

**Spring 2020, College of Charleston (CofC), Charleston SC,
BIOL-111-02, Introduction to Cell and Molecular Biology
Spring 2020: Mon, Wed, Fri; 11:00-11:50 AM in RITA 101.**

INSTRUCTOR: Dr. Richard Southgate, PhD in Biology at U. Geneva Switzerland,
1984. Communicate with me via email: southgater@cofc.edu

MY OFFICE: RITA 224 (second floor), **PHONE: (843) 953-7374**, but remember this
Phone number is **not very reliable** (as I do teach etc.), so email me **FIRST**
and then the phone, as there is **no guarantee I will in the office**.

OFFICE HOURS: Monday and Friday, 12:15 – 1:45 pm in RITA 224.

Face to face meetings (single or small groups) with no waiting time if there are no other students
at the same time.... You can try to see me anytime, but there is a good chance I will not be there
or possible too busy at that time. If these office hours are not good for you for many reasons, send me an
e-mail to southgater@cofc.edu to set up a meeting soon.

**If you send me an email in the weekdays, I will do my best to reply you within 24 hours
(and most likely much faster), and on or before Monday, if you emailed me after 5pm on
Friday in the weekend).**

**In this semester, I teach nine hours per week, three hours per week in classes (BIOL-111-02 in
RITA 101 (a double section)) and six hours in two BIOL-305 Genetics Labs. In addition to these
teaching hours, I have to clean up the lab., ordering supplies, grading (quizzes, exams, final, lab. reports,
assignments, lecture prep. and quiz/exam preparations etc. So, my teaching times are:
BIOL-111-02, M, W and F, 11–12 noon, & two BIOL-305 Labs, T and R 9:30–12:30 pm.**

COURSE COMMUNICATION

- OAKS will be utilized for content, quizzes, news, updates, etc. New to Oaks? Tutorial guides are here:
<http://blogs.cofc.edu/oaks/students/getting-started/> and
<https://www.youtube.com/watch?v=sDkvWMIol9I&list=PLPMd8f8re-v51C0jQ4Nd9wgErUsW79mQp&index=2> or see me.

- Email and OAKS news will be used to communicate any important or sudden changes in course
information (weather, illness etc.).

- We will all work together to create a great classroom learning environment with the goal to let you
to recognize, work with, trust and collaborate with the other members in this class and the rest of
your time in the College and even beyond. We will have class discussions on specific topics as well
the enormous help of your SI leader to help you (see below).

Your participation, willingness to contribute, and your initiative are paramount to having a successful
and enjoyable learning experience. We aim to develop a spirit of camaraderie and team learning
that will unite us as a diverse community of learners.

**ALL COURSE WEBSITE INFORMATION: will be found on My Charleston, OAKS,
CONTENTS: all will be PDFs (due to space issues), + some Voice Thread videos,
communications notes, notices, Youtube videos etc. and Poll everywhere for class
quizzes, attendance and OAKS quizzes etc. (see below).**

You are, therefore, responsible for ALL the information on OAKS/hand-outs/videos questions etc. in the Spring 2020 BIOL-111 course, which will be the basis for its quizzes, exams and final questions.

OAKS: (enter <http://my.cofc.edu> and click on the link to OAKS). Check daily (for BIOL111 section 02) for information, updates and uploaded documents, study guides, lecture slides (posted after the class presentation), the syllabus, etc.

COURSE DESCRIPTION: Introduction to Cell and Molecular Biology is a foundation course for likely science majors emphasizing critical thinking skills, and the concepts of structure, and function in biological systems at the molecular, and cellular levels. Topics include the scientific process, biochemistry, molecular biology, cell structure and function, respiration, photosynthesis, Simple cell – cell communications and genetics. Completion of this class and the associated laboratory meets a General Education requirement.

PRE-REQUISITES: None. Biology 111 Laboratory is a **co-requisite**, unless students already have credit for the laboratory portion of the course.

STUDENT LEARNING OUTCOMES:

- This general education science sequence provides a background for understanding and evaluating contemporary topics in biology. Students develop a foundational understanding of core biology concepts to use, and on which to expand in upper level courses. They also develop the critical competencies that form the bases for the practice of science, and use of scientific knowledge.

