SCOTTSDALE COMMUNITY COLLEGE
A MARICOPA COMMUNITY COLLEGE

Summer 2025

Course Information

Course Title:	Biology Concepts
Course Prefix & Number:	BIO 100
Section Number:	10769
Credit Hours:	4.0

Course Format

The course format for this course is asynchronous online with in-person exams.

Instructor Information

Instructor:	Neil A. MacKay, Ph.D.
Email:	Neil.MacKay@scottsdalecc.edu
Office Location:	NS 116
Office Hours:	Monday 8:00-8:50 a.m.
	Tuesday 8:00-8:50 a.m.
	Wednesday 8:00-8:50 a.m.
	Thursday 8:00-8:50 a.m.

Course Description

Introductory course covering basic principles and concepts of biology. Methods of scientific inquiry and behavior of matter and energy in biological systems are explored.

Prerequisites

There are no prerequisites.

Course Competencies

1. Describe and/or utilize the Scientific Method. (I)
2. Perform laboratory activities that demonstrate the principles of the scientific method which includes making observations, developing hypotheses, determining variables, collecting/analyzing data, reporting results and drawing conclusions. (I)
3. Describe the basic characteristics shared by all living things. (I)
4. Identify and describe the basic chemistry fundamentals involved in the structure and life processes of living things. (II)
5. Identify and describe the structure and functioning of cells. (III)
6. Analyze the processes of cellular metabolism and the related energy transformations, organic molecules and cell structures. (V)
7. Analyze the events and processes involved in inheritance. (VIII)
8. Describe and analyze the processes involved in the biochemistry of DNA and other biochemicals of genetics (including protein synthesis). (VIII)
9. Describe and analyze the processes that result in mutations. (VIII)
10. Identify and describe the importance of and the components of homeostasis. (VI)
11. Describe the arrangement and function of tissues, organs, and organ systems in multicellular organisms. (IV)
12. Describe and examine the various kinds of reproduction. (VII)
13. Identify and analyze the basic principles of ecology.
14. Describe and analyze the processes involved in evolution and their impact on all living things. (IX)
15. Identify and describe the basic concepts of taxonomy and how they relate to the classification of all living things. (X)

Texts, Course Materials and Technologies

The textbook for this course is available for free online: Concepts of Biology by Fowler, Rouse and Wise (https://openstax.org/details/books/concepts-biology). You will have readings associated with most lectures.

Course Policies

The following are policies specific to this course. Students are also responsible for the college policies included on the Student Regulations page of the Maricopa Community College District website.

Grading Standards & Practices

Grade Scale

Letter Grade	Points Range
A	90 – 100%
B	80 – 89%
C	70 – 79%
D	60 – 69%
F	0 – 59%

Your course grade is weighted as follows:

Module Activities	26%
Module Quizzes	14%
Midterm Exams (3)	40%
Final Exam	20%

A. **Module Activities**: As you proceed through a module, there will be many small activities that you will need to complete. There are points associated with these activities. Sometimes you will simply be awarded points for completing tasks, but usually the points will be awarded based on how well you answer the questions and complete the activities. **When you are completing these course activities, feel free to use your notes, the textbook, or any course webpages**. ***Even though this course is in on-your-own-time format, you need to keep up with the course, and I will set deadlines for when you should complete each module*** (see pages 6 and 7 of this document). Late work will receive partial credit

and work completed more than a week past the due date will not be accepted (zero credit).

B. **Module Quizzes**: Periodically during the course, there will be a quiz that tests your mastery of the course material covering a few modules. You should study for these quizzes, as they are challenging and unlike with course activities, **you cannot use your notes or any other resources when you are taking quizzes**. *Late work will receive partial credit and quizzes more than a week late will not be accepted*.

C. **Midterm and Final Exams**: Three midterm exams plus a final exam are **in person** on the SCC campus in room SL109 from 10:30 a.m.-12:00 p.m. for midterms, 10:00 a.m.-12:00 p.m. for the final exam. Dates for exams are shown on the course schedule (see pages 6-7 of this document). ***If you cannot make these exam times/dates, please email me right away so we can schedule something on campus that works for you.*** The comprehensive final exam includes new course material after Exam 3 as well as central principles from Exams 1-3. The format of the exam questions may be multiple choice, true/false, or matching. In accordance with the course objectives, you will be tested on your understanding of scientific reasoning as well as biological concepts. If you cannot attend an exam, please notify me as soon as possible so we can make other arrangements.

