1/11/2023: Done! Please let me know if you have questions or find errors!

**Syllabus - Spring 2023**

**BIOLOGY 102 sec. 03: Concepts and Applications in Biology II (CRN 20074)**

TR 12:15 a.m. - 1:30 p.m., RITA 101

**INSTRUCTOR:**  
Mrs. Kathleen E. Janech, M.S.  
janechk@cofc.edu

(email is the best way to reach me – please make sure to use your CofC email only!) I do my best to reply the same day if the email is received before 5 p.m., but I do not check my emails after 5 p.m. or over the weekend. Also, please include your **course number and section number**, and don’t email my husband by mistake!

**OFFICE LOCATION:** 65 Coming St., Rm. 214  (I am on the second floor of this little beige house, just across Coming St. from the loading dock area of RITA).

**STUDENT HOURS (in-person):** Tuesdays & Thursdays 2:30 - 3:30 p.m. ET. These are optional, and feel free to drop-in to my office (see location above) at any time during the hour, and stay for only as long as you need to. You are also welcome to email me to schedule an appointment at another time or location, including a Zoom meeting, if that is your preference. **Please come by, introduce yourself and ask questions! I am here to help!**

**Course Description**

This course is meant to provide non-science majors with a general overview of living systems, with emphasis on evolution, organismal diversity, and ecology. The goal of the course is to provide a foundation for students to appreciate, understand and critically evaluate biological issues facing society.

**Prerequisites**

BIOL 101 (or 111) and BIOL 101L are prerequisites to BIOL 102. If you have not passed BIOL 101 (or BIOL 111), you should **not** be in this class.

**Co-requisites**

BIOL 102 Laboratory – you **MUST** enroll in the lab section in addition to this lecture.
**Required Course Materials**

1. **Textbook**: *Biology: Concepts and Applications*, by Starr, Evers & Starr, 10th Edition, 2018 (Cengage Publishers). You can buy it, rent it, get the ebook, borrow it, or share it with a classmate, but you MUST have access to this textbook! Terms, definitions and figures will support what you are learning in class. You will also need it for your lab. Keep up with the reading! I do NOT require MindTap, but if you need a Course Key for MindTap in order to purchase the ebook, it is: MTPN-XZ6Z-MJKH Also, If any of your other courses here at CoF use textbooks published by Cengage, check out the details of the Cengage Unlimited program on their website for better prices (cengage.com/unlimited/)

2. **Computer and online access**: All students must have access to a computer equipped with a web camera, microphone, and Internet access. You will be required to download, install and use Respondus Lockdown Browser and Monitor for all numbered quizzes and exams, including the Final Exam. Prof. Janech will be providing further instructions about this. Resources are available to provide students with these essential tools if they need assistance - please let me know if you need help accessing those resources.***This is especially important since I am trying to run the course as smoothly as possible, even with the pandemic, and might also be necessary if there are any issues with inclement weather this semester.*** This class will include a variety of online and technology enhanced components to reinforce continuity of learning for all enrolled students, including recorded Zoom lectures.

Online access through MyCharleston to OAKS ([Getting Started | OAKS Support](http://oaks.cofc.edu)) will be essential. You also must regularly check your CofC email, since that is how I will send updates. A helpful website for all things technology at CofC is [Student Instructional Technology Services](http://csl.cofc.edu): IT also has a chat feature for technology support: [Remote Support Portal](http://csl.cofc.edu) The Remind app will also be used as a backup communication resource.

**Suggested Course Material**

**Center for Student Learning** – I encourage you to utilize the Center for Student Learning (CSL) and their academic support services for assistance with study strategies and course content. They offer tutoring, Study Skills appointments, and workshops that help students of all abilities become more successful throughout their academic career. Services are available to you at no additional cost. For more information, please visit the CSL website at [http://csl.cofc.edu](http://csl.cofc.edu), call (843) 953-5635, or drop by their location on the first floor of the Addlestone Library.

**Recording of Classes (via Zoom)**

Each class session this semester will be simultaneously available via Zoom (link will be on the appropriate day in the OAKS course calendar) and recorded via both voice and video recording of slides in order to enable everyone to attend class and keep up with the material, even if they are unable to attend in-person. Although I do not intend to video record anyone but myself, by attending and remaining in this class, you the student consent to potentially being recorded (audio). Recorded class sessions are for instructional use only and may not be shared with anyone who is not enrolled in the class. Please let me know if you have any questions.

**Class Delivery Format and Expectations**
The College of Charleston is committed to promoting the health and safety of our campus community. To that end, all faculty and students should abide by public health guidelines that include receiving appropriate vaccinations, washing or sanitizing hands frequently, and staying home when sick.