More specifically,

1. Students will be able to identify the different biological molecules and their functions in living organisms
2. Students will become familiar with the diversity, structure, and function of cellular organelles
3. Students will comprehend how living organisms acquire energy from the environment and how energy is converted into different forms through processes of photosynthesis, cellular respiration, and fermentation
4. Students will demonstrate an understanding of cell division including both mitosis and meiosis
5. Students will demonstrate understanding of the basics of Mendelian genetics
6. Students will demonstrate an understanding of the mechanisms of DNA replication, RNA transcription, and RNA translation.

MY EXPECTATIONS: My personal goal is to help you to grasp the beauty, and hopefully, you can even fall in love, with the fantastic and fascinating world of biology for the rest of your life. It happened with me (as well as the entire faculty in the Biology Department) and I hope you will catch the Biology bug as well. Even more important, BIOL-111 will definitely assist you to understand well about some of the basic core principles in Biology that will be very important with many of your future biological courses as well. Some of the course's material can be packed with data, and even be challenging, and it may take considerable effort on your part to keep up. However, always be positive, and seek help if you are struggling (sooner than later), and remember all Biologists everywhere all started with BIOL-111, so it cannot be that bad....

- Students should plan to log into Oaks at least 3 times per week.
- **Students should dedicate 6+ hours per week outside of class to be successful i.e. a minimal of 9 hours a week to get a good grade.**

- Our class should be interactive and engaging with group discussions etc. in class .
- There are weekly obligations that you have to do: quizzes, Poll Everywhere, OAKS or exams.
- **Procrastination hurts - the course builds and snowballs if you are behind, so.**
- **Ask for help early and often. Don't wait until you feel overwhelmed, and if you want to see me on the last week of the semester requesting extra credit etc., I cannot help you because all students in the this course (and the College) will be treated EQUALLY.**



REQUIRED MATERIALS: Biological Science 7th edition by Freeman *et al.* (Paper or eText versions). You can buy it, rent it, get the ebook, borrow it?, or share it with a classmate or several classmates if you work together, to reduce costs, but you **MUST have access to this textbook to be successful!**

You will also need it for BIOL-112 (and BIOL-211 later) so try and keep the book (as it is also a great reference book for all the later more advanced biological courses as well). Use the text and figures to preview and to reinforce what you are learning in class. There are many self-quizzes that can be great study guides in the book, as well as a variety of web

links to help you understand the material even better. So, there is a lot of material to cover in this course, so keep up with the reading and if get behind, definitely go to SI sessions (more the better) or see me. Also access to **MasteringBiology with the textbook/website**. The textbook details are: ISBN-13: 978-0-13-467832-0; ISBN: 0-13-467832-X. The International Standard Book Number is a unique numeric commercial book identifier.

So, beware of the costs of these textbooks.

- **CofC Bookstore:**


 A "Package Component" is a title that is part of a required course materials package for your course. Be careful not to buy both the complete package and components separately.

Image Not Available	<p>BIOLOGICAL SCIENCE <small>PACKAGE COMPONENT By FREEMAN</small></p> <p>EDITION: 7TH 20 PUBLISHER: PEARSON ISBN: 9780134678320</p> <p>BOOK NOTES: Your instructor would like you to choose either this title or one with this same message</p>	<p>from \$59.99 - \$260.00</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">RENT USED <small>(Return by 04/29/2020)</small></td> <td style="text-align: right; padding: 2px;">\$122.20</td> <td style="text-align: right; padding: 2px;">SAVE 53%</td> </tr> <tr> <td style="padding: 2px;">RENT NEW <small>(Return by 04/29/2020)</small></td> <td style="text-align: right; padding: 2px;">\$176.80</td> <td></td> </tr> <tr> <td style="padding: 2px;">BUY USED</td> <td style="text-align: right; padding: 2px;">\$195.00</td> <td></td> </tr> <tr> <td style="padding: 2px;">BUY NEW</td> <td style="text-align: right; padding: 2px;">\$260.00</td> <td></td> </tr> <tr> <td style="padding: 2px;">RENT DIGITAL</td> <td style="text-align: right; padding: 2px;">\$59.99</td> <td></td> </tr> <tr> <td style="padding: 2px;">BUY DIGITAL</td> <td style="text-align: right; padding: 2px;">\$89.99</td> <td></td> </tr> </table> <p><small>Savings calculated off the new book price</small></p>	RENT USED <small>(Return by 04/29/2020)</small>	\$122.20	SAVE 53%	RENT NEW <small>(Return by 04/29/2020)</small>	\$176.80		BUY USED	\$195.00		BUY NEW	\$260.00		RENT DIGITAL	\$59.99		BUY DIGITAL	\$89.99	
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Amazon:

