

Biology 124 Syllabus Spring 2022



South Portland, Maine 04106

Biology Department

Title: Biology 1

Catalog Number: BIOL – 124-01

Credit Hours: 4

Total Contact Hours: 45

Lecture: T 6pm – 9pm

Lab: Th 6pm – 7:50 pm

Office Hours: Meetings can be arranged by student via email

Instructor: Olivia Streit

Contact Info: ostreit@smccme.edu

Course Syllabus

Course Description:

Bio 124 is the first semester of a two-semester Biology sequence intended for biology/science majors or students looking to transfer laboratory science credits. Biology I focuses on the molecular aspects of biology, cell structure and function, homeostasis, energy transformations, and genetics. This laboratory component is intended to provide students with experiential learning in support of concepts and principles introduced in the lecture class. Prerequisite(s): MATH-030, ENGL-050 or ENGL-090 and ENGL-075 or ENGL-095 Corequisite(s): none

Course Objectives: SMCC students recognize the methodology and content of science and its relevance, and be able to demonstrate an understanding in the following topics:

1. Apply scientific methodology to the study of the natural world.
2. Participate in hands-on and interactive lab activities.
3. Demonstrate the ability to make scientifically-informed decisions.
4. Understand biological molecules and their function in the cell
5. Understand metabolism including photosynthesis and respiration
6. Understand cell theory and the structure of prokaryotic and eukaryotic cells
7. Understand structure and replication of DNA
8. Protein synthesis and gene expression
9. Understand signal transduction and gene regulation
10. Understand Mendelian genetics

After successfully completing the course, the student will be able to:

- Understand the scientific method
- Research the scientific literature
- Understand sources of error
- Use basic statistics to analyze data
- Present data in written or poster and oral formats
- Practice standards of lab safety
- Use basic biological lab equipment
- Understand and use basic lab math

Topical Outline of Instruction

- Scientific Method
- Biology basics: Cell theory, evolution, taxonomy
- Basic chemistry (atoms) and Biochemistry (organic molecules)
- Chemical evolution
- Cellular structure and function
- Cellular respiration
- Fermentation
- Photosynthesis
- Cell cycle (mitosis and meiosis)
- Mendelian genetics
- DNA synthesis
- Protein production
- Viruses
- Gene expression

Student Evaluation and Grading:

3 exams (45% of total grade)

1 Bibliography - APA format (2% of total grade)

1 journal article critique (6% of total grade)

1 literature review (15% of total grade)

14 elab notebook entries (14%)

2 lab quizzes (8% of total grade)

11 lecture quizzes (10% of total grade)

Course Requirements:

Text, Tools and / or Supplies:

- Computer compatible with Brightspace
- Calculator
- Textbook: **Modified Mastering with Access code Campbell Biology 12th ed.** Lisa A. Urry, Michael L. Cain, Steven A. Wasserman, Peter V. Minorsky, Rebecca Orr, Campbell Biology, 12th edition, Published by Pearson (July 13th 2021) - Copyright © 2021

NOTE: Textbook: Campbell Biology with Mastering (required), with Access code: You may purchase this textbook through the SMCC bookstore or Pearson Publishing directly. Do not purchase from any other source, as the access code may not function for this course. If you would prefer to keep the textbook or plan on taking Biology 2, I recommend choosing an option that includes the Loose-leaf version on the text.

Attendance Policy

Attendance in lab and lectures will be recorded.

End-of-Course Evaluation

Students complete evaluations for each course attended at SMCC. Evaluations are submitted online and can be accessed through the student portal. Students can access the course evaluations beginning one week before the end of classes. The deadline for submission of evaluations occurs Monday at 5 p.m. following the last day of the class. You will receive an e-mail to your student e-mail account when course evaluations are available.

For Classes with any Face- to -Face Component

While the syllabus represents current plans, there may be changes during the semester in response to the on-going Covid-19 pandemic. Depending on the progression of the virus, it is possible that the College may have to suspend face-to-face instruction for part of the semester. If we must stop face to face instruction anytime during the semester, your instructor will contact you via your SMCC email or the Brightspace course homepage to discuss next steps for the course.

ADA Statement

Southern Maine Community College is an equal opportunity/affirmative action institution and employer. For more information, please call (207) 741-5798. If you have a disabling condition and wish to request accommodations in order to have reasonable access to the programs and services offered by SMCC, you must register with the Disability Services Coordinator, Sandra Lynham, who can be reached at 741-5923. Further information about services for students with disabilities and the accommodation process is available upon request at this number. Course policies about online testing are modified to suit each individual's accommodations.