I have planned this course to enable all students, whether they are in the classroom or working remotely, to be fully engaged in the learning experience. Before the drop/add deadline, students should decide whether the course plan on the syllabus matches their own circumstance. I will use OAKS to facilitate student access to the course syllabus, course materials, and the gradebook. The expectation is that you will attend class remotely, via Zoom, on any class day that you are not physically present in class. To be successful in this class, you must have regular access to a computer with a reliable high-speed internet connection and computer with a microphone and/or web-cam throughout the duration of this course. Computer failure/unavailability does not constitute an excuse for not completing work by the due dates.

This class will be administered through OAKS, the College of Charleston’s learning management system (Getting Started | OAKS Support), and that is where grades will be posted as well. To access OAKS go to http://myportal.cofc.edu and log in. Look for the OAKS icon acorn. I highly recommend setting up OAKS notifications for yourself, so that the system will send you alerts when items are posted in the course or due dates arise.

If you have any issues with technology, the College offers a number of resources to help you develop your technological competency in general, and specifically within the context of this class. A helpful website for all things technology at CofC is Student Instructional Technology Services: Student Instructional Technology Services. Also, IT has a chat feature to help you with problems: Remote Support Portal. And, if you experience technological problems during the class, please contact me immediately at janechk@cofc.edu.

The College anticipates that some members of the community will fall ill or test positive for the coronavirus, and then be required to isolate in place, thereby missing class, assignments, and assessments. Communication with the instructor will be essential so that alternate plans can be arranged, and it is imperative that, even if ill or in difficult circumstances, the student finds a way to communicate in a timely manner. To the extent possible, arrangements will be made for students with COVID-19 related absences to continue in the class. However, students should be aware that extended absences for any reason cannot be accommodated in every course. Missed assignments and assessments may result in poor or failing grades. If a student is absent from class for an extended period, a withdrawal (W) before the deadline should be strongly considered. In all cases, assigning course grades is the responsibility of the instructor consistent with the grading policy published in the syllabus.

Please check your email regularly as I often send e-mail updates to the class.

**Inclement Weather, College Closure, and the Class Schedule**

If the College of Charleston closes and members of the community are evacuated due to inclement weather or for any other reason, students are responsible for taking course materials with them in order to continue with course assignments consistent with instructions provided by faculty. Communication with me, either via email or the Remind app, is vital so that adjustments can be made for extremely difficult circumstances. In cases of extended periods of institution-wide closure where students have relocated, instructors may articulate a plan that allows for supplemental academic engagement despite these circumstances.
**Teaching Philosophy**

I encourage participation and interaction in my lectures and will do my best to create a fantastic learning environment. However, it is not all up to me. I depend on you, the student, to also take an active role in your education (after all, you pay to be here!) by challenging me with questions and participating. I will also help you discover learning resources available to you that will help you throughout your education.

**How to Take This Course**
*(with credit & thanks to, and in memory of, Dr. Conseula Francis)*

Any course, in any given semester, is a journey, often to a place you haven’t been before. You may be super excited about the trip, eager to get going and explore the sites. Or maybe you are here because you were told to take this course. Or maybe you are somewhere in-between. Imagine, if you will, that we’re all standing at the base of a mountain. We all have to decide how we’re going to climb it, and you alone can decide the manner of your exploration.

