

# BIOL R101: GENERAL BIOLOGY

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**Originator**

mnicholson

**College**

Oxnard College

**Discipline (CB01A)**

BIOL - Biology

**Course Number (CB01B)**

R101

**Course Title (CB02)**

General Biology

**Banner/Short Title**

General Biology

**Credit Type**

Credit

**Start Term**

Fall 2021

**Catalog Course Description**

This course is an introduction to the science of life, cell biology, metabolism, diet, genetics, evolution and ecology and will include current issues and news on these topics. Credit will not be awarded for both the regular and honors versions of a course. Credit will be awarded only for the first course completed with a grade of C or better or "P."

**Taxonomy of Programs (TOP) Code (CB03)**

0401.00 - Biology, General

**Course Credit Status (CB04)**

D (Credit - Degree Applicable)

**Course Transfer Status (CB05) (select one only)**

A (Transferable to both UC and CSU)

**Course Basic Skills Status (CB08)**

N - The Course is Not a Basic Skills Course

**SAM Priority Code (CB09)**

E - Non-Occupational

**Course Cooperative Work Experience Education Status (CB10)**

N - Is Not Part of a Cooperative Work Experience Education Program

**Course Classification Status (CB11)**

Y - Credit Course

**Educational Assistance Class Instruction (Approved Special Class) (CB13)**

N - The Course is Not an Approved Special Class

**Course Prior to Transfer Level (CB21)**

Y - Not Applicable

**Course Noncredit Category (CB22)**

Y - Credit Course

**Funding Agency Category (CB23)**

Y - Not Applicable (Funding Not Used)

**Course Program Status (CB24)**

1 - Program Applicable

**General Education Status (CB25)**

Y - Not Applicable

**Support Course Status (CB26)**

N - Course is not a support course

**Field trips**

May be required

**Faculty notes on field trips; include possible destinations or other pertinent information**

Possible field trip destinations include local parks, beaches, natural areas, botanical gardens, harbors, islands, natural history museums, and aquaria.

**Grading method**

Letter Graded

**Does this course require an instructional materials fee?**

No

**Repeatable for Credit**

No

**Is this course part of a family?**

No

**Units and Hours**

**Carnegie Unit Override**

No

**In-Class**

**Lecture**

**Minimum Contact/In-Class Lecture Hours**

52.5

**Maximum Contact/In-Class Lecture Hours**

52.5

**Activity**

**Laboratory**

**Total in-Class**

**Total in-Class**

**Total Minimum Contact/In-Class Hours**

52.5

**Total Maximum Contact/In-Class Hours**

52.5

**Outside-of-Class**

**Internship/Cooperative Work Experience**

**Paid****Unpaid****Total Outside-of-Class****Total Outside-of-Class****Minimum Outside-of-Class Hours**

105

**Maximum Outside-of-Class Hours**

105

**Total Student Learning****Total Student Learning****Total Minimum Student Learning Hours**

157.5

**Total Maximum Student Learning Hours**

157.5

**Minimum Units (CB07)**

3

**Maximum Units (CB06)**

3

**Advisories on Recommended Preparation**

BIOL R101L or concurrent enrollment; ENGL R095 and ENGL R097 or ENGL R100 or ENGL R101 or ENGL R101H or concurrent enrollment

**Entrance Skills****Entrance Skills**

Understand the scientific method and know how experimentation is conducted to test hypotheses.

**Prerequisite Course Objectives**

BIOL R101L-Identify the different components of the scientific method of inquiry

BIOL R101L-Recognize appropriate units of measurement in the metric system.

BIOL R101L-Use basic laboratory equipment including a light microscope, a spectrophotometer, and different tools for measuring volume such as a beaker or graduated cylinder

**Entrance Skills**

Demonstrate in writing an ability to evaluate and understand scientific literature that conveys complex concepts and ideas with challenging vocabulary.

**Prerequisite Course Objectives**

ENGL R095-Demonstrate increased reading comprehension of content specific materials from a variety of disciplines.

ENGL R095-Demonstrate an expanded vocabulary and understanding of general academic, technical, and domain-specific words and phrases sufficient for reading and writing at the college and career readiness levels.

