

WELCOME TO BIOLOGY 215!

Course Number: BIOL 215 (CRN 80164 + 84544 + 96744)

Course Title: Organismal Biology
Science, Math, Technology Division
5 units
MWF, 11:10 AM -12:00 PM
Room: 7106

Lecture must be accompanied by a lab session plus 16 lab hours by arrangement (HBA). This is one hour per week out of class in addition to homework. This will be done doing your term project. Hours by arrangement work counts for 10% of your grade in the class.

Course Prerequisites: MATH 120 or MATH 123 with a grade of C or better. Recommended: Eligibility for ENGL 846 or ESOL 400.

Course Classification: Transfer credit: UC; CSU (B2, B3). Transfer credit: UC; CSU (B2, B3).

Course Description: As part of a two-course core program, BIOL 215 is an introductory survey of anatomy, physiology, and evolution of living organisms.

Instructor: Please contact the instructor at any time with questions concerning the course, an assignment, an upcoming quiz, etc.

Christine Case
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(650) 738-4376
case@smccd.edu

Philosophy: Lewis Thomas said *It is generally accepted that the biologic sciences are absolutely splendid. I don't know of any other human occupation, even include what I have seen of art, in which the people engaged in it are so caught up.* You, too, will become caught up in this splendid study—an affair that will last a lifetime.

BIOL 215 is part of the two-course core program for Biology majors. You should be taking **CHEM 210/218** or higher **concurrently**. When you have completed the Biology core program and organic chemistry you will be able to undertake upper division coursework in the biological sciences. Course content, assignments, and lab work are comparable to that of your transfer institution and designed to prepare you for upper division work in the sciences. The basic principles you will study in Organismal Biology will be applicable in all biology-related profes-

sions including medicine, agriculture, biotechnology, animal behavior, and ecology.

Organismal Biology will introduce you to the diversity of living organisms and how they have evolved to meet the challenges of life. All living organisms are faced with the same set of problems including how to get nutrients and transform those nutrients into usable energy and how to reproduce.

Student Learning Outcomes: After completing this course, you will be able to:

1. Demonstrate understanding of how the major groups of living organisms are related to each other and of their adaptations for survival.
2. Write clear and well-argued descriptions of topics in biological sciences, based on the course material and textbook articles.
3. Design, perform, and analyze experiments in biology.

Attendance: Regular attendance is expected at every meeting. Role will be taken during each class meeting. When students must be absent because of illness or emergencies they should contact the instructor in advance. A student may be dropped for missing six class meetings or two labs. Responsibility for making up work missed because of absence rests with the student.

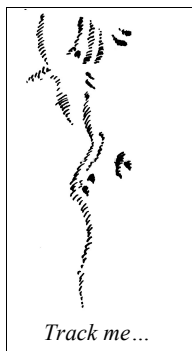
Papers are due on the assigned dates, late papers will not be accepted. All tests and quizzes must be taken on the designated days, make-ups will not be given.

The Grade of W: You may wish to withdraw from this class. If you withdraw prior to 9-2-19 nothing will appear on your record. If you withdraw between 9-2-19 and 11-13-19, a *W* will appear on your transcript. You will receive a *W* for exceeding six absences *prior* to 11-13-19. Anyone exceeding six absences *after* 11-13-19 will get a final grade of F.

Requirements: Papers are due on the assigned dates, late papers will not be accepted. All tests and quizzes must be taken on the designated days, make-ups will not be given.

Required student preparation: Lectures, lab activities, small group activities, and quizzes constitute the main activities of the class.

All homework, exams, and one final examination must be taken for a passing grade. All laboratory work must be completed and lab reports must be submitted on time to earn full credit. All laboratory reports must be completed to earn a passing grade.



Grading

Lecture: 60%. Includes 40 points for HBA work.-
Log into SARS when doing your HBA hours.
Laboratory 40%.

- A ≥ 88% of points
- B 75-87%
- C 60-74%
- D 45-59%
- F ≤ 45%

Excellent attendance and class participation will be taken into consideration during grading.