<table>
<thead>
<tr>
<th>Day Hiker</th>
<th>Backpacker</th>
<th>Trailblazer</th>
</tr>
</thead>
<tbody>
<tr>
<td>You’re sticking to the trail because you’re certain of where it goes. You want the basics - lists, order of processes, details to memorize. There is nothing wrong with this approach, especially if the material is new to you. A successful day hiker will <strong>take notes during class</strong>, <strong>review their notes regularly</strong>, and <strong>use the textbook for definitions and background information</strong>. A day hiker may do well on quizzes, but they will have to dig a little deeper for exams to really understand the connections between all aspects of the material. They will use the resources at the Center for Student Learning (CSL) and be familiar with activities that can help them to <strong>incorporate Bloom’s Taxonomy of human cognition</strong> as they work toward greater understanding.</td>
<td>You’re ready to spend a few days on this mountain and you have supplies (already existing knowledge, interest, inclination) to help you. You have a grasp of the basics, and are ready to explore beyond them. Backpackers will hone their <strong>note-taking skills</strong> both during class, and while watching and listening to the recorded Zoom lectures, <strong>review their notes and definitions in the textbook regularly</strong>, and really spend time <strong>digesting all of the information that is contained in the figures in the textbook</strong>. They ask questions of the professor, either during student drop-in hours at the office, by email or by requesting a Zoom meeting. Backpackers know that to succeed, they must approach with effort and learn and grow from their mistakes. They work with resources at the Center for Student Learning (CSL), are working to achieve the higher orders of understanding in Bloom’s Taxonomy of human cognition, and practice recalling material from memory.</td>
<td>You are blazing your own way, finding new routes up the mountain and new connections between all aspects of the material, things others may not see. You are passionate about, and interested in, not only the <strong>what</strong> and the <strong>why</strong>, but also the <strong>how does this connect to other things in the bigger picture</strong>? Trailblazers often use <strong>different colors when taking notes</strong> both during class and while watching and listening to the recorded Zoom lectures, and <strong>review their notes regularly during the week</strong>. They often <strong>read related parts in the textbook</strong>, because they really want to understand the whole picture. They <strong>study the figures presented in class and try to draw them</strong> on their own for recall practice and mastery. They ask questions and spend a lot of time with the material. For trailblazers, this course is part of the expedition to discover all that science has to offer. They take advantage of EVERY opportunity to learn from their mistakes. They often make use of resources at the Center for Student Learning (CSL), actively work with the material to achieve greater understanding.</td>
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</table>
the higher orders of understanding in Bloom's Taxonomy of human cognition, and often quiz themselves and those that they study with, because they know that practicing information recall from memory as often as possible is one of the best ways to learn.

| No matter which path you choose, remember that all explorers need to do their best to limit outside distractions. Yes, life happens, and can be challenging, but by putting all non-course related devices away and really focusing while learning material, we are giving our brains the gifts of time and focus. |

**Course Policies and Requirements**

**Accommodations**

Any student in this class who has a documented disability should speak to me as soon as possible, as well as contact the Center for Disability Services/SNAP located on the first floor of the Lightsey Center, Suite 104, Disability Services (843) 953-1431, SNAP@cofc.edu The Center for Disability Services/SNAP is committed to assisting qualified students with disabilities achieve their academic goals by providing reasonable academic accommodations under appropriate circumstances. If you have a disability and anticipate the need for an accommodation in order to participate in this class, please connect with the Center for Disability Services/SNAP.

Additionally, students are welcome to contact Prof. Janech to discuss any religious accommodations needed.

**Class Attendance**

I expect students to attend all meetings of this course. If you are unable to attend for any reason (including, but not limited to, illness of any kind or not being comfortable sitting in a close classroom) then you are expected to access the course material either remotely during class time via the live Zoom link posted on OAKS, or you may watch and listen to the recording later (once I post it on OAKS), take notes and ask me any questions you may have. Exams will be based almost entirely on lectures with the text used for terms, definitions, figures, background information and reinforcement. **You will not do well in this course if you miss lectures. This material is challenging and requires work on your part for success!**

**Assignment**

One homework assignment will be assigned during the last half of the semester. This assignment is intended to reinforce material covered in class and to encourage critical thinking. It will require you to seek information from sources outside of class and in addition to your textbook. Due date is given on the course calendar below. **Because of the assignment and other REAL opportunities to EARN credit in this course, I do not offer any extra credit projects.** All students are expected to turn in their assignment by the assigned time on the due date. An assignment will lose one full letter grade for every day of delay (any time after the assigned time counts as the next day). You should hold onto all graded assignments until the final grade has been turned in.
Discrimination & Harassment

CofC is committed to providing an environment free of all forms of prohibited discrimination, including sexual harassment and violence (i.e. sexual assault, domestic and dating violence, and gender or sex-based bullying and stalking). If you have experienced any form of discrimination or harassment, help and support are available. Please be aware that CofC employees, other than designated confidential resources, are expected to report information they receive about prohibited discrimination, including sexual harassment and sexual violence. This means that if you tell me about a situation involving sexual harassment, sexual violence, discrimination, or harassment, I must share the information with the Title IX Coordinator. You may speak to someone confidentially by contacting the Office of Victim Services at 843-953-2273, Counseling and Substance Abuse Services at 843-953-5640, or Student Health Services at 843-953-5520.

