grade will be based on your own work, for which you alone are responsible. You are required to attend every 3-hour discussion for its duration (either F2F or AR); and you are expected to arrive on time and prepared to carry out the day’s work. Attendance and participation will contribute to your grade. There is currently no plan to offer asynchronous remote option for Discussion, but this may be change depending on how badly the COVID outbreak impacts the students and instructor.

F2F courses when students are quarantined/isolated due to Covid-19 [This is CofC wide policy] If one or more students are absent for an extended period of time due to COVID-19 (quarantine or isolation), instructors may, at their discretion, conduct the class exclusively online via OAKS for the duration of student quarantine/isolation, record class lessons to share with students, or choose an alternate accommodation that provides the impacted student(s) with the opportunity to continue in the course. The specific accommodation will vary depending on the number of students affected, the expected duration of their absence, and the needs of the class.

Participation and conduct – Your conduct during lecture and discussion is expected to be respectful of your classmates and instructor, the learning environment and yourself. This means giving your full attention to whomever has the floor and staying on topic during discussions. Please do not disrupt class by using cell phones or other electronic devices (unless for Poll-everywhere), by leaving early or arriving late, or by using the bathroom excessively. Participation in lecture will be evaluated in part on participation of polled questions. You can reply to polls via txt message, smart phone app, laptop, or note card depending on your preference. Specifically, your participation grade for the class will depend on: online polls, class preparedness, attendance, tardiness, your verbal engagement with the instructor during class, proper device conduct, and your ability to conduct group work.

Discussions articles and assignments – Over the semester you will read several articles that will be the basis for class discussions, both in lecture and discussion. Your grade for these discussions will be based on attendance, active participation, and completion of discussion question (DQ) assignments. Articles and DQ assignments will be available via OAKS, as will detailed guidelines on how to prepare for discussions.

Exams – You will be tested on lecture material and assigned readings. Study guides will be provided before each of the three midterm exams. Your lowest exam grade will be dropped. You are encouraged to study in groups – you will learn more if you quiz each other to test your understanding and ability to apply concepts.

Exams cannot be made up except in the case of a true medical emergency suffered on the day of the exam. Other legitimate, unavoidable academic conflicts are at the instructors’ discretion and must be approved well in advance. Extracurricular activities and travel plans do not qualify –
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Assignments – Assignments must be turned in on time for full credit. Late assignments will lose 5% of the total possible points per day that the assignment is late, until the assignment is handed back or discussed in class, at which point zero points will be recorded. If you are unable to turn in an assignment during class, please turn it in to the instructor in person or under my office door. Email Dr. McGlinn so that he can expect to find your assignment.

Electronic resources – Course information will be available via OAKS, including details of assignments, assigned articles, and lecture notes. Lecture notes are typically available at least 24 hours before lecture. Some students get more out of lecture by printing the lecture notes from OAKS and bringing them to lecture, while others will learn more by using the online notes to review after lecture – please consider what works best for your own learning style. I will use email, as well as OAKS, to communicate with you regularly; you are responsible for receiving and reading these communications, so please be sure to check your g.cofc.edu email account as well as the course OAKS site frequently.

Although lecture notes are online, you are expected to attend lecture in person and to be present and engaged with the class, not your computer. Lecture notes are supplements to lecture – much of the important content is discussed verbally and is impossible to reconstruct from the notes alone.

All written assignments must be typed. Computers will be also used extensively in discussion, including Excel and Powerpoint. We have access to Biology department computers, but any student with their own laptop is encouraged to bring it to discussion. For work outside of class, Addlestone library has computers available with the necessary software.

Tips for success –
1) Coming to class having already read the material presented in the text
2) take notes on the text and come to class with questions.
3) re-writing your notes including graphs and phylogenies, making flash cards
4) studying by actively quizzing your classmate
5) use textbook additional resources to challenge yourself with additional quantitative problems Students who succeed develop skills in learning how to study that matches their learning style outside of the classroom – we’ll help you identify and develop those skills. We’ll emphasize skills and approaches to help you develop good study skills that go beyond the biology classroom.

Center for Student Learning – offers tutoring, study skills appointments, and workshops. Services are available to all students at no additional cost. For more information regarding these services please visit the CSL website at http://csl.cofc.edu or call (843)953-5635. 211 specialists are available

Students with Disabilities and Special Needs – The College will make reasonable accommodations for persons with documented disabilities. If you have a disability for which you are or may be requesting an accommodation, you are encouraged to contact the Center for Disability Services (CDS/SNAP program) located in the Lightsey Center, Suite 104, 953-1431, SNAP@cofc.edu. If you have a documented disability and need accommodations, please come talk with me and bring
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Discussion Schedule

Discussion will include both weekly activities and longer-term research projects. Assignments will include both independent and group work. Please see lecture syllabus for general overview of goals and policies for discussion sections. The syllabus schedule is subject to change, amendments will be announced. Find materials for readings of papers on OAKS.

