Syllabus – Fall 2021

BIOLOGY 101 sec. 04: Concepts/Apps in Biology I (CRN 10060)

ONLINE, asynchronous

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). Masks requested, please!

STUDENT HOURS (in person): Tuesdays and Thursdays 12:30 - 1:30 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 (masks requested, please!), 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 cellular and molecular concepts, including biochemistry, cell structure and function, respiration, photosynthesis, genetics and molecular biology. The goal of the course is to provide a foundation for students to appreciate, understand and critically evaluate biological issues facing society.

Co-requisites
BIOL 101 Laboratory – you MUST enroll in a 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 digital version, borrow it, or share it with a classmate, but you MUST have access to this textbook! You will also
need it for your lab, and for Biology 102. Keep up with the reading! If you need a Course Key for Mind Tap access (I do not require Mind Tap for anything, but you might need access to get to the digital book) it is: MTPN-GKQQ-M70D

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 quizzes and exams. 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 this is a fully online course.***

Online access through MyCharleston to OAKS (http://blogs.cofc.edu/oaks/students/getting-started/) and Voice Thread (through the OAKS course home page) 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://blogs.cofc.edu/sits/ 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, or call (843) 953-5635, or drop by their location on the first floor of the Addlestone Library.

Class Delivery Format

This course is being presented in an asynchronous format - you will be able to watch and listen to the assigned Voice Threads in weekly modules, and read the corresponding sections of the textbook, when it is most convenient for you and at your own pace. You are not required to login to the course at a specific time each day to interact with your classmates or me. There will be quizzes and exams that have specific due dates and times, and these will be posted in the course calendar. Please keep in mind that this course format requires students to be self-motivated, disciplined, organized and task-driven. Some students are under the impression that online classes are easier than traditional face-to-face classes. This is not true. In fact, online courses are often more challenging than traditional classes and you should be prepared to spend several hours on this class each week, including additional time on the weekends. It is critical that you complete work for this class each day and not wait until the day before a deadline to begin working on a module. ALL work for this course will be online - watching and listening to Voice Thread lectures and taking your own notes, and completing quizzes and exams.

This format requires that, for the duration of the course, you have regular access to a computer with a microphone and web-cam, coupled with a reliable high-speed internet connection. Computer failure/unavailability does not constitute an excuse for not completing work by the due dates. So please do not wait until the last minute to complete work for a module, or a quiz or exam.

This class will be administered through OAKS, the College of Charleston’s learning management system (http://blogs.cofc.edu/oaks/students/getting-started/). To access OAKS go to http://my.cofc.edu and login to My
Charleston. The OAKS icon is the acorn located in the upper righthand corner of the screen. 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 are someone who feels uncomfortable 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 online class. Visit http://blogs.cofc.edu/studentreadinessforonlinelearning/ to access those resources. A helpful website for all things technology at CofC is Student Instructional Technology Services: http://blogs.cofc.edu/sits/ And, if you experience technological problems during the class, please contact me immediately at janechk@cofc.edu.

Since we are not meeting face-to-face for class, I expect YOU to regularly login to the course on OAKS and take notes on the Voice Threads in the modules as you watch and listen to them, as well as look for course updates (in the News section on the course homepage), and complete quizzes and exams by their due dates. Please also check your College of Charleston email regularly, for notifications and updates. You are also responsible for accessing all course material posted on Voice Thread in a timely manner, so that you do not get behind.

The College anticipates that some members of the community will fall ill or test positive for the coronavirus, and then be required to quarantine thereby missing class, assignments, and assessments. Faculty are expected to provide reasonable accommodations as determined by the content, level, and expectations of their courses for students who become ill or indicate a need to isolate themselves. 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. Faculty are encouraged to make explicit in their syllabus what sorts of accommodations students can expect with respect to missed course meetings, assignments, and assessments. 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.

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.