Response Time

Students can expect a response time of no longer than 24 hours for me to respond to messages sent via the Canvas Learning Management System or email. Students can expect assignments to be graded within one day of the assignment's due date.

Attendance Policy

Students need to keep up with the course. If a student does not take an exam, I will reach out to them. If they do not respond within a week, ***they may be dropped from the course***. If I student does not submit 3 or more lab modules, ***they will be withdrawn from the course***.

Instructional Contact Hours (Seat Time)

This is a 5-week four (4) credit-hour course. Plan to spend at least 13 hours on course content and an average of 22 hours on reading/studying/completing lab assignments weekly.

Tutoring

Students have access to free in-person tutoring or online tutoring through the SCC Natural Sciences Tutoring Center (https://www.scottsdalecc.edu/students/tutoring/natural-sciences-tutoring-center). The Natural Science Tutor Center is in the Natural Science Building (NS 107).

Campus map: https://www.scottsdalecc.edu/sites/default/files/inline-files/scc-campus-directory-map-web-2023xc0919.pdf

Natural Science building map: https://www.scottsdalecc.edu/locations/ns

Module, Module Quiz, or Exam	Topic	Release date (when available on CANVAS)	Due date (when it must be completed)
Zero week module	Orientation to course	May 23	May 29
Lecture and Lab module 1	Scientific Method	May 24	May 29
Lecture Module 2	Essential Chemistry	May 24	May 29
Lab Module 2	Molecules of Life	May 24	May 29
Module Quiz 1	*Lecture 1-2, lab 1-2*	*May 29*	*May 30*
Lab Module 3	Eat, Drink, and Feel Guilty	May 30	June 3
Lab Module 4	Enzymes	May 30	June 3
Lecture Module 3	Cells and Metabolism	May 30	June 3
Module Quiz 2	*Lecture 3, Lab 3-4*	*June 3*	*June 4*
Exam 1	**Lectures 1-3, Labs 1-4**	**In-person**	**June 4**
Lecture Module 4	Mendelian Genetics	June 5	June 9
Lab Module 5	How are Traits Inherited?	June 5	June 9
Lecture Module 5	Molecular Genetics	June 5	June 10
Lab Module 6	Mitosis and Meiosis	June 5	June 10
Module Quiz 3	*Lectures 4-5, Labs 5-6*	*June 10*	*June 11*
Exam 2	**Lectures 4-5, Labs 5-6**	**In-person**	**June 11**

Module, Module Quiz, or Exam	Topic	Release date (when available on CANVAS)	Due date (when it must be completed)
Lecture Module 6	Physiology: Cardiovascular System	June 12	June 16
Lab Module 7	Normal Cells, Problem Cells	June 12	June 16
Lab Module 8	Cardiovascular System	June 12	June 16
Module Quiz 4	*Lecture 6, Labs 7-8*	*June 16*	*June 17*
Lecture Module 7	Digestive and Nervous Systems	June 16	June 18
Lab Module 9	Visual Senses	June 16	June 18
Lecture Module 8	Immune System, Reproduction	June 16	June 18
Exam 3	**Lectures 6-8, Labs 7-8**	**In-person**	**June 18**
Lab Module 10	Classification of Organisms	June 19	June 23
Module Quiz 5	*Labs 9-10*	*June 22*	*June 23*
Lecture Module 9	Population and Community Ecology	June 19	June 23
Lab Module 11	Adaptations to Desert Living	June 19	June 23
Lecture Module 10	Ecosystems	June 19	June 23
Lab Module 12	Natural Selection	June 23	June 25
Lecture Module 11	Evolution by Natural Selection	June 23	June 25
Lab Module 13	Human Evolution	June 23	June 25
Lecture Module 12	Application of Evolution	June 23	June 25
Module Quiz 6	*Lectures 11-12, Labs 11-13*	*June 24*	*June 26*
Final Exam	**Entire course, but 65% of Final Exam is material after Exam 3**	**In-person**	**June 26**