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Tuesday Discussion</th>
<th>Due in Tuesday Discussion</th>
<th>Home Work</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Aug-24</td>
<td>no discussion this week</td>
<td></td>
<td>read Klein et al. paper and DQs</td>
</tr>
<tr>
<td>2</td>
<td>Aug-31</td>
<td>Academic advising. Introduction to scientific papers, what are the parts of a scientific paper</td>
<td>Klein DQs</td>
<td>putting papers into order worksheet</td>
</tr>
<tr>
<td>3</td>
<td>Sep-7</td>
<td>Stono Preserve Field Trip</td>
<td>putting papers into order worksheet</td>
<td>hypothesis worksheet; discussion questions</td>
</tr>
<tr>
<td>4</td>
<td>Sep-14</td>
<td>project 1: graphing data</td>
<td>hypothesis worksheet</td>
<td>finish graphs</td>
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<tr>
<td>5</td>
<td>Sep-21</td>
<td>project 1: statistical analysis</td>
<td>Graphing Assignment</td>
<td>finish analyses</td>
</tr>
<tr>
<td>6</td>
<td>Sep-28</td>
<td>Project 1: poster workshop</td>
<td>Stats assignment</td>
<td>work on poster</td>
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<tr>
<td>7</td>
<td>Oct-5</td>
<td>Project 1: Research Poster Session</td>
<td><strong>Poster due</strong></td>
<td>aquarium species natural history, behavior study scientific paper &amp; DQs</td>
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<tr>
<td>8</td>
<td>Oct-12</td>
<td>Project 2: Aquarium</td>
<td>aquarium species natural history</td>
<td>data analysis</td>
</tr>
<tr>
<td>9</td>
<td>Oct-19</td>
<td>Project 2: Library resources and searching lit</td>
<td>data analysis</td>
<td>Annotated bibliography</td>
</tr>
<tr>
<td>10</td>
<td>Oct-26</td>
<td><strong>no discussion this week</strong> (online content on paper preparation)</td>
<td>Annotated bibliography and final analyses</td>
<td>paper draft</td>
</tr>
</tbody>
</table>

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**Participation is weighted differently depending on mode of learning.** An asynchronous participation option is currently not available for the Discussion section.

<table>
<thead>
<tr>
<th>Course Portion</th>
<th>Mode of Learning</th>
<th>prepared for class</th>
<th>verbal engagement</th>
<th>group work</th>
<th>online polls</th>
<th>discussion threads</th>
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</thead>
<tbody>
<tr>
<td>Lecture</td>
<td>Face-to-Face</td>
<td>20%</td>
<td>40%</td>
<td>20%</td>
<td>20%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Synchronous</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Remote</td>
<td>20%</td>
<td>40%</td>
<td>20%</td>
<td>20%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Asynchronous</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Remote</td>
<td></td>
<td></td>
<td></td>
<td>40%</td>
<td>60%</td>
</tr>
<tr>
<td>Discussion</td>
<td>Face-to-Face</td>
<td>40%</td>
<td>20%</td>
<td>40%</td>
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<tr>
<td></td>
<td>Synchronous</td>
<td></td>
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<tr>
<td></td>
<td>Remote</td>
<td>40%</td>
<td>20%</td>
<td>40%</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Asynchronous</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
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</tbody>
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### Grading Policy

<table>
<thead>
<tr>
<th>Letter</th>
<th>Grade</th>
<th>Quality Points</th>
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</thead>
<tbody>
<tr>
<td>A</td>
<td>Superior</td>
<td>4.00</td>
</tr>
<tr>
<td>A-</td>
<td></td>
<td>3.70</td>
</tr>
<tr>
<td>B+</td>
<td>Very Good</td>
<td>3.30</td>
</tr>
<tr>
<td>B</td>
<td>Good</td>
<td>3.00</td>
</tr>
<tr>
<td>B-</td>
<td></td>
<td>2.70</td>
</tr>
<tr>
<td>C+</td>
<td>Fair</td>
<td>2.30</td>
</tr>
<tr>
<td>C</td>
<td>Acceptable</td>
<td>2.00</td>
</tr>
<tr>
<td>C-</td>
<td></td>
<td>1.70</td>
</tr>
<tr>
<td>D+</td>
<td>Barely Acceptable, Passing</td>
<td>1.30</td>
</tr>
<tr>
<td>D</td>
<td></td>
<td>1.00</td>
</tr>
<tr>
<td>D-</td>
<td></td>
<td>0.70</td>
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<tr>
<td>F</td>
<td>Failure</td>
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<tr>
<td>WA</td>
<td>Failure Due to Excessive Absences (equivalent to an F)*</td>
<td>0.00</td>
</tr>
<tr>
<td>XXF</td>
<td>Failure Due to Academic Dishonesty</td>
<td>0.00</td>
</tr>
</tbody>
</table>

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