- https://www.amazon.com/Biological-Science-Scott-Freeman-ebook-dp-B01DV7D104/dp/B01DV7D104/ref=mt_kindle?_encoding=UTF8&me=&qid=1578328810, ver. 6
- https://www.amazon.com/Biological-Science-7th-Scott-Freeman/dp/013467832X/ref=sr_1_1?keywords=freeman+biological+science+7th+edition&qid=1578328969&sr=8-1, ver 7

HOW TO SUCCEED IN THIS COURSE:

- 1) please read the text well either before or immediately after the class abundant class,
- 2) take many, many descriptive notes from the lecture and
- 3) success absolutely requires you re-write your notes no later than 1-2 days after the class, and again over the weekends. If it helps you, many moons ago, when I was a student, I took many notes in class and then re-wrote everything (with help with the book) many times again. So by the time I was to take an exam or the final, I ended up with about 12 index cards of small font words etc. which I read constantly just before the test, that allowed me to remember these facts for the one or three hour exams. The trick is to make many notes, and at the same time of learning new information in the next lectures, you need to refine more and more your earlier notes (and a lot of repetition). So, at the end of the module or the semester, you only need a hint to remember, rather than continually rechecking all the class's details because you now you have learned the facts and seeing the big picture. Try working with small groups of other students as well, as several brains are far better than one. See your SI leader frequently, and see me in my three office hours per week if you need help.

I DON'T WISH TO TAKE ATTENDANCE in this class because if you decide to not come to class very frequently, I reckon based on decades of CofC's historical data, if you do not come to class, you will have a bad grade at the end of the semester or even an F. This is true not fake news. Anyway, we will be using Poll everywhere in nearly every lecture, so I can see if you were in the class or not. The College has an attendance-verification procedure to make sure that every student has been in the class at least once at the beginning of the classes. (<http://academicaffairs.cofc.edu/procedures-and-practices/attendance-verification/index.php>)

All faculty must verify "attending" or "never attended" during the two weeks following Drop/Add by taking **regular attendance**. This is intended to identify and remove from the roll any student who has never once attended your course. You will have one week to enter this information. For faculty not in the habit of taking attendance, you may elect to use so as identifying students who have never once attended.

Spring Attendance Verification Opens: Wednesday, January 29, 2020*

Spring Attendance Verification Deadline: NOON on Wednesday, February 5, 2020*

Therefore, I will give a failing grade (WA: Failure due to excessive absences [equivalent a F grade] if a student earns too many excessive absences equaling more than 15% of class meetings or 2 weeks of class (15% of total classes meeting 3 x weekly = 6 absences; 2 x weekly = 4 absences; 1 x weekly = 2 absences). Students are responsible for meeting specific attendance requirements outlined in each course syllabus, and I never wish to give a WA to a student but this is in hour hands, not mine due to the 15% absences.

To be clear, if that study is ill (temporally or more serious), documentation will be needed to be excused. No documentation means only absences.

Most likely, some of you will blame me for alot of different things at the end of this semester, if I am guilty or not, but if you do not come to class, and get a bad grade or a WA at the end, don't blame me because you did come.

The College of Charleston offers supplemental instruction (SI) for courses with especially high attrition class rates (i.e., 25% or more of enrollees typically earn grades of D, F, or must withdraw). There are only 10 courses at CofC that fit into this category!, so don't be surprised that BIOL 111 IS CONSIDERED ONE OF THE MOST DIFFICULT COURSES ON CAMPUS!