The Learning Commons:

The library, tutoring and writing centers, and reference/research assistance (typically located on the second floor of South Portland's Campus Center and in the Midcoast's LL Bean Learning Commons and Health Science Center) will be fully available online during the **fall 2021** semester.

Here you can find free academic support through individually scheduled and drop in, online tutoring. You can also find information literacy/research librarians, and professional academic strategy/planning mentoring online. While the physical space of the Learning Commons will be available at this time, we can also work with you to set up zoom classrooms for small group study. Services are offered by appointment or as drop-in assistance.

To access services:

- Visit My Learning in My Maine Guide or
- Select the "tutoring needed or need help?" button if it appears inside your Brightspace course.

Whether On Site or Online, students have consistently reported that the Learning Commons is a friendly, risk-free, and helpful place to seek academic support. It has also been shown that those who make use of the Learning Commons do better in a course than those who do not. We strongly encourage you to take advantage of this valuable and enjoyable resource.

SMCC Pay-for-Print Policy

Each semester students receive a \$20 printing credit. The balance resets at the end of the semester and any remaining credits are removed. The College's pay-for-print system monitors printing on all printers (including those in general access labs, library printers, Tutoring Services, Campus Center Lounge and technology labs). Be sure to log OUT of the system when you've finished your printing, to prevent unauthorized access to your account. Students can check the number of pages they have printed by using the Printing Balance tool available on SMCC computers (located in the lower right corner of the screen, near the clock). Departments with work study students who need to print documents for the department should contact the Help Desk at 741-5696 to have a special account set up. To find ways to reduce your printing charges, please go to the IT Help tab on My SMCC. If you have questions about the pay-for-printing policy or your printing charges, please contact the Help Desk at 741-5696 or send an e-mail to helpdesk@smccme.edu.

Refunds

Print jobs are eligible for a refund in the event of mechanical or electronic error on the part of the printer, print server, or software used to submit the job. Jobs are not eligible for a refund in cases where the job was not set up correctly, was submitted multiple times, or the student is not satisfied with the result. To request a refund, please bring the offending print to the IT Department in the basement of the Ross Technology Center. Refunds will be granted in the form of a credit to the student's account.

Add-Drop Policy

Students who drop a course during the one-week “add/drop” period in the fall and spring semesters and the first three days of summer sessions receive a 100% refund of the tuition and associated fees for that course. Please note any course that meets for less than the traditional semester length, i.e., 15 weeks, has a pro-rated add/drop period. There is no refund for non-attendance.

Withdrawal Policy

A student may withdraw from a course only during the semester in which s/he is registered for that course. The withdrawal period is the second through twelfth week of the Fall and Spring semesters and the second through ninth week of twelve-week Summer courses. This period is pro-rated for shorter-length courses, usually 75 percent of course meeting times; please check with the Registration Office. To withdraw from a course, a student must complete and submit the appropriate course withdrawal form, available at the Registration Office. This process must be completed either in person or by using SMCC e-mail accounts.

Plagiarism Statement

If an instructor suspects that a student has knowingly committed a violation defined in the Maine Community College System Policy on Student Grade Appeals and Academic Misconduct, the instructor has the authority to review the alleged misconduct and determine the grade that the student should receive for the assignment and the course. The instructor may assign a failing grade for the assignment or course and may require the student to complete additional work for the course. The instructor may consult with the department chair and/or the College’s chief academic officer prior to making such decisions. If a student seeks to challenge an instructor’s determination, the student should submit a grade appeal. Grade appeal forms are available in the Advising Office on the South Portland Campus or in the administrative offices in the Learning Commons on the Midcoast Campus. An instructor may also refer the matter to the College’s disciplinary officer for review under the procedures of the MCCS Student Code of Conduct

Missed work:

It is up to each student to contact me regarding missed work. If you miss a due date for any assignment/quiz for any reason you may still submit late work, however there will be a **five point deduction for every day it is late**. If you miss an exam or a quiz during scheduled time, you must email me as soon as possible, to arrange an alternative time to take exam. Depending on reason for missing exam there may be late point deductions taken from overall exam/quiz score. For any work not submitted students will receive a grade of 0. Partial credit will be given for incomplete work.