Class conduct policy: You are also responsible for adhering to the Code of Student Conduct outlined in the College Catalog. Cell phones *must be turned off* during class. No extraneous conversation during class.

Academic honesty. Plagiarized lab reports and papers will receive a score of zero. The work you submit must be your own. The Skyline College Catalog has a complete statement defining cheating and plagiarism.

Textbooks

Urry, L. *et al.* *Campbell Biology*, 11th ed. San Francisco: Benjamin/Cummings, 2017.
Case, C. and S. Bookstaff. *Investigations in Biology*. Skyline College, 2020.

Study Aids, assignments, and class handouts at <skylinecollege.edu/case>



📅 DATES TO REMEMBER

Assignments online	Date due
Biosurfing ¹	Sept. 6, 2019
Set up project in lab ¹	Sept. 10 & 11, 2019
Journal article ¹ related to your project background.....	Oct. 4, 2019
Plankton data ¹	Nov. 1, 2019
Term Project due (Late papers will <i>not</i> be accepted.).....	Nov. 27, 2019

📅 TERM PROJECT

During the semester you will study an aquatic ecosystem.

Points	Format
40	1. Weekly lab data and observations.
60	2. Research Report. The text should consist of a student-worded analysis of your research. The <i>required</i> questions are online ¹ <ul style="list-style-type: none"> a. Background b. Materials and Methods c. Results d. Discussion e. Literature cited page². Include 6 references in correct format. You must use at least 3 journal articles; all references may <i>not</i> be books and websites. References must be cited somewhere in the content. Do not include references prior to 1980. f. Three figures. <ul style="list-style-type: none"> i. Each figure must have a legend. ii. Refer to each figure in the body of the text. iii. Figures can include (one) photograph or picture, food chain, phylogenetic tree; calculations; graphs.
100	Total points

¹ See BIOL 215 at <skylinecollege.edu/case> for instructions and further information.
² In text citations are noted with a number in parentheses corresponding to the number of the reference in your Literature Cited page.



LECTURE SCHEDULE

Skim the assigned pages before lecture and then study them for comprehension after lecture.

Lecture	Topic [†]	Reading*
1-2	Introduction	Ch. 1
3-4	Evolution and fundamental concepts	Ch. 22 & 24
5-7	Biodiversity	Ch. 26
8-9	Nutrient procurement—plants	Ch. 37 & Fig 36.9
10-12	Nutrient procurement—fungi to animals	Ch. 41 & §31.1
13	Osmosis and diffusion	§7.3
To be announced	TEST	
14-15	Gas exchange—plants	§10.1, §36.4, §36.5
16-17	Gas exchange—animals	§42.5-42.7
18	Internal transport—plants	Ch. 36
19-21	Internal transport—animals	§42.1-42.4
22	Support systems	§50.6
23-24	Immunity	Ch. 43
25	Homeostasis	§44.1-44.5
26-27	Regulation of body fluids	Ch. 44
28	Hormonal control—plants	Ch. 39
29	Hormonal control—animals	Ch. 45
To be announced	TEST	
31-32	Reproduction	Ch. 12, 13, & 46
33-34	Development	Ch. 47
35	Chromosomal basis of inheritance	Ch. 14 & 15
36	Population genetics	Ch. 23
37	Ecology: Food webs	§54.2
38	Ecology: biomes and ecosystems	Ch. 52
39	Populations	Ch. 53
40	Ecology: interspecific interactions	§53.1, 53.6, & 54.1
41	Ecology: Succession	§54.3
42	Ecology: What if?	Ch. 56
Dec. 11	Final Examination	11:10-1:40

[†] Check the handouts online.

* Urry, L. *et al.* *Biology*, 11th ed. San Francisco: Benjamin/Cummings, 2017.



BIOL 215 LABORATORY

Course Number: BIOL 215 (CRN (CRN 80164 + 84544 + 96744)

Course Title: Organismal Biology
Science, Math, Technology Division
5 units

MW 2:10-4:50 or TT 9:10-11:50

Room: 7241

Lecture must be accompanied by a lab session plus 16 lab hours by arrangement (HBA). That is, 1 hr/wk following up on an assigned experiment or working on your project. Log into SARS when doing your HBA hours.