You will have a great SI instructor, **Peyton Russell**, who was a student in my Cell Biology class in Fall 2018, with an excellent grade. I hope he can talk to the class in the week Jan 13 – 17 to provide you more information about how this program works – I will let you know when. The SI program is provided by the Center for Student Learning. For more information regarding these services please visit the CSL website at <http://csl.cofc.edu>. You can also take advantage of the Science Tutoring Lab, which offers help with Biology courses (see <http://csl.cofc.edu/labs/science-lab/index.php>). I, therefore, encourage you to utilize the Center for Student Learning's (CSL) academic support services for assistance in study **strategies, speaking & writing strategies, and course content**. Students of all abilities have become more successful using these programs throughout their academic career and the services are available to you 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.

ACCOMODATING DISABILITIES: The college and professor will make reasonable accommodations for students with documented disabilities to complete any of the reading, speaking, or writing requirements of the class. Students should see the Center for Disability Services/SNAP and **notify the professor as soon as possible** so that we can make necessary arrangements. The college has an excellent **Center for Disability Services or in short: SNAP** (<http://disabilityservices.cofc.edu/>) for students struggling with stress, and a host of other issues, and if you are not a “SNAP student, which is determined by a rigorous set of tests, it can still help you a lot in finding help and controlling anxiety. This is common with a feeling of panic at exam times, and you are welcome to talk with the SNAP office or even me, so as to find the instructions and connections to College professional experts.

Obviously if you are ill etc. for an exam etc. go and see the Student Health Services (<http://studenthealth.cofc.edu/>) at the College because they can help you and more importantly for me as they email me with an excuse for you if you missed a quiz, exam. This is the same as your doctor because If I do not receive proof that you missed a class, you will not be excused, meaning there will be no make up of your missing quiz / exam. You cannot make up exams / final without a valid excuse approved by the Office of Student Affairs <http://studentaffairs.cofc.edu/contact-us/index.php>.

With an electronic or paper excuse letter, when to are feeling better, we can set up a make up quiz/exam. If you are ill, and contagious, please do not come to class, see your doctor or the student health clinic rather coming to class and everyone will be ill – when you are better, we can make up the missing time.

QUIZZES: There will be a planned quiz per week on OAKS over the weekend for 2 to 3 questions and a single poll everywhere question in the each class except for the first class and exam days. These quiz questions will be a mix of both class material questions, vocabulary and biotechnology methods (BIOSKILLS) – announced before on OAKS . Each quiz will be 2 points (pts.) per question for a total of +/- 140 pts. for the semester (indicated below) plus 15 extra credit pts. (1 EC points per week) resulting a max. of 140 pts. and the chance of gaining an additional 15 pts. (15 weeks). All quizzes will be announced on OAKS.

EXAMS: There will be 3 exams, each for 100 points each, plus an extra credit point at 2 pts. each exam i.e. 2 EC points in total per exam = 300 + EC 6 points.

EXAM 1: FRI FEB 7th 2020,

EXAM 2: MON MAR 9th 2020 and

EXAM 3: FRI APRIL 17th 2020.

These dates can be changed but only by majority class vote, weather etc.

CUMULATIVE FINAL: 150 points, and 2 EC questions = 4 pts., 3 hours max.

FRIDAY, APRIL 24th 2020 in RITA 101 from 4 – 7pm.

In short: 140 Quizzes + 300 Exams + 150 Final pts. = 590

+ a possible 15 + 6 + 4 = 25 extra credit pts.

Your FINAL GRADE is determined as a percentage (%) of your totally collected correct points of a maximum of 590 points. So a minimal A grade would be 92.9 % out of 100% or higher, i.e. 548 of 590 pts. etc. but 92.8% out of 100% = 547.50 will be an A- etc.

A	93-100 min. 548 pts.		C	73-76 min. 431 pts.
A-	90-92 min. 531 pts.		C-	70-72 min. 413 pts.
B+	87-89 min. 513 pts.		D+	67-69 min. 396 pts.
B	83-86 min. 490 pts.		D	63-66 min. 371 pts.
B-	80-82 min. 472 pts.		D-	60-62 min. 354 pts.
C+	77-79 min. 454 pts.		F	0-59 Failing grade below 354 pts ...