Academic Integrity and the Honor Code

As members of the College of Charleston community, we affirm, embrace and hold ourselves accountable to the core values of integrity, academic excellence, liberal arts education, respect for the individual student, diversity, equity and inclusion, student centeredness, innovation and public mission. Congruent with these core values, the College of Charleston expects that every student and community member has a responsibility to uphold the standards of the honor code, as outlined in the Student Handbook. **Your adherence to these practices and expectations plays a vital role in fostering a campus culture that balances trust and the pursuit of knowledge while producing a strong foundation of academic excellence at the College of Charleston.** All work that you turn in for this course (whether for assignments, quizzes, or exams) must be your own independent scholarship. **Students should be aware that unauthorized collaboration—working together without permission—is a form of cheating; this includes collaborating with classmates or other individuals on online quizzes or exams.** Other forms of cheating include possessing or using an unauthorized study aid (which could include accessing information via a cell phone or computer), copying from others’ exams, fabricating data, and giving unauthorized assistance. Any form of plagiarism (intentional and unintentional), cheating, or presenting someone else’s work as one's own will be treated as a serious academic transgression and will be communicated accordingly by the instructor as an honor code violation to Student Affairs. Be especially cautious of plagiarism when using Internet sources. **Cheating, attempted cheating, or plagiarism will result in a grade of zero on that assignment, quiz or exam and may result in a final overall grade of F or XXF (failure due to academic dishonesty) for the course.**

Quizzes

Weekly quizzes will be given throughout the semester on OAKS. They are intended to assist students in keeping up with the large amount of information in this course by encouraging them to prepare and study/read/review EVERY day. **It is your responsibility to keep up with due dates and times!** Lockdown Browser and Monitor will be required to be used for each numbered quiz. Quizzes will open at least one or two days before the day that they are due, and close at 5 p.m. on the day that they are due! A missed quiz will result in a 0 for that quiz, unless you talk to me to explain the situation (serious illness, including but not limited to COVID-19, family responsibilities, other extreme circumstances). It is imperative that you communicate with me and tell me the truth, so that I can work with you. **Your 2 lowest quiz scores will be dropped in the final grade calculation.** All cell phones, smart watches, headphones, ear buds, pagers, iPods, iPads, tablets, laptops, etc. are to be turned off and put away during each quiz, and you are expected to take them by yourself without
other people, notes, books or websites. The use of any wireless communication device during a quiz, test, or final exam is a violation of the Honor Code.

**Exams**

In this course, there are 4 regular exams scheduled during the semester (see calendar below for dates) and 1 cumulative final exam scheduled during the final examination period. **Even though classes will meet in person, ALL exams (both regular and final) will be given online through OAKS.** Lockdown Browser and Monitor will be required to be used for each exam. You are welcome to bring your laptop to the classroom and take the exam there on exam day if that works for you, but you do not have to. **Exams will open at 12:15 p.m. on exam day, and close at 5 p.m. that same day! All exams in this course, including the Final Exam, will be open notes, but these must all be on paper!** You are expected to take exams by yourself, without other people or devices. Anyone who misses an exam will receive a 0, unless you talk to me to explain the situation (serious illness, including but not limited to COVID-19, family responsibilities, other extreme circumstances). It is imperative that you communicate with me and tell me the truth, so that I can work with you. If you have any conflicts with the scheduled exams, you must email me to discuss ahead of time, **well before the exam date.** All cell phones, smart watches, headphones, ear buds, pagers, iPods, iPads, tablets, laptops, etc. are to be turned off and put away completely during each exam. The use of any wireless communication device during a quiz, test or final exam is a violation of the Honor Code.

**Grading**

The quizzes will count for a total of 15% of your final grade. The assignment will count for 10% of your final grade. The 4 regular exams will count for a total of 60% of your final grade. The cumulative final exam will count for 15% of your final grade. Grade calculation formula (try for yourself in an Excel spreadsheet):

\[
\text{Final grade} = [(\text{Quiz avg.}) \times 0.15] + [(\text{Assign.}) \times 0.10] + [(\text{Exam avg.}) \times 0.60] + [(\text{Final exam score}) \times 0.15]
\]

*Students who have a SOLID “A” average (93 or higher) at the end of the semester FOR THE LECTURE PORTION OF THE COURSE can opt to be exempt from the final exam, BUT you must talk to me to confirm; not taking the final exam when you are supposed to take it = 0.*

Letter grades will be determined by the following breakdown:

\[
\begin{align*}
\geq 93\% & = \text{A} \\
90-92 & = \text{A-} \\
87-89 & = \text{B+} \\
83-86 & = \text{B} \\
80-82 & = \text{B-} \\
77-79 & = \text{C+} \\
73-76 & = \text{C} \\
70-72 & = \text{C-} \\
67-69 & = \text{D+} \\
63-66 & = \text{D} \\
60-62 & = \text{D-} \\
\leq 59 & = \text{F} \\
\end{align*}
\]

0 due to acad. dishonesty = XXF

Please teach yourself how to check on your grade in this course on OAKS, and follow along during the semester. Any errors can be brought to my attention, and are much easier to fix the sooner they are detected!