Academic failure (grade of “AF”):

1. An Administrative Failure (a final grade of AF) identifies students who have stopped attending class and who have had no contact with the faculty member for a period in excess of one week. A student may be administratively failed after missing one more consecutive class meeting than the number of class meetings per week (4 for a class that meets three times a week, three for a class that meets twice a week, two for a class that meets once a week).

2. A grade of AF is submitted to the Registrar immediately after the third consecutive absence. Basically, an AF grade drops the student from the course. The student may then contact the instructor to request reinstatement in the course. Reinstatement is at the instructor's discretion and is generally not granted because too much work has been missed by that time.
3. An AF student can contact the Registrar and request that the grade be changed to "W" (withdrawn) if done before the final drop date. Students earning an AF are still financially responsible for the course.

Early Alert and Academic Alert:

1. The first four weeks of the semester is the "Early Alert" period. Student progress is monitored closely during this time. The 5th through the 9th week is the "Academic Alert" period. Student progress continues to be monitored during this time, essentially halfway through the semester. These alerts raise students' awareness about their performance.
2. If your overall course grade is below a C at the end of either the Early Alert or Academic Alert period, you will be assigned a grade of "U" (unsatisfactory) and your advisor will be notified. Your advisor will notify you about scheduling a meeting to discuss strategies for improvement. Think about specific ways you can improve your performance and take these ideas with you to the meeting.
3. If your overall course grade is C or above (satisfactory), no grade will be assigned and your advisor will not notify you.
4. These alert grades do not change. They do not become part of your permanent record and no other schools have access to them. They only reflect your performance for those time frames. However, these grades DO eventually affect your final course grade, of course, because your course grade continues to change as the semester progresses and you complete more work. Your final course grade may be different from your Early Alert and Academic Alert grades, *i.e.*, higher, lower, or the same, depending on your performance. You should calculate your grade often and know where you stand (see "Figuring out your own grade at any time during the course," below).

Grading scale (standard SMCC grade scale):

100-93 = A
92-90 = A-
89-87 = B+
86-83 = B
82-80 = B-
79-77 = C+
76-73 = C
72-70 = C-
69-67 = D+
66-63 = D
Below 63 = F

Bio I : lecture and lab syllabus

<u>Week</u> date	<u>Topics</u>	<u>Due dates- Sundays at 11:59pm</u>
Week 1 1/16 – 1/22	<ul style="list-style-type: none"> • Assigned textbook readings • Exam dates • Assigned lab <p>Topics: Introduction; Themes: evolution, emergent properties, structure and function, cell theory, DNA, feedback; scientific inquiry</p> <ul style="list-style-type: none"> • Read Chapter 1 • Lab 1 - Introduction: How to write a figure, how to write a lab notebook, statistics 	<p>All assignments due by Sunday 1/23 11:59pm</p> <ul style="list-style-type: none"> • Assignments • Writing assignments <ul style="list-style-type: none"> • Quiz 1 • Elab notebook entry 1
Week 2 1/23 – 1/29	<p>Topics: Elements, molecular structure, chemical bonds, unusual qualities of water.</p> <ul style="list-style-type: none"> • Read Chapters 2-3 • Lab 2 - Microscope: with FOV worksheet. 	<p>All assignments due by Sunday 1/30 11:59pm</p> <ul style="list-style-type: none"> • Quiz 2 • Elab notebook entry 2
Week 3 1/30 – 2/5	<p>Topics: Carbon; functional groups; carbohydrates, lipids, proteins, nucleic acids Membranes, transport, osmosis</p> <ul style="list-style-type: none"> • Read Chapters 4-5 • Lab 3 - Osmosis/pH: w/ solutions and dilutions worksheet 	<p>All assignments due by Sunday 2/6 11:59pm</p> <ul style="list-style-type: none"> • Quiz 3 • elab notebook entry 3
Week 4 2/6 – 2/12	<p>Topics: Cell structure and function, Endomembrane system</p> <ul style="list-style-type: none"> • Read Chapters 6-7 • Lab 4: Biochemistry: enzyme response to heat and specificity 	<p>All assignments due by Sunday 2/13 11:59pm</p> <ul style="list-style-type: none"> • Quiz 4 • elab notebook entry 4
Week 5 2/13 – 2/19	<p>EXAM 1 Covers textbook chapters 1-7</p> <p>Topics : Mitochondria, ATP</p> <ul style="list-style-type: none"> • Read Chapter 8 • Lab 5 - Cellular respiration: (metabolism) 	<p>All assignments due by Sunday 2/20 11:59pm</p> <ul style="list-style-type: none"> • elab notebook entry 5