ENGL R095-Read with comprehension a variety of genres: college textbooks, journal articles, short stories, poetry, essays, newspapers, and commentaries.

ENGL R095-Employ library research skills to locate information and sources.

ENGL R095-Determine the literal and implied main idea, theme or conclusions of an expository or academic fiction or non-fiction text and how it is supported by key details.

**Entrance Skills**

Demonstrate in writing an ability to evaluate and understand scientific literature that conveys complex concepts and ideas with challenging vocabulary.

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**Prerequisite Course Objectives**

ENGL R097-Write short essays of at least five paragraphs with effective introductory paragraphs; well-organized, coherent, and detailed support of thesis; and effective conclusions  
ENGL R097-Write essays with acceptable college-level grammar, syntax, spelling, and idiomatic usage  
ENGL R097-Analyze essay exam questions and organize and write effective responses  
ENGL R097-Demonstrate familiarity with the principles of research and documentation  
ENGL R097-Write a short paper incorporating documentation

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**Entrance Skills**

Demonstrate in writing an ability to evaluate and understand scientific literature that conveys complex concepts and ideas with challenging vocabulary.

**Prerequisite Course Objectives**

ENGL R100-Develop a thesis.  
ENGL R100-Write short (500-word) essays with effective introductory paragraphs; well-organized, coherent, and detailed support of thesis; and effective conclusions.  
ENGL R100-Revise content and rewrite for fluent expression.  
ENGL R100-Write essays with acceptable college-level grammar, syntax, spelling, and idiomatic usage.  
ENGL R100-Analyze essay exam questions and organize and write effective responses.  
ENGL R100-Successfully use principles of research and documentation systems.  
ENGL R100-Read college-level materials and recognize the main idea.  
ENGL R100-Summarize and paraphrase.  
ENGL R100-Distinguish fact from opinion.

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**Entrance Skills**

Demonstrate in writing an ability to evaluate and understand scientific literature that conveys complex concepts and ideas with challenging vocabulary.

**Prerequisite Course Objectives**

ENGL R101-Demonstrate college-level control of mechanical elements of writing such as grammar, syntax, spelling, vocabulary, and idiomatic usage  
ENGL R101-Research a topic, analyze and synthesize information, and report findings in a properly documented essay  
ENGL R101-Demonstrate critical thinking skills and rhetorical awareness in analyzing others' non-fiction writing and in developing essays  
ENGL R101-Write timed essays in class exhibiting acceptable college-level control of mechanics, organization, development, and coherence

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**Entrance Skills**

Demonstrate in writing an ability to evaluate and understand scientific literature that conveys complex concepts and ideas with challenging vocabulary.

**Prerequisite Course Objectives**

ENGL R101H- Demonstrate college-level control of mechanical elements of writing such as grammar, syntax, spelling, vocabulary, and idiomatic usage  
ENGL R101H- Research a topic, analyze and synthesize information, and report findings in a properly documented essay  
ENGL R101H-Demonstrate critical thinking skills and rhetorical awareness in analyzing others' non-fiction writing and in developing essays  
ENGL R101H-Write timed essays in class exhibiting acceptable college-level control of mechanics, organization, development, and coherence

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**Requisite Justification****Requisite Type**