**My Expectations of Students in my class:**

1. **Proper Deportment:** In this class, you are expected to be respectful of your teacher and other students. **Talking, texting and non-course related phone & computer use are prohibited.** If you need to do these things, please leave the room until you are finished. Help me create a learning-focused environment for you and everyone around you – please be courteous and pay attention! If you have a question, please ask me – I love questions from students!
2. Electronic device policy - (please note that I am trying to be more flexible about this, but I really do
prefer that students handwrite their notes! Studies have shown retention of the information is better this
way!) I understand that for many students, it makes sense to use an electronic device. **Laptops will be
allowed, but if possible, a flat tablet with a writing stylus is preferred.** Research has shown that learning is
negatively affected when students and those around them use phones or other devices during class. Therefore,
because we all deserve a learning-focused environment, the use of wireless communication devices (phones and
smart watches) during class is prohibited, other than to respond to a Cougar Alert announcement - therefore
please **SILENCE** all cell phones, pagers, iPods, iPads, tablets, laptops and anything with alarms before coming
into my class **AND PUT THEM AWAY.** If you forget to do so you **RISK BEING PERSONALLY REMINDED**
**DURING CLASS** and you may be asked to leave and not to return that class period. **Class time will be packed
with information, and I do not want you or any students around you to be distracted.** Please **DO NOT** take
photos of my slides - you need to write your notes, and you will be able to access the slides later through both the
Zoom recording and a separate file of just the slides, both of which will be posted on OAKS in the late
afternoon/evening after class.

3. This is a large class, and it will take me some time to learn your names. However, I have an excellent memory
and I can see everyone, even in such a large classroom, so please stay awake, participate and be attentive. It is
important that you start presenting yourself as a serious, professional student when dealing with faculty and other
students in the class. **One day you will be asking for letters of recommendation – start thinking now about
what you want those letters to say about you, and act accordingly.**

4. Lockdown Browser and Monitor reminders: Lockdown Browser and Monitor (LDB) is required to be used
to take each numbered quiz, exam and Final Exam in OAKS. This is done to assist you, and ALL students in the
class, with abiding by the Honor Code in an online testing environment. The LDB software will record video and
audio of you while you are taking the quiz or exam, and it uses artificial intelligence to flag suspicious behavior.
**NO ONE will be “watching” you while you are testing.** The system alerts me when behavior is flagged, and I
can go in to see and hear what happened. If you know that something out of your control happened during the
recording, you are welcome to email me and let me know once you are done testing. If I do not find evidence of
ACTUAL suspicious behavior (for example, the system said it could not detect your face when all that happened
was your mouth and nose were covered by a mask), then I will note that and you will not hear anything from me.
**However, if I do see or hear suspicious behavior, there will be the following consequences:** 1. For the first
incidence, you will receive a warning email from me, and an expectation that the behavior will not happen again.
2. If you are flagged a second time for suspicious behavior, after already receiving a warning, then 10 points will
be deducted from your grade for that quiz or exam. 3. If you are flagged a third time, you will receive a grade of 0
for that quiz or exam. More details will be forthcoming and posted on OAKS.

**COURSE CALENDAR**

*Exam dates are firm! – but topics covered on certain days are
subject to change and I will update this calendar as we go*