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
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><strong>Day Hiker</strong></th>
<th><strong>Backpacker</strong></th>
<th><strong>Trailblazer</strong></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</strong> while watching and listening to the assigned Voice Threads, read all related pages in the book, and review their notes at least twice a week. 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 <strong>Center for Student Learning (CSL)</strong>, 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 (prior 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> while watching and listening to the assigned Voice Threads, <strong>read all related pages in the book</strong> so they can <strong>ask questions</strong> about anything that is not clear, and really spend time digesting all of the information that is contained in the <strong>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 <strong>Center for Student Learning (CSL)</strong>, are working to achieve the higher orders of understanding in <strong>Bloom’s Taxonomy of human cognition</strong>, 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 <strong>use different colors when taking notes</strong> while watching and listening to the assigned Voice Threads, and <strong>read more in the book than is required</strong>, because they really want to understand the whole picture. They <strong>study the figures and try to draw them on their own</strong> 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 <strong>Center for Student Learning (CSL)</strong>, actively work with the material to achieve the higher orders of understanding in <strong>Bloom’s Taxonomy of human cognition</strong>. They 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.</td>
</tr>
</tbody>
</table>

No matter which path you choose, remember that all explorers need to do their best to **limit outside distractions**. Yes, life happens, and the current situation with coronavirus is challenging, but really try to give your brain the gifts of time and focus - try to find a good work space and a routine that works for you.

**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 (CDS/SNAP program), located on the first floor of the Lightsey Center, Suite 104, http://disabilityservices.cofc.edu/, (843) 953-1431, SNAP@cofc.edu

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.

Honor Code
Students are required to adhere to the guidelines outlined by the Honor Board in the Student Handbook (please see http://deanofstudents.cofc.edu/policies-and-procedures/honor-code-and-code-of-conduct.php) This includes lying, which will not be tolerated in this course. 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 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. It is your responsibility to keep up with due dates and times! All quizzes will require the use of Respondus Lockdown Browser and Monitor. 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). The College will no longer be using Absence Memos, so it is imperative that you communicate with me directly 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, Apple watches, pagers, iPods, iPads, other tablets or laptops, etc. are to be turned off and put away during each quiz, and you are expected to take them BY YOURSELF with ONLY your hand-written class notes (no other people or websites or Google). 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. **Due to the online nature of this course, all exams will be given online through OAKS.** All exams will require the use of Respondus Lockdown Browser and Monitor. Exams will open a day or two before the day that they are due, and close at 5 p.m. on the day that they are due! Anyone who misses an exam will receive a 0, **UNLESS** you talk to me ASAP to explain the situation (serious illness, including but not limited to COVID-19, family responsibilities, other extreme circumstances) - if you email/talk to me about it, I am willing to open the regular exam back up for you to take it (you will not be able to earn higher than a C, but this is better than a 0) but this must be done within a week from the original due date (this does NOT apply to the final exam!). If you do not contact me within 1 week, then the 0 will remain as your grade. The College will no longer be using Absence Memos, so 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 talk to me ahead of time, well before the exam date. **All cell phones, Apple watches, pagers, iPods, iPads, other tablets or laptops, etc. are to be turned off and put away completely during each exam.** You are expected to take all exams **BY YOURSELF with ONLY your hand-written class notes (no other people or websites or Google).** 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 25% of the lecture portion of your final grade. The 4 regular exams will count for a total of 55% of the lecture portion of your final grade. The cumulative final exam will count for 20% of the lecture portion of your final grade. Grade calculation formula (try for yourself in an Excel spreadsheet):

\[ ((\text{Quiz avg.}) \times 0.25) + ((\text{Exam avg.}) \times 0.55) + ((\text{Final exam score}) \times 0.20) = \text{Final grade}. \]

*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; no show = 0.*

Letter grades will be determined by the following breakdown:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥93%</td>
<td>A</td>
</tr>
<tr>
<td>90-92</td>
<td>A-</td>
</tr>
<tr>
<td>87-89</td>
<td>B+</td>
</tr>
<tr>
<td>83-86</td>
<td>B</td>
</tr>
<tr>
<td>80-82</td>
<td>B-</td>
</tr>
<tr>
<td>77-79</td>
<td>C+</td>
</tr>
<tr>
<td>73-76</td>
<td>C</td>
</tr>
<tr>
<td>70-72</td>
<td>C-</td>
</tr>
<tr>
<td>67-69</td>
<td>D+</td>
</tr>
<tr>
<td>63-66</td>
<td>D</td>
</tr>
<tr>
<td>60-62</td>
<td>D-</td>
</tr>
<tr>
<td>≤59</td>
<td>F</td>
</tr>
<tr>
<td>0 due to acad. dishonesty = XXF</td>
<td></td>
</tr>
</tbody>
</table>

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. I know that we are all online and not in a classroom together, but in any emails or communications or in-person or Zoom student hours, please be patient and courteous. We are all trying our best to get through these challenging times. If you have a question, please ask me – I love questions from students!
2. **Electronic device policy**: 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 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. Yes, I know that you will be on your own with this one, but give yourself a serious opportunity to do your best. Set yourself up for success by finding a good workspace, and try to develop a consistent working routine.