<p>Week 6</p> <p>2/20 – 2/26</p>	<p>Topics: Cellular Respiration / fermentation</p> <ul style="list-style-type: none"> • Read Chapter 9 • <u>Lab 6 - Photosynthesis</u> (Metabolism) 	<p>All assignments due by Sunday 2/27 11:59pm</p> <ul style="list-style-type: none"> • Quiz 5 • Bibliography assignment • elab notebook entry 6
<p>Week 7</p> <p>2/27 – 3/5</p>	<p>Topic: Chloroplast, photosynthesis</p> <ul style="list-style-type: none"> • Read Chapter 10 • <u>Lab 7 - Math skills</u> and review 	<p>All assignments due by Sunday 3/6 11:59pm</p> <ul style="list-style-type: none"> • Lab Quiz 1 (labs 1-7) • elab notebook 7
<p>Week 8</p> <p>3/6 – 3/12</p>	<p>Topic: Cell cycle: mitosis</p> <ul style="list-style-type: none"> • Read Chapter 12 • <u>Lab 8 – Mitosis</u> 	<p>All assignments due by Sunday 3/13 11:59pm</p> <ul style="list-style-type: none"> • Quiz 6 • elab notebook entry 8
<p>3/13 – 3/19</p>	<p style="text-align: center;">Spring Break No Class</p>	
<p>Week 9</p> <p>3/20 – 3/26</p>	<p>Topic: Meiosis, life cycles</p> <ul style="list-style-type: none"> • Read Chapter 13 • <u>Lab 9 - Meiosis</u> 	<p>All assignments due by Sunday 3/27 11:59pm</p> <ul style="list-style-type: none"> • Quiz 7 • elab notebook entry 9 • Peer reviewed journal article summary/critique
<p>Week 10</p> <p>3/27 – 4/2</p>	<p><u>EXAM 2</u> Covers chapters 8, 9,10, 12-13</p> <p>Topics: Mendelian genetics, Monohybrid and Dihybrid cross</p> <ul style="list-style-type: none"> • Read Chapter 14-15 • <u>Lab 10 - Mendelian Genetics</u> 	<p>All assignments due by Sunday 4/3 11:59pm</p> <ul style="list-style-type: none"> • elab notebook entry 10
<p>Week 11</p> <p>4/3 – 4/9</p>	<p>Topics: DNA synthesis, DNA repair, literature review discussion</p> <ul style="list-style-type: none"> • Read Chapter 16 • <u>Lab 11 - DNA barcoding:</u> DNA extraction 	<p>All assignments due by Sunday 4/10 11:59pm</p> <ul style="list-style-type: none"> • Quiz 8 • elab notebook entry 11

Week 12 4/10 – 4/16	<p>Topics: Central Dogma of molecular biology Transcription, translation, tRNA, rRNA, ribosomes,</p> <ul style="list-style-type: none"> • Read Chapter 17 • <u>Lab 12 - DNA barcoding:</u> PCR 	<p>All assignments due by Sunday 4/17 11:59pm</p> <ul style="list-style-type: none"> • Quiz 9 • elab notebook entry 12
Week 13 4/17 – 4/23	<p>Topics: protein production continued</p> <ul style="list-style-type: none"> • Read Chapter 17 • <u>Lab 13 - DNA barcoding:</u> electrophoresis 	<p>All assignments due by Sunday 4/24 11:59pm</p> <ul style="list-style-type: none"> • Quiz 10 • elab notebook entry 13 • Literature Review
Week 14 4/24 – 4/30	<p>Topics: Gene expression (lac operon), Viruses</p> <ul style="list-style-type: none"> • Read Chapters 18-19 • <u>Lab 14 - DNA barcoding:</u> Bioinformatics 	<p>All assignments due by Sunday 5/1 11:59pm</p> <ul style="list-style-type: none"> • Quiz 11 • elab notebook entry 14
Week 15 5/1 – 5/7	<p>Topics: Round Table discussion regarding Literature review topics, Biotechnology, Review</p> <ul style="list-style-type: none"> • Read Chapter 20 	<p>All assignments due by Sunday 5/7 11:59pm</p> <ul style="list-style-type: none"> • Lab quiz 2 (labs 8-14)
Week 16 5/8 – 5/12	<p><u>EXAM 3</u> Covering chapters 14-19</p>	