<table>
<thead>
<tr>
<th>Date</th>
<th>LECTURE TOPIC</th>
<th>Chapter in Biology: Concepts and Applications provided for reference for definitions and</th>
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</thead>
<tbody>
<tr>
<td>Date</td>
<td>Topic</td>
<td>Chapters</td>
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<tr>
<td>January</td>
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<tr>
<td>R 12</td>
<td>Welcome &amp; start Evolution, Galapagos Islands,</td>
<td>Chapter 16.2, Galapagos info., Chap. 17.1 &amp; 17.2</td>
</tr>
<tr>
<td>T 17</td>
<td>Hardy-Weinberg Formula and violations of it / Last day to Drop/Add is tomorrow!</td>
<td>Chap. 17.2, 17.6, 17.5, 16.2</td>
</tr>
<tr>
<td>R 19</td>
<td>Evidence for Evolution</td>
<td>Chap. 16.6, Chap. 16 p. 271, 16.4, 16.3, 17.3</td>
</tr>
<tr>
<td>T 24</td>
<td>Malthus and Darwin’s observations on Natural Selection</td>
<td>Chap. 16.1 (p. 255), 16.7, 16.5, p. 806-807, 16.1; 16.8, p. 257 in 16.2</td>
</tr>
<tr>
<td>R 26</td>
<td>Finish Chapter 17 - Camouflage and Mimicry and patterns of Natural Selection Misconceptions about Evolution</td>
<td>Chap. 41.4, Chap. 17.3, 17.4, 17.5, 17.6, 17.1</td>
</tr>
<tr>
<td>T 31</td>
<td>Cladistics, Taxonomy and Speciation</td>
<td>Chap. 17.11, 1.4, Chap. 17.10, 1.4, 17.7, 17.8, 17.10, 17.12</td>
</tr>
<tr>
<td>February</td>
<td></td>
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<tr>
<td>R 2</td>
<td><strong>EXAM 1</strong> - will be taken online, open notes (paper only, NO devices), available starting at 12:15 p.m., will close at 5 p.m., you must take it in one, continuous 60 minute block of time</td>
<td>See study guide posted on OAKS</td>
</tr>
<tr>
<td>T 7</td>
<td>Origins of Life and Prokaryotes (Bacteria &amp; Archaea)</td>
<td>Chap. 18.1, 18.2, Chap. 18.3, 18.4, 19.7, 1.4 (last part), 1.3, Figure 4.5 in Chap. 4.2, Chap. 19.3, 19.4, 19.5</td>
</tr>
<tr>
<td>R 9</td>
<td>Viruses</td>
<td>Chap. 19.6, Chap. 19.1, 19.2 (but only what I referenced in class - I used A LOT of my own material here from other books)</td>
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<tr>
<td>T 14</td>
<td>Protists: from Prokaryotes to Eukaryotes / Happy Valentine’s Day! / Darwin Week - go.cofc.edu/darwinweek has all of the information!</td>
<td>Please note that for all parts of Chapters 20 and 21 that are listed, ONLY worry about what I reference in class: Chap. 18.4, 20.1, 20.3, 20.4, 20.5, 20.6, 20.8</td>
</tr>
<tr>
<td>Day</td>
<td>Chapter/Section</td>
<td>Notes</td>
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<tr>
<td><strong>R 16</strong></td>
<td>Plant Evolution - Bryophytes &amp; Ferns / <strong>Darwin Week</strong> - go.cofc.edu/darwinweek has all of the information!</td>
<td>Chap. 21.1, Chap. 21.2, Fig. 25.4 on p. 427, 21.3, 21.4 (picture)</td>
</tr>
<tr>
<td><strong>T 21</strong></td>
<td>More on Plant Evolution - Gymnosperms &amp; Angiosperms, Plant Tissues</td>
<td>Chap. 21.5, 21.6, Fig. 21.18 p. 361; part 2 - The Private Life of Plants “Traveling” episode video</td>
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<tr>
<td><strong>R 23</strong></td>
<td>Plant Reproduction &amp; development, Fungi</td>
<td>Chap. 22.1, some of Chap. 22.2 on p. 369, some of 22.3</td>
</tr>
<tr>
<td><strong>T 28</strong></td>
<td><strong>EXAM 2</strong> - will be taken online, open notes (paper only, NO devices), available starting at 12:15 p.m., will close at 5 p.m., you must take it in one, continuous 60 minute block of time</td>
<td>See study guide posted on OAKS</td>
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<tr>
<td><strong>March</strong></td>
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<tr>
<td><strong>R 2</strong></td>
<td>Animal Evolution - Shared characteristics and Invertebrates / <strong>Midterm grades due to be entered by faculty by noon tomorrow</strong></td>
<td>Chap. 23.2, 23.1, 23.3, 23.4</td>
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<tr>
<td><strong>T 7</strong></td>
<td>OFF - Spring Break!</td>
<td></td>
</tr>
<tr>
<td><strong>R 9</strong></td>
<td>OFF - Spring Break!</td>
<td></td>
</tr>
<tr>
<td><strong>T 14</strong></td>
<td>Invertebrates / <strong>Daylight Savings Time began on Saturday - clocks spring ahead! Please note that all times listed going forward are Eastern Daylight Savings Time!</strong></td>
<td>Chap. 23.5, 23.6, 23.7, 23.9, 23.10, 23.12</td>
</tr>
<tr>
<td><strong>T 21</strong></td>
<td>Vertebrates and Human Evolution</td>
<td>Chap. 24.8, 24.9, Fig. 24.21 in Chap. 24.10, p. 726-727 in Chap. 40.7, Planet Earth Episode 4 “Caves”</td>
</tr>
<tr>
<td><strong>R 23</strong></td>
<td>Human Immunity / <strong>Last day for students to withdraw with a grade of “W” is TOMORROW!</strong></td>
<td>PBS/NOVA documentary “Vaccines: Calling the Shots”, Chap. 34.1, 34.2, 34.3</td>
</tr>
<tr>
<td><strong>T 28</strong></td>
<td>Human Immunity</td>
<td>Chap. 34.4, 34.5, 34.6, Chap. 34.6, 34.5, reading on p. 610-611</td>
</tr>
</tbody>
</table>
**EXAM 3** - will be taken online, open notes (paper only, NO devices), available starting at 12:15 p.m., will close at 5 p.m., you must take it in one, continuous 60 minute block of time

