

# **COURSE SYLLABUS**

## **SCI100 General Biology**

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### **Course Description**

This course will foster an understanding and appreciation of the fundamental principles of biology and health. The topics to be covered include: the chemistry of life, the classification of living things, cell structure and function, molecular genetics, cell division, properties of DNA, genetics and inheritance, evolution and diversity, and ecology. Although the human will be the chief organism of focus, this course emphasizes the common themes in biology so the basic principles can be applied to unicellular, multicellular, plant, and animal species.

### **General Course Information**

Number of Units/Weeks	4/10
#Hours Lecture/#Hours Laboratory/#Hours Homework	40/00/80
Prerequisite(s)	None
Co-requisites (s)	None
Course Developer(s)	Carl S. Ewig, PhD.
Date Approved / Last Review	Oct. 2010 / April 2015

### **Learning Outcomes**

Upon successful completion of the course, students will be able to:

- Knowledgeably discuss the principles of chemistry underlying the functioning of biological systems
- Describe the basic properties of DNA and its key roles in all living things
- Outline some of the major functional units of biology, including single-celled organisms and the organ structures of higher species
- Accurately summarize the fundamental concepts of evolution and ecology

### **Instructional Methods Employed in this Course**

- Lecture and reading assignments
- Hands-on exercises and labs

## Information Resources for this Course



### **Textbook**

Campell/Reece/Taylor/Simon/Dickey Biology: Concepts and Connections, 8<sup>th</sup> edition, San Francisco: Cummings, 2015. ISBN-13: 978-0-321-88532-6.



### **Other Materials**

None.



### **Web Site Readings** Textbook website portal

[http://wps.aw.com/wps/media/access/Pearson\\_Default/5329/5457129/login.html](http://wps.aw.com/wps/media/access/Pearson_Default/5329/5457129/login.html)

Cell Biology Animations

<http://www.johnkyrk.com>

Understanding Evolution

<http://evolution.berkeley.edu>

## Table/Topics & Assignments

### Types of Assignments:

**Lecture -**

Considered Lecture Hours

**Classroom Discussion -**

Considered Lecture Hours

**In Class Critique -**

Considered Lecture Hours

**Delivering Oral Presentations -**

Considered Lecture Hours

**In Class (IC) Exercise -**

Considered Lecture Hours

**Reading -**

Considered Homework, work done outside of class

**WebClass lesson (non-online courses) -**

Considered Homework, work done outside of class

**Lab Work -**

Considered Lab Hours

**Quiz, Midterm or Final -**

Considered Lecture Hours

Week 1						
Type	Topic/Description	LEC Hours	LAB Hours	HW Hours	Point Value	Due
LEC 1A	Class introductions Introduction to the course	2.25	--	--	--	
IC EX 1A	Classroom discussion: Course expectations (students' and instructor's)	1.75	--	--	--	During Class Week 1
HW 1A	Reading: Campbell, Chapter 1 (1-14); Chapter 15.14-15 (308-309), 15.19 (314); Chapter 2 (16-31)	--	--	3.2	--	Beginning of Class Week 2
HW 1B	Homework Set 1	--	--	3.5	30	Beginning of Class Week 2
Total Week 1		4.0	0	6.7	30	
Week 2						

Type	Topic/Description	LEC Hours	LAB Hours	HW Hours	Point Value	Due
LEC 2A	Exploring life The chemical basis of life Phylogeny	3.0	--	--	--	
IC EX 2A	Class discussion: Homework Set 1	1.0	--	--	--	During Class Week 2
HW 2A	Reading: Campbell, Chapter 3 (32-49); Chapter 4 (50-71)	--	--	4.0	--	Beginning of Class Week 3
HW 2B	Homework Set 2	--	--	3.5	20	Beginning of Class Week 3
HW 2C	Homework Set 3	--	--	3.5	20	Beginning of Class Week 3
Total Week 2		4.0	0	11.0	40	
<b>Week 3</b>						
Type	Topic/Description	LEC Hours	LAB Hours	HW Hours	Point Value	Due
LEC 3A	Molecules of the cell A tour of the cell	2.0	--	--	--	
IC EX 3A	Class discussion: Homework Sets 2 & 3	2.0	--	--	--	During Class Week 3
HW 3A	Reading: Campbell, Chapter 5 (72-87); Chapter 8 (124-151)	--	--	4.4	--	Beginning of Class Week 4
HW 3B	Homework Set 4	--	--	3.5	20	Beginning of Class Week 4
HW 3C	Homework Set 5	--	--	3.5	20	Beginning of Class Week 4
Total Week 3		4.0	0	11.4	40	
<b>Week 4</b>						
Type	Topic/Description	LEC Hours	LAB Hours	HW Hours	Point Value	Due
LEC 4A	Membranes, Cell Energies, Enzymes The Cellular Basis of Reproduction	1.5	--	--	--	
IC EX 4A	Exam 1	1.0	--	--	200	During Class Week 4
IC EX 4B	Class discussion: Homework Sets 4 & 5	1.5	--	--	--	During Class Week 4
HW 4A	Reading: Campbell, Chapter 9 (152-179)	--	--	2.8	--	Beginning of Class Week 5
HW 4B	Homework Set 6	--	--	3.5	20	Beginning of Class Week 5