3. This is a large class, and I will try my best to learn your names, even though we are remote. 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 quiz and 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**

*(module schedule and Quiz & Exam closing dates are firm – but topics covered in certain modules are subject to change)*

<table>
<thead>
<tr>
<th>Module</th>
<th>Weekly Topic</th>
<th>Due Date</th>
</tr>
</thead>
</table>
| Quizzes A and B will cover separate material, and will have their own due dates on the OAKS course calendar  
**Please note that all chapters are given for you to read background information and see figures. You are ONLY responsible for the details that I actually cover in the Voice Thread, and NOT every single detail in each chapter.* | | |
<table>
<thead>
<tr>
<th>Module</th>
<th>Information</th>
<th>Due Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Module 1</td>
<td>Chapter 4 - Cell structure &amp; Eukaryotic cell parts (Last day for Drop/Add is Monday, Aug. 30th!)</td>
<td>Opens: Tues. 8/24 at 9 a.m EDT Quiz 1 closes: Tues. 8/31 at 5 p.m. EDT</td>
</tr>
<tr>
<td>Module 2</td>
<td>Chapter 4 - Cell membranes, Chap. 5.6 &amp; 5.7 on the movement of substances across membranes, Start Chapter 2 - Life's Chemical Basis</td>
<td>Opens: Wed. 9/1 at 9 a.m. EDT Quiz 2 closes: Tues. 9/7 at 5 p.m. EDT</td>
</tr>
<tr>
<td>Module 3</td>
<td>Finish Chapter 2</td>
<td>Opens: Wed. 9/8 at 9 a.m. EDT Quiz 3 closes: Tues. 9/14 at 5 p.m. EDT</td>
</tr>
<tr>
<td>EXAM</td>
<td><em><strong>Exam 1</strong></em> over material in Modules 1, 2 &amp; 3 (see study guide posted on OAKS)</td>
<td>Opens: Wed. 9/15, NOON EDT Closes: Fri., 9/17, 5 p.m. EDT</td>
</tr>
<tr>
<td>Module 4</td>
<td>Chapter 3 - Molecules of Life - how they work, carbohydrates, lipids</td>
<td>Opens: Mon. 9/20 at 9 a.m. EDT Quiz 4 closes: Tues. 9/28 at 5 p.m. EDT</td>
</tr>
<tr>
<td>Module 5</td>
<td>Chapter 3 - proteins, nucleic acids</td>
<td>Opens: Wed. 9/29 at 9 a.m. EDT Quiz 5 closes: Tues. 10/5 at 5 p.m. EDT</td>
</tr>
<tr>
<td>Module 6</td>
<td>Chapter 31 (just a little on hormones), Chapter 11 - cell cycle and mitosis</td>
<td>Opens: Wed. 10/6 at 9 a.m. EDT Quiz 6 closes: Tues. 10/12 at 5 p.m. EDT</td>
</tr>
<tr>
<td>EXAM</td>
<td><em><strong>Exam 2</strong></em> over material in Modules 4, 5, &amp; 6 (see study guide posted in OAKS)</td>
<td>Opens: Wed., 10/13, NOON EDT Closes: Fri., 10/15, 5 p.m. EDT</td>
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<tr>
<td></td>
<td>HAPPY FALL BREAK!</td>
<td>OFF - Mon. 10/18 &amp; Tues. 10/19</td>
</tr>
<tr>
<td>Module 7</td>
<td>Chapter 5 - Energy, Enzymes &amp; Metabolism</td>
<td>Opens: Wed. 10/20 at 9 a.m. EDT Quiz 7 closes: Tues. 10/26 at 5 p.m. EDT</td>
</tr>
<tr>
<td>Module 8</td>
<td>Chapter 6 - Photosynthesis</td>
<td>Opens: Wed. 10/27 at 9 a.m. EDT Quiz 8 closes: Tues. 11/2 at 5 p.m. EDT</td>
</tr>
</tbody>
</table>
| Module 9 | Chapter 7 - Aerobic Respiration | 4 parts to this module: part 1 chapter 7.1 & 7.2; part 2 chapter 7.3; part 3 chapter 7.4; part 4 chapter 7.5 | Opens: Wed. 11/3 at 9 a.m. EDT  
Quiz 9 closes: Tues. 11/9 at 5 p.m. EST (Note that we are now back on Eastern Standard Time) |
|---|---|---|---|
| EXAM | **Exam 3** over Modules 7, 8 & 9 (see study guide posted in OAKS) | Opens: Wed., 11/10 NOON  
Closes: Fri., 11/12 5 p.m. EST |
| Module 10 | The end of Chapter 11 - Cancer | 3 parts to this module: part 1 chapter 11 p. 179 “Control over the cell cycle” and 11.5; part 2 chapter 11.5 and Application on p. 186-187; part 3 chapter 11.4 | Opens: Mon. 11/15 at 9 a.m. EST  