See study guide posted on OAKS

| April |
|-----------------|-----------------|
| **EXAM 3** |
| Human Endocrine System |
| Chap. 31.2, 31.5, 31.8, Chap. 38.8 |
| Human Reproduction |
| Chap. 38.6, Chap. 38.7 |
| More Human repro. |
| Chap. 38.10, 38.11 |
| More Human repro. |
| Chap. 38.10, 38.11 |
| Organ systems and circulation |
| Chap. 28.6 & 33.1, 33.2, 33.3 |

**EXAM 4** - will be taken online, open notes (paper only, NO devices), available starting at 12:15 p.m., will close at 5 p.m., you must take it in one, continuous 60 minute block of time

See study guide posted on OAKS

| T 25 |
|-----------------|-----------------|
| Topic to be announced / Last day of this class for this course! / Assignment due! |
| ??? / Assignment due on Flipgrid by 5 p.m. |

Wed. 26

Official last day of classes for the spring semester

Thurs. 27

Reading day! Breathe, catch up and study before finals!

(Will probably open the Final Exam on OAKS on Monday - I will definitely let you know!)

Fri. 28

Final exams begin - Study and prepare to take your final exam on OAKS!

Wednesday, May 3rd

FINAL CUMULATIVE EXAM on OAKS will be due by 3 p.m. EDT TODAY! (This was the assigned time on the Final Exam schedule). It will close and not reopen.
Please note: as stated in the Undergraduate Catalog:
http://catalog.cofc.edu/content.php?catoid=14&navoid=671#final-examinations

“Examinations must be taken at the time scheduled (https://registrar.cofc.edu/pdf/exam-schedule-spring2023.pdf), except when:

1. Two or more exams are scheduled simultaneously.
2. Legitimate AND documentable extenuating circumstances prevent the student from completing the examination at the scheduled time (e.g., burial services for an immediate family member).”

CONCEPTS AND APPLICATIONS IN BIOLOGY I & II
BIOL 101 & 101L/BIOL 102 & 102L
Department: Biology

Learning Goals & Objectives

This general education science course provides a background for understanding and evaluating contemporary topics in biology and societal/environmental issues. Students develop a general understanding of core concepts and develop the critical competencies that form the bases for the practice of science and use of scientific knowledge.

Core Concepts

This 2-semester course sequence in general biology addresses fundamental principles in biology which broadly include:

· Evolution: The diversity of life evolved over time by processes of mutation, selection, and genetic change. The theory of evolution by natural selection allows scientists to understand patterns, processes, and relationships that characterize the diversity of life.

· Structure and Function: Basic units of structure define the function of all living things. Structural complexity, together with the information it provides, is built upon combinations of subunits that drive increasingly diverse and dynamic physiological responses in living organisms. Fundamental structural units and molecular and cellular processes are conserved through evolution and yield the extraordinary diversity of biological systems seen today.

· Information flow, exchange and storage: The growth and behavior of organisms are activated through the expression of genetic information at different levels of biological organization and depend on specific interactions and information transfer.

· Pathways and transformation of energy and matter: Biological systems grow and change by processes based upon chemical transformation pathways and are governed by the laws of thermodynamic and will be explored to understand how living systems operate, how they maintain orderly structure and function, and how physical and chemical processes underlie processes at the cellular level (i.e. metabolic pathways, membrane dynamics), organismal level (i.e. homeostasis) and ecosystem level (i.e. nutrient cycling).

