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South Portland, Maine 04106

SCIENCE DEPARTMENT

Title: **Biology with Lab for Non-Majors** Catalog Number: **BIOL 100**

Credit Hours: **4 Lecture/Lab** contact hours/ 75 Instructor: **Kevin Farrell**

E-mail: kfarrell@smccme.edu

Hours: **Before/After Class or by Appointment**

Course Syllabus

Course Description

BIOL 100 is a four-credit hour, one-semester survey course, designed to give students who are non-science majors a solid foundation in the basic principles and unifying concepts of biology. Students develop an understanding of science, the nature of scientific inquiry, and how evolution explains the unity and diversity of all life on Earth. The course focuses on common features that all organisms (living things) share, as well as their unique characteristics. The “basics” of living things are explored: their biochemistry, structure, classification, ecological role, genetics, and evolution. Prerequisites: ENGL 050, ENGL 075. Corequisite: MATH 050.

Course Objectives

After successfully completing this course, students should be able to:

1. **apply the scientific method of inquiry.**

2. **communicate** the relevance of science in society.
3. **describe** how evolution works as a theory to explain the unity and diversity of life.
4. **perform** hands-on and interactive lab experiments and activities using selected biology lab equipment and proper safety practices.

5. demonstrate a basic understanding of the following topics:

characteristics and basic classifications of life, biochemistry, metabolism, cells, genetics, and ecology.

Learning Outcomes

This course is intended to meet all the competencies of the SMCC Science Outcome and to introduce competencies of the Critical Thinking Outcome (more information at 'Learning Outcomes

– General Education' in the College catalog). **Topical Outline of**

Instruction

Characteristics and basic classifications of life: Domains of life, kingdoms of Eukarya, organizational levels of life

Biochemistry: Atomic structure, periodic table, compounds, water and pH, DNA structure, macromolecules (biomolecules)

Metabolism: Active transport, energy transference, cellular respiration, DNA replication, cell cycle, meiosis, protein synthesis, photosynthesis

Cells: Cell structure and function, cell types, cell cycle, meiosis

Genetics: DNA structure, chromosome structure, chromosome abnormalities, Mendel's work,

trait inheritance (dominant and recessive traits)

Ecology: Populations, communities, ecosystems, biomes, evolutionary theory

Student Responsibilities for this Course:

- **Assignments:** All assigned material will be completed BEFORE attending lecture or lab. Material covered during lecture and laboratory is the responsibility of the student; this includes arrangements for make-up work.
- **Communication:** As this is a web-enhanced course, students are required to use MySMCC to check for assignments and for messages to and from the instructor and classmates. Personal visits are always encouraged before and after class.

- **Behavior:** Classmates will be courteous and respectful to all members of the class; this includes avoiding disruptions by cell phones and not using cell phones during class during lectures or presentations.
- **Attendance:** Attendance will be taken at the beginning of each class to help track students' progress. Attendance usually does not affect final grades; however, the instructor has the option of failing students on the basis of excessive absences (e.g., consecutively missed classes).

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 not 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

Student Evaluation and Grading

Assignment	Due Date	Points
3 Lecture Exams – short answer	(see schedule below)	100
Final Project – 5 page research paper		15
Quizzes – in class		5
Class/lab participation, attendance – attendance necessary for participation in lab and class activities	As Needed	5
Lab responses – assigned in-lab and post-lab questions (informal reports)	Graded Weekly	5
Lab reports – 2 formal reports		15
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Teacher Evaluation

Students may evaluate the instructor online and anonymously by going to “Resources for Current Students” at the SMCC homepage and choosing “Evaluate Your Courses.”

Text, Tools and/or Supplies

Lecture Text

Online text: OpenStax Biology (free)

Laboratories by Instructor

Jan. /19	Fundamentals of Science & Basic Biological Concepts Chemical Foundations	Chapter 1: Chapter 2	
Jan. 24 Jan. 26	Chemical Foundations & Biochemistry	Chapters 2 & 3:	1/2 – The Scientific Method Chemistry of Life The Microscope 16
Feb. 2	Cell	Chapter 4	Prokaryotic and Eukaryotic Cells
Feb. 14	Exam #1		
Feb. 16	Cellular Respiration	Chapter 7	Cell Respiration Lab
Feb. 23	Releasing Energy for Life - Respiration		
Feb 28	Capturing Energy for Life - Photosynthesis	Chapter 8:	Photosynthesis Lab 7
Mar. 7	Exam #2		

Mar. 9	Cell Cycle, Mitosis, and	Chapter 9	Cell Cycle Lab A2-
Mar. 21	Cytokinesis DNA Structure	Ch. 13	Protein Synthesis
	DNA Replication DNA/RNA and Protein Synthesis no class 11/12	Ch. 14	
April 4	;Meiosis	Chapter 10	Meiosis Lab
April 11	Genetics	Chapters 11 Chapter 12	Blood Typing Lab
April 25	Exam #3		DNA Fingerprinting
April 27 May 2	Taxonomy/Speciation Selection and Speciation		Taxonomy Lab
May 4	Hardy-Weinberg Equations		
May 9,11	Retakes and Make-up		

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