Advisory

**Requisite**

BIOL R101L

**Requisite Description**

Course in a sequence

**Level of Scrutiny/Justification**

Closely related lecture/laboratory course

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**Requisite Type**

Concurrent

**Requisite**

BIOL R101L

**Requisite Description**

Course in a sequence

**Level of Scrutiny/Justification**

Closely related lecture/laboratory course

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**Requisite Type**

Advisory

**Requisite**

ENGL R095

**Requisite Description**

Course not in a sequence

**Level of Scrutiny/Justification**

Content review

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**Requisite Type**

Concurrent

**Requisite**

ENGL R095

**Requisite Description**

Course not in a sequence

**Level of Scrutiny/Justification**

Content review

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**Requisite Type**

Advisory

**Requisite**

ENGL R097

**Requisite Description**

Course not in a sequence

**Level of Scrutiny/Justification**

Content review

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**Requisite Type**

Concurrent

**Requisite**

ENGL R097

**Requisite Description**

Course not in a sequence

**Level of Scrutiny/Justification**

Content review

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**Requisite Type**

Advisory

**Requisite**

ENGL R100

**Requisite Description**

Course not in a sequence

**Level of Scrutiny/Justification**

Content review

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**Requisite Type**

Concurrent

**Requisite**

ENGL R100

**Requisite Description**

Course not in a sequence

**Level of Scrutiny/Justification**

Content review

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**Requisite Type**

Advisory

**Requisite**

ENGL R101

**Requisite Description**

Course not in a sequence

**Level of Scrutiny/Justification**

Content review

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**Requisite Type**

Concurrent

**Requisite**

ENGL R101

**Requisite Description**

Course not in a sequence

**Level of Scrutiny/Justification**

Content review

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**Requisite Type**

Advisory

**Requisite**

ENGL R101H

**Requisite Description**

Course not in a sequence

**Level of Scrutiny/Justification**

Content review

**Requisite Type**

Concurrent

**Requisite**

ENGL R101H

**Requisite Description**

Course not in a sequence

**Level of Scrutiny/Justification**

Content review

**Student Learning Outcomes (CSLOs)**

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

- |   |  |
|---|--|
| 1 | Identify characteristics common to all living organisms. |
| 2 | Describe the function of indicated cellular organelles.  |
| 3 | Solve inheritance questions using Punnett squares.       |

**Course Objectives**

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

- |    |  |
|----|--|
| 1  | Describe the scientific method of inquiry as it relates to biological organisms.   |
| 2  | Describe the structure and function of cells and common organelles and their relationship to tissues, organs, and organ systems. |
| 3  | Explain the chemical and molecular basis for human nutritional needs.  |
| 4  | Explain energy flow through the biological world with reference to photosynthesis, cellular respiration, and ecological cycles.  |
| 5  | Interpret inheritance patterns and describe the mechanisms involved in meiosis and mitosis.                                      |
| 6  | Summarize the role of nucleic acids in protein synthesis.  |
| 7  | Define and explain mechanisms of biological change and evolution.  |
| 8  | Describe relationships among and between the biotic and abiotic components of populations, communities, ecosystems, and biomes.  |
| 9  | Apply critical thinking skills in recognizing the impacts of biology in society.   |
| 10 | Describe current issues and applications of biotechnology.   |

**Course Content****Lecture/Course Content**

1. Introduction to the Science of Life
  - a. Characteristics of life
  - b. Organization of life
2. Scientific Inquiry
  - a. Descriptive vs. experimental science
  - b. Hypothesis testing
  - c. Experimental design
3. Biological Molecules
  - a. Chemistry of water
  - b. Organic compounds in cells
4. Cell Structure and Function

- a. Membranes
- b. Organelles
- 5. Energy Cycling
  - a. Metabolism
  - b. Photosynthesis
  - c. Respiration
- 6. Cell Division, Sex, Stem Cells and Cancer
  - a. DNA synthesis
  - b. Mitosis
  - c. Meiosis
- 7. Genetics
  - a. Genes, alleles, and traits
  - b. Inheritance patterns
- 8. Biotechnology
  - a. Mutation, viral recombination, and crossing over
  - b. Genetic recombination, gene splicing, transgenic species, GM produce
  - c. Cloning
- 9. Evolution
  - a. Evidence
  - b. Species and natural selection
- 10. Biodiversity
  - a. Divergent evolution
  - b. Extinction
  - c. Classification
- 11. Ecology
  - a. Population ecology
  - b. Communities: species interactions
  - c. Ecosystems: habitats, nutrient recycling, sinks, and sources
- 12. Future of the Biosphere
  - a. Human impacts
  - b. Conservation and sustainability

#### Laboratory or Activity Content

No laboratory or activity content.