Quiz 10 closes: Tues. 11/23 at 5 p.m. EST (this is your last quiz!) |
| Happy Thanksgiving!!! | | | |
| Module 11 | (some of this will definitely be moved earlier)  
Chapter 12 - Chromosome terminology and Meiosis | 5 parts to this module: part 1 vocabulary from Chapter 8.3 and Chapter 12.1; part 2 Chapter 12.2 and crossing over from 12.3; part 3 Chapter 12.3; part 4 video of meiosis with beads and worksheet; part 5 Chapter 12.4  
Chapter 13 - Patterns in Inherited Traits | 5 parts to this module: part 1 Chapter 13.1; part 2 Chapter 13.2, first half; part 3 Chapter 13.2, second half; part 4 Punnett square video on Kaltura My Media; part 5 video with more Punnett square practice  
Chapter 13 and Chapter 14 - Human Inheritance | 4 parts to this module: part 1 Chapter 13.4; part 2 Chapter 13.3; part 3 parts of Chapters 13.4, 13.5 & 13.6; part 4 Chapter 14.5  
This will be smaller, finishing up Chapter 14 2 parts to this module: part 1 Chapter 14.1 & 14.2; part 2 Chapter 14.3 & a little bit from 14.6 | Opens: Mon. 11/29 at 9 a.m. EST |
| EXAM | **Exam 4** over Modules 10 & 11 (see study guide posted in OAKS) | Opens: Thurs., 12/2 at NOON EST  
Closes: Mon., 12/6 5 p.m. EST |
<p>| Mon. Dec. 6 | Official last day of classes for the fall semester | | Exam 4 closes today at 5 p.m. EST |
| Tues. Dec. 7 | Reading Day - catch up and study! | | |</p>
<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
<th>Announcement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wed. Dec. 8</td>
<td>Final exams begin</td>
<td></td>
</tr>
<tr>
<td>Thurs. Dec. 9th</td>
<td>Study and take your final exam on OAKS!</td>
<td>(Will probably open the Final Exam on OAKS today - I will definitely let you know!)</td>
</tr>
<tr>
<td>Mon., Dec. 13th</td>
<td>FINAL CUMULATIVE EXAM on OAKS will be due by 5 p.m. TODAY! It will close and not reopen.</td>
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** 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, 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) *Note: Forms for requesting permission to reschedule one exam may be found on the Student Academic Forms channel on the Academic Services tab on MyCharleston. Written permission of the instructor and all relevant signatures must be obtained at least 24 hours prior to the scheduled time for the final examination.*

Make it a habit to always check out your final exam schedules:


**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
  o 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.

  o 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.

  o Understand that science operates in the real world as defined by the laws of chemistry and physics.

  o Understand the differences between and relations among a scientific theory, hypothesis, fact, law, & opinion.

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

  o Understand the dynamic (tentative) nature of science.

· Scientific Methods of Discovery
  o [1]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.)

  o Apply physical/natural principles to analyze and solve problems.

· Developing a Scientific Attitude
  o Develop habits of mind that foster interdisciplinary and integrative thinking (within biology; between biology and other sciences; between science and other disciplines)

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

· Developing scientific analysis and communication skills
  o 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).

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

  o 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.*