EXAM SCHEDULE: <https://registrar.cofc.edu/pdf/exam-schedule-spring2020.pdf>

Spring 2020 Exam Schedule (Subject to Change)

Exam Times	Thursday April 23	Friday April 24	Saturday April 25	Sunday April 26	Monday April 27	Tuesday April 28	Wednesday April 29
8:00am- 11:00am	Reading Day 8:00am – 4:00pm	MWF 9:00am 9:30am	TR 9:25am 9:55am	Reading Period	MWF 10:00am 10:30am	TR 10:50am 11:20am	MWF/MW 2:00pm 2:30pm
12:00pm- 3:00pm		MWF 8:00am 8:30am	TR 8:00am 8:30am	Math all 101,111 Exams	MWF 3:00pm 3:30pm MW 3:25pm	TR 7:05am	MWF 7:30am
4:00pm- 7:00pm		MWF 11:00am 11:30am	TR 12:15pm 12:45pm	TR 3:05pm 3:35pm 4:00pm	MWF 1:00pm 1:30pm	TR 1:40pm 2:10pm	MWF 12:00pm 12:30pm
7:30pm- 10:30pm	I/D	MWF/MW 4:00pm	G/J	ONLINE EXAMS	E /A	H/B	F/C

QUIZZES/EXAMS/FINAL INSTRUCTIONS.

- During the exams, I will only answer clarification questions.
- Cell phones, I-Pads, or laptops cannot be used in the quizzes, exams or finals and your phone must be **TURNED OFF** (mine will be on for any important College notices) and they should be put away in bags, back packs etc. in these situations.
- If you need to use the restroom, do not take your cell phone

- Exams may consist of multiple choice, short answer, and/or define questions. The questions will come from course material covered in class discussions, OAK PDFs, and readings.
No notes or books are allowed ever

COLLEGE OF CHARLESTON HONOR CODE AND ACADEMIC INTEGRITY

Lying, cheating, attempted cheating, and plagiarism are violations of our Honor Code

Students can find the complete Honor Code and all its very negative related processes if you are guilty, so check out the *Student Handbook* at

<http://deanofstudents.cofc.edu/honor-system/>. I am not an expert in this field but I believe if you are caught and sentenced, I have heard (and I hope I am wrong) that federal law bans you for having a job in any of 50 US states for a min. 2 years before you can appeal. Luckily this should be vary rare, but always remember that cheating will catch up you eventually, and it is just not worth it Take pride in your achievements and your hard work, rather than heading to the dark side of life. ..

CofC's Spring 2020 Calendar.

<https://registrar.cofc.edu/calendars/ac-2020spring.php>

A VERY TENTATIVE LECTURE SCHEDULE (weather, illness etc.).

The course material will be divided into three (3) modules (see Schedule below).

Each module we will have the following:

- There will be 11, 12 and 13 lectures between the exams (see above and below).
- Reading Read relevant material in each chapter thoroughly as they will enormously supplement your understanding of the materials in the lectures.

	Date	Lecture Topic	Chapters in text
W	08-Jan	Introduction, Cell theory and Prokaryotes Spring full semester and Express I classes begin.	1, 7.1
F	10-Jan	Introduction, Cell theory and Eukaryotes +tree of life	1
M	13-Jan	Chemistry and Chemical Bonds	2
W	15 -Jan	Chemistry and Chemical Bonds end Last day of Drop/Add for full semester classes.	2
F	17-Jan	Chemical Bonds, Water	2
M	20-Jan	Martin Luther King, Jr. Holiday, observed. No classes. College closed.	
W	22-Jan	pH, buffers, thermodynamics	2, 8.1-8.2
F	24-Jan	Lipids	6.1-6.3
M	27-Jan	Proteins	3
T	28-Jan	Last day for faculty to submit Individual Enrollment and Bachelor's Essay applications to the Registrar's Office for all full semester, Express I and Express II classes.	
W	29-Jan	Membranes, diffusion and osmosis Attendance Verification for faculty opens in MyCharleston via Final Grades.	6.4
F	31-Jan	No class (doctor appointment).	
M	03-Feb	Membranes end, Passive and active transport across membranes	6.4