### Methods of Evaluation

Which of these methods will students use to demonstrate proficiency in the subject matter of this course? (Check all that apply):

Problem solving exercises  
Written expression

Methods of Evaluation may include, but are not limited to, the following typical classroom assessment techniques/required assignments (check as many as are deemed appropriate):

Essay exams  
Essays  
Individual projects  
Objective exams  
Oral presentations  
Problem-Solving Assignments  
Problem-solving exams  
Quizzes  
Reports/papers  
Research papers  
Simulations

### Instructional Methodology

Specify the methods of instruction that may be employed in this course

Audio-visual presentations  
Computer-aided presentations  
Collaborative group work  
Class activities



Class discussions  
 Distance Education  
 Demonstrations  
 Field trips  
 Group discussions  
 Guest speakers  
 Instructor-guided interpretation and analysis  
 Instructor-guided use of technology  
 Internet research  
 Lecture  
 Small group activities

**Describe specific examples of the methods the instructor will use:**

1. Instructor-guided interpretation and analysis of topics presented in assigned text readings, such as cell biology, ecology, evolution, or biotechnology.
2. In-class group worksheets and activities to enhance understanding of presented topics, such as the cell cycle and cancer.
3. Animations, video clips, DVDs, slides and models to demonstrate biological processes and structures such as cellular organelles and cell reproduction.

## Representative Course Assignments

### Writing Assignments

1. Students will be required to complete homework questions on topics covered in class and the text.
2. Students will be required to summarize assigned articles from primary and secondary sources.

### Critical Thinking Assignments

1. Students will analyze and evaluate the central dogma of protein production, demonstrating understanding of the role that DNA plays in both coding for proteins and inheritance.

### Reading Assignments

1. Students will be required to read assigned sections of the textbook.
2. Students will be assigned articles from primary and secondary sources relevant to topics covered in class.

### Skills Demonstrations

No skills demonstrations.

### Other assignments (if applicable)

1. Students may be asked to participate in on-line discussions based on topics relevant to material covered in class.
2. Students may be asked to give in-class presentations summarizing an article from a primary literature source.

## Outside Assignments

### Representative Outside Assignments

1. Students will be required to read assigned sections of the textbook (i.e., chapter readings).
2. Students will be assigned articles to read from primary and secondary sources (e.g., topical subjects such as CRISPR or development of vaccines).
3. Students will be required to complete homework questions and assignments on topics covered in class and the text (e.g., solving inheritance problems with Punnett squares or diagramming the cell cycle).
4. Students will be required to evaluate or summarize assigned articles from primary and secondary sources (e.g., evaluate the information from an original primary research paper on Olestra and compare it to a secondary source summary of the same).

## Articulation

### Comparable Courses within the VCCCD

BIOL M01 - Introduction to Biology  
 BIOL R101H - Honors: General Biology  
 BIOL V01 - Principles of Biology

## District General Education

### A. Natural Sciences

A1. Biological Science

Approved

### B. Social and Behavioral Sciences

### C. Humanities

### D. Language and Rationality

### E. Health and Physical Education/Kinesiology

### F. Ethnic Studies/Gender Studies

## CSU GE-Breadth

### Area A: English Language Communication and Critical Thinking

### Area B: Scientific Inquiry and Quantitative Reasoning

B2 Life Science

Approved

### Area C: Arts and Humanities

### Area D: Social Sciences

### Area E: Lifelong Learning and Self-Development

## CSU Graduation Requirement in U.S. History, Constitution and American Ideals:

## IGETC

### Area 1: English Communication

### Area 2A: Mathematical Concepts & Quantitative Reasoning

### Area 3: Arts and Humanities

### Area 4: Social and Behavioral Sciences

### Area 5: Physical and Biological Sciences

Area 5B: Biological Science

Approved

### Area 6: Languages Other than English (LOTE)

## Textbooks and Lab Manuals

### Resource Type

Textbook

### Description

Colleen Belk & Virginia Borden Maier. (2018). *Biology: Science for Life* (6th). Pearson. Hoboken, NJ. ISBN 978-0-134-67547-3

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### Resource Type

Textbook

**Description**

Martha Taylor, Eric Simon, Jean Dickey, & Kelly Hogan. (2020). *Campbell Biology: Concepts and Connections* (10th). Pearson. Hoboken, NJ. ISBN 978-0-135-26916-9

**Resource Type**

Other Resource Type

**Description**

Video presentations, video clips, and animations