· Biological systems: Living systems are interconnected and interacting and biological phenomena are the result of emergent properties at all levels of organization, from molecules to ecosystems to social systems. The course will explore the dynamic interactions of components at one level of biological organization to the functional properties that emerge at higher organizational levels.
These ideas are explored from the perspective of the following topics in each course:

**BIOL 101 & 101L**
- Chemical and Physical Properties of Life
- Evolution as a unifying principle in biology
- Cell Form & Function
- Energetics and Metabolism
- The Cell Cycle
  - Meiosis and Sexual Reproduction
  - Mitosis and Cell Reproduction
- Mendelian Genetics
- Patterns of Inherited Traits
- Human Inheritance
- The Molecular Basis of Inheritance
- DNA and protein production
- Regulation of gene expression
- Biotechnology

**BIOL 102 & 102 L**
- Evolutionary Processes
- Origins of Life
- Biodiversity
  - Viruses, Bacteria and Archaens
  - "Protist" Lineages
  - Plants
  - Fungi
  - Animals
- Plant Form & Function
- Animal Form & Function
- Principles of Ecology

Core Competencies

- Nature of Scientific Knowledge
  - Understand the intellectual standards used by scientists to establish the validity of knowledge, evidence, and decisions about hypothesis & theory acceptance? These standards include: 1) science relies on external and naturalistic observations, and not internal convictions. 2) scientific knowledge is based on the outcome of the testing of hypotheses and theories that are under constant scrutiny and subject to revision based on new observations 3) the validity of scientifically generated knowledge is established by the community of scientists through peer review and open publication of work.

  - Understand that new ideas in science are limited by the context in which they are conceived; are often rejected by the scientific establishment; sometimes spring from unexpected findings; and usually grow slowly, through contributions from many investigators.

  - Understand that science operates in the real world as defined by the laws of chemistry and physics.
Understand the differences between and relations among a scientific theory, hypothesis, fact, law, & opinion.

Understand the differences between science and technology but also their interrelations.

Understand the dynamic (tentative) nature of science.

Scientific Methods of Discovery

Understand the methods scientists use to understand the natural world (observing; questioning; formulating testable deductive hypotheses; controlled experimentation when possible; observing a wide range of natural occurrences and discerning (inducing) patterns.)

Apply physical/natural principles to analyze and solve problems.

Develop a Scientific Attitude

Develop habits of mind that foster interdisciplinary and integrative thinking (within biology; between biology and other sciences; between science and other disciplines)

Develop an appreciation for the scientific attitude—a basic curiosity about nature and how it works.

Develop scientific analysis and communication skills

Develop quantitative reasoning skills (quantitatively expressing the results of scientific investigations, or patterns in nature and using knowledge of biological concepts to explain quantitatively—expressed data or patterns).

Understand the probabilistic nature of science and the use/application of inferential statistics to test hypotheses.

Develop scientific information literacy (library, internet, databases etc…); finding and evaluating the validity of science-related information.

Communicate scientific knowledge, arguments, ideas in a variety of different contexts (scientific, social, cultural) and utilizing a variety of different media (scientific articles, policy statements, editorials, oral presentations etc…).

Develop cooperative problem-solving skills (working effectively in teams), but also habits of mind and skills that foster autonomous learning.

Develop an appreciation for the impact of science on society.

Develop an appreciation of humans as a part of the biosphere and the impact of biological science on contemporary societal/environmental concerns.

Knowledge of the history of the biological sciences and the influences of politics, culture, religion, race, and gender on the scientific endeavor.

Signature assignments for measuring learning outcomes

Learning Outcome 1: Students apply physical/natural principles to analyze and solve problems.
This learning outcome is assessed using the poster (or scientific article) generated in Biology 102 lab as part of the multi-week student-directed independent research project. In this project students use ecological data they collect (or which has been collected in actual research investigations) to test an ecological hypothesis of their choosing. This multi-week project begins with students becoming experts in various areas of ecological sampling. Students, working in small research teams, decide on a question they would like to explore. Teams then develop a research proposal to test their hypothesis. Students collect (or use already collected data), summarize and analyze the data, and draw conclusions.

Learning Outcome #2 - Students demonstrate an understanding of the impact that science has on society. BIOL 102 lab students produce a written document (examples - policy statement, article, stake-holder professional letter or poster) which requires them to research and apply biological knowledge or evidence to defend or critique a proposed solution to a biology-related societal issue. Although the choice of the specific issue or proposed solution is course-section specific, some examples of potential issues include

- exploring environmental/health impacts of genetically modified organisms
- the epidemic of diabetes in the United States
- solutions for mitigating global climate change


[1] This learning goal is measured as part of the general education assessment. The specific learning outcome to be measured is: *Students apply physical/natural principles to analyze and solve problems.*

[2] This learning goal is measured as part of the general education assessment. The specific learning outcome to be measured is: *Students demonstrate an understanding of the impact that science has on society.*