W	05-Feb	Enzymes Attendance Verification for faculty closes at noon.	8.3-8.5
F	07-Feb	EXAM #1, Introduction to Membranes.	
M	10-Feb	Cellular Respiration, Oxidation-Reduction Reactions	9, 8.2
W	12-Feb.	Cellular Respiration, Glycolysis and the Citric Cycle	9
F	14-Feb	Cellular Respiration, Electron Transport Chain + ATP	9
S	15-Feb	Designated Storm Make-Up Day (SD*).	
M	17-Feb	Photosynthesis, Light Reactions	10
W	19-Feb	Photosynthesis, Calvin Cycle and Hydrothermal Vents.	10
F	21-Feb	Carbohydrates	5
M	24-Feb	Intro to Cell - Cell interactions	11
W	26-Feb	Cell Cycle Full semester Mid Term and Express I final grading open to faculty.	12
F	28-Feb	Cell Cycle, Cancer, Stem cells and Mitosis	12
M	02-Mar	Mitosis	
W	04-Mar	Mitosis and Meiosis	12, 13
F	06-Mar	Meiosis Full semester Mid Term and Express I final grades due at noon.	13
S	07-Jan	Full semester Mid Term and Express I final grades available to students on MyCharleston by this date.	
M	09-Mar	EXAM #2, Enzymes to Mitosis	
W	11-Mar	Genetics	14
F	13-Mar	Genetics Last day for students to withdraw with a grade of "W" from full semester classes. NOTE: Holds placed by the Treasurer's Office will prohibit students from being able to withdraw in Banner Self-Service. Students should settle the hold with the Treasurer to be able to withdraw online or contact the Registrar's Office by this deadline to withdraw. Maymester and Summer Sessions registration begins for College of Charleston students.	14
S	14-Mar	WA (Failure Due to Excessive Absences) form may now be submitted by faculty for full semester classes.	
		SPRING BREAK Mar 15 – Mar 22, No classes all week.	
M	23-Mar	Classes resume. Nucleic Acids and Polymerization	4
W	25-Mar	DNA Replication	15
F	27-Mar	Transcription	16, 17
M	30-Mar	Transcription	16, 17
W	01-Apr	Ribosomes and Translation	16, 17
F	03-Apr	Ribosomes and Translation	16, 17
M	06-Apr	Regulation of Gene Expression in Prokaryotes Spring 2020 Full Semester and Express II Course-Instructor Evaluations open.	18
W	08-Apr	Regulation of Gene Expression in Eukaryotes	19
F	10-Apr	Regulation of Gene Expression in Eukaryotes	19
M	13-Apr	Biotechnology and the future	20

W	15-Apr		Mini Genes, Development and Development	21
F	17-Apr		EXAM #3, Meiosis to Regulation of gene expression	
M	20-Apr		Course Review	
W	22-Apr		Course Review and last class of SPRING 2020. Last day of full semester and Express II classes. Only classes that normally meet on Monday should meet on this date.	
R	23-Apr		Reading Day, Course review if requested. Reading Day / Designated Storm Make-Up Day (SD).	
F	24-Apr		CUMULATIVE FINAL EXAM, 4 – 7pm in RITA 101 First day of full semester and Express II final exams.	
	29-Apr		Last day of Full semester and Express II final exams. Spring 2020 Full Semester and Express II Course-Instructor Evaluations close.	

M, May 4	<p>Full semester and Express II final grades due at noon. Faculty must submit a Change of Grade form after the noon deadline.</p> <p>Final grades for full semester and Express II classes available to students on MyCharleston after 5 p.m.</p>
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M, July 6	Last day for students to submit incomplete undergraduate coursework to faculty for any Spring 2020 class (Spring 60 Day Deadline). Change of grade form to be submitted by faculty.
M, July 13	Undergraduate missing and incomplete grades for Spring 2020 sessions convert to a grade of "F".

Please read and understand this tentative syllabus. Let me know of any major mistakes and I suggest we talk on F Jan 10 for any questions.