Total Week 4		4.0	0	6.3	220	
<b>Week 5</b>						
Type	Topic/Description	LEC Hours	LAB Hours	HW Hours	Point Value	Due
LEC5A	Patterns of Inheritance Linkage and Pedigree Analysis	3.0	--	--	--	
IC EX 5A	Class discussion: Homework Set 6	1.0	--	--	--	During Class Week 5
HW 5A	Reading: Campbell, Chapter 10 (180-207)	--	--	2.8	--	Beginning of Class Week 6
HW 5B	Homework Set 7	--	--	3.5	20	Beginning of Class Week 6
Total Week 5		4.0	0	6.3	20	
<b>Week 6</b>						
Type	Topic/Description	LEC Hours	LAB Hours	HW Hours	Point Value	Due
LEC 6A	Molecular Genetics	3.0	--	--	--	
IC EX 6A	Class discussion: Homework Set 7	1.0	--	--	--	During Class Week 6
HW 6A	Reading: Campbell, Chapter 12 (230-252)	--	--	2.4	--	Beginning of Class Week 7
HW 6B	Homework Set 8	--	--	3.5	20	Beginning of Class Week 7
Total Week 6		4.0	0	5.9	20	
<b>Week 7</b>						
Type	Topic/Description	LEC Hours	LAB Hours	HW Hours	Point Value	Due
LEC 7A	DNA Technology and Genomics	3.0	--	--	--	
IC EX 7A	Class discussion: Homework Set 8	1.0	--	--	--	During Class Week 7
HW 7A	Reading: Campbell, Chapter 13 (254-275); Chapter 20 (412-427)	--	--	3.8	--	Beginning of Class Week 8
HW 7B	Homework Set 9	--	--	3.5	20	Beginning of Class Week 8
HW 7C	Homework Set 10	--	--	3.5	20	Beginning of Class Week 8
Total Week 7		4.0	0	10.8	40	
<b>Week 8</b>						
Type	Topic/Description	LEC Hours	LAB Hours	HW Hours	Point Value	Due

LEC 8A	How Populations Evolve Unifying Concepts of Animal Structure and Function	1.0	--	--	--	
IC EX 8A	Class discussion: Homework Set 9	1.0	--	--	--	During Class Week 8
IC EX 8B	Class discussion: Homework Set 10	1.0	--	--	--	During Class Week 8
IC EX 8C	Exam 2	1.0	--	--	200	During Class Week 8
HW 8A	Reading: Campbell, Chapter 21 (428-451); Chapter 23 (466-483)	--	--	4.2	--	Beginning of Class Week 9
HW 8B	Homework Set 11	--	--	3.5	20	Beginning of Class Week 9
HW 8C	Homework Set 12	--	--	3.5	20	Beginning of Class Week 9
Total Week 8		4.0	0	11.2	240	
<b>Week 9</b>						
<b>Type</b>	<b>Topic/Description</b>	<b>LEC Hours</b>	<b>LAB Hours</b>	<b>HW Hours</b>	<b>Point Value</b>	<b>Due</b>
LEC 9A	Major Organ Systems Nutrition and Digestion Circulation	2.0	--	--	--	
IC EX 9	Class discussion: Homework Sets 11 & 12	2.0	--	--	--	During Class Week 9
HW 9A	Reading: Campbell Chapter 34 (678-697); Chapter 38 (760-779)	--	--	4.0	--	Beginning of Class Week 10
HW 9B	Homework Set 13	--	--	3.5	20	Beginning of Class Week 10
HW 9C	Homework Set 14	--	--	3.5	30	Beginning of Class Week 10
Total Week 9		4.0	0	11.0	50	
<b>Week 10</b>						
<b>Type</b>	<b>Topic/Description</b>	<b>LEC Hours</b>	<b>LAB Hours</b>	<b>HW Hours</b>	<b>Point Value</b>	<b>Due</b>
LEC 10A	Ecology and Conservation Biology	1.0	--	--	--	
IC EX 10A	Class discussion: Homework Sets 13 & 14	1.5	--	--	--	During Class Week 10
IC EX 10B	Exam 3	1.5	--	--	200	End of Class Week 10
Total Week 10		4.0	0	--	200	