Course Prerequisites: MATH 120 or MATH 123 with a grade of C or better. Recommended: Eligibility for ENGL 846 or ESOL 400.

Course Classification: Transfer credit: UC; CSU (B2, B3).

Course Description: As part of a two-course core program, BIOL 215 is an introductory survey of anatomy, physiology, and evolution of living organisms.

Instructor: Please contact the instructor at any time with questions concerning the course, an assignment, etc.

Christine Case
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case@smccd.edu

Philosophy: Marie Curie said *A scientist in his laboratory is not a mere technician: he is also a child confronting natural phenomena that impress him as though they were fairy tales.*

This lab is meant to be a stimulating introduction to biology and the conduct of science. The tone of this lab and what you get out of it, however, are totally up to you. We guarantee that your attitude towards our weekly lab sessions will greatly affect your grade and the enjoyment you derive from this class. So come to labs with a **positive attitude**, a **willingness to learn**, and a **strong work ethic**. **Preparation** beforehand and **attention** to details in the lab will surely pay off in the long run.

This semester in lab we will focus on the structure and function of organisms, their evolution, and how they interact with one another and the environment. Specifically we will explore some of the problems that all living things must solve in order to survive and some of the key evolutionary developments that provided novel solutions to these problems.

Each lab will consist of a short introductory lecture providing relevant background, followed by one or several laboratory activities. Come to lab prepared, take notes and make sure that your lab partners aren't doing all the work for you. **Ask questions!**

Attendance: Regular attendance is expected at every meeting. Every lab contributes to a portion of your grade. A lab can only be made up in the week that it is running. You'd be surprised how fast 10-point assignments can add up (for good or for bad)!

Requirements: All laboratory work must be completed and stamped to earn full credit on a laboratory report. All laboratory reports must be completed to earn a passing grade; laboratory will account for approximately 40% of the grade. Excellent attendance and class participation will be taken into consideration during grading. Late reports will lose 5% of the points per day. Unstamped labs can earn a maximum of 50% of the possible points.

33 lab reports × 10 points each = 330 points

Required

Case, C. and S. Bookstaff. *Investigations in Biology*. Skyline College, 2020.

SHARPIE pen to label experiments.

Lab Techniques

Keep a record of those techniques you have mastered so you can add them to your resume. The list of lab techniques used in this course is on the BIOL 215 web site.

How to earn a good grade in this laboratory:

1. *Follow the advice above.*
2. *Make the most of lab time.* Plan to arrive on time and stay until the end. Don't ask to leave early and don't show up late. Study in lab where all the appropriate materials are available! Make sure your questions are answered before you leave.
3. *Turn in your assignments on time.* 5% deducted for each day late!
4. *Do all the assignments.* It is far easier to redeem a low grade than a grade of zero.
5. *Do your own work!* Cheating or plagiarism results in a grade of zero! This applies especially to lab reports.
6. *Clean up after yourself! Always!*



LABORATORY SCHEDULE*

Keep this schedule with your lab manual, *Investigations in Biology*. **Read** the assigned lab experiment(s) prior to coming to class. Lab reports are **due** at the next lab following completion of the experiments. *Campbell Biology* is an excellent reference for lab work. Check the Lab Help pages at skylinecollege.edu/case