## Course Hours Summary

Week	Topic	LEC Hours	LAB Hours	HW Hours
1	Course introduction	4.0	0	6.7
2	Exploring life; The chemical basis of life; Phylogeny	4.0	0	11.0
3	Molecules of the cell; A tour of the cell	4.0	0	11.4
4	Membranes, Cell Energies, Enzymes; The Cellular Basis of Reproduction	4.0	0	6.3
5	Patterns of Inheritance; Linkage and Pedigree Analysis	4.0	0	6.3
6	Molecular Genetics	4.0	0	5.9
7	DNA Technology and Genomics	4.0	0	10.8
8	How Populations Evolve; Unifying Concepts of Animal Structure and Function	4.0	0	11.2
9	Major Organ Systems; Nutrition and Digestion; Circulation	4.0	0	11.0
10	Ecology and Conservation Biology	4.0	0	0.0
Total		40	0	80.6

## Table/Point Breakdown

Week	Assignment	Possible Points	Percent of Grade
2-10	Homework Sets 1 through 14	300	30%
4, 8, 10	Exams 1 through 3	600	60%
1-10	Participation	100	10%
Total		1000	100%

## Your Grades for this Course

Your final grade for this course will be based on an assessment by the Instructor of your performance on a number of course activities, which may include objective tests, classroom exercises, laboratory demonstrations, project papers, or other types of activities. The chart below indicates in what activities you will engage, how many possible points can be earned for each activity, and the percentage of your final grade that will be accounted for by each activity.

Students in this course should be graded following Coleman University assessment practices and policies. A point system is used in the University to indicate student performance on various required activities or projects. For this course, it is recommended that points be distributed as follows:

### Coleman University Grade Assignment Policy:

Percent	Letter Grade	Grade Points
94-100	A	4
90-93	A-	3.67
87-89	B+	3.33
84-86	B	3
80-83	B-	2.67
77-79	C+	2.33
74-76	C	2
70-73	C-	1.67
67-69	D+	1.33
64-66	D	1
60-63	D-	0.67
N/A	INC	0
N/A	W	0
60 or above	CR	0
59 or below	NC	0
N/A	I	0
N/A	W	0
N/A	AU	0
N/A	TR	0
N/A	WV	0

Legend	
CR = Credit	NC = No Credit
I = Incomplete	W = Course Withdrawal
AU = Audit	TR = Transfer Credit
WV = Waiver	



## **Academic Accommodation / Adjustment Policy:**

In accordance with Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act (ADA), Coleman University offers accommodations to students with documented physical, psychological, and/or cognitive disabilities. Coleman University will adhere to all applicable federal, state, and local laws, regulations, and guidelines with respect to providing reasonable accommodations as required to offer equal educational opportunities to qualified disabled individuals.

To qualify for an academic accommodation under ADA, the student must provide adequate documentation of a disability. Students seeking academic accommodations should contact the campus ADA Coordinator at 858-966-3953 or via email at [ada@coleman.edu](mailto:ada@coleman.edu). The ADA Coordinator will review the documentation provided and verify ADA coverage. Students covered under ADA must meet with the ADA Coordinator at the beginning of every term to determine the appropriate academic accommodations. Failing to meet with the ADA Coordinator at the beginning of every term may impact the availability of accommodations.

After the academic accommodations have been determined, the students' instructors will be notified by the ADA Coordinator. If any problems or concerns regarding the provision of accommodations occur, the student must inform the ADA Coordinator. If the student feels accommodation is not being made appropriately, the student may follow the published Student Grievance Procedures.