Mon/Wed	Tues/Thu	Topic	Mon/Wed	Tues/Thu	Topic
8-14	8-15	Locker assignment Safety walk Observations	10-16	10-10	The Mammalian Urogenital System Plant <i>Brassica</i> for Coordination in plants
8-19	8-20	Microscopy	10-21	10-15	Field Trip
8-21	8-22	Function and behavior	10-23	10-17	Growth
8-26	8-27	Scientific method	10-28	10-22	The plant life cycle <i>due today</i> Coordination in plants Hormonal regulation in plants
8-28	8-29	Nutrient procurement			<i>set-up</i> Population growth <i>set-up</i>
9-4	9-3	Diffusion and osmosis	11-4	10-24	Glycogen metabolism
9-9	9-5	Asepsis <i>pretest</i> * Cloning* <i>day 1</i>	11-6	11-5	Measure/count all your plants Chromosomal basis of inheritance, <i>set up</i> Development <i>set up</i> Cloning <i>day 4</i>
9-11	9-10	The fetal pig Cloning lab <i>due</i> Set up your term project†	11-13	11-7	Biological insecticides Plant hormones <i>due</i> Coordination in plants <i>due</i>
9-16	9-12	Industrial microbiology Digestive enzymes dissection	11-18	11-12	Meiosis Continue Insecticides
9-18	9-17	Digestive enzymes	11-20	11-19	Fertilization Population growth <i>due</i>
9-23	9-19	Photosynthesis	11-25	11-14	Development <i>due today</i>
9-25	9-24	Gas exchange in animals	11-27	11-21	Chromosomal basis of inheritance
9-30	9-26	Biological transport, animals Blood group determination Cloning <i>day 2</i>	12-2	11-26	Mammals and evolution
10-2	10-1	Regulation of H ₂ O	12-4	12-3	Evolution of serum proteins Cloning <i>day 5</i>
10-7	10-3	Biological transport, plants Photosynthesis, day 2	12-9	12-5	Mechanisms of evolution
10-14	10-8	Cation exchange in lichens Cloning <i>day 3</i> Photosynthesis lab <i>due</i>			

* Study appendix E & Lab Help page; aseptic techniques are required here. You must complete the cloning pre-test online BEFORE your lab.

† See Term Project information online.

BIOL 215 LABORATORY

Course Number: BIOL 215 (CRN 96814)

Course Title: Organismal Biology

Science, Math, Technology Division

5 units

MF 5:15-8:00 pm

Room: 7241

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Course Prerequisites: MATH 120 or MATH 123 with a grade of C or better. Recommended: Eligibility for ENGL 846 or ESOL 400.

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Course Description: As part of a two-course core program, BIOL 215 is an introductory survey of anatomy, physiology, and evolution of living organisms.

Instructor: Please contact the instructor at any time with questions concerning the course, an assignment, etc.

Kevin Davis

Office 7102

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Philosophy: Marie Curie said *A scientist in his laboratory is not a mere technician: he is also a child confronting natural phenomena that impress him as though they were fairy tales.*

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8-19	Microscopy	10-18	The Mammalian Urogenital System Plant <i>Brassica</i> for Coordination in plants
8-23	Function and behavior	10-21	Project observations
8-26	Scientific method	10-25	Growth
8-30	Nutrient procurement	10-28	The plant life cycle <i>due today</i>
9-6	Diffusion and osmosis	11-1	Coordination in plants Hormonal regulation in plants <i>set-up</i> Population growth <i>set-up</i>
9-9	<i>Asepsis pretest*</i> Cloning* <i>day 1</i>	11-4	Glycogen metabolism
9-13	The fetal pig <i>Cloning lab due</i> <i>Set up your term project†</i>	11-8	Chromosomal basis of inheritance Measure/count all your plants
9-16	Industrial microbiology Digestive enzymes dissection	11-15	Biological insecticides <i>Plant hormones due</i> <i>Coordination in plants due</i>
9-20	Digestive enzymes	11-18	Meiosis <i>Continue Insecticides</i>
9-23	Photosynthesis	11-22	Fertilization <i>Population growth due</i>
9-27	Gas exchange in animals	11-25	Development <i>due today</i>
9-30	Regulation of H ₂ O	12-2	Evolution of serum proteins Cloning <i>day 5</i>
10-4	Biological transport, animals Blood group determination Cloning <i>day 2</i>	12-6	Mammals and evolution
10-7	Biological transport, plants Photosynthesis, day 2	12-9	Mechanisms of evolution
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10-14	Cation exchange in lichens Cloning <i>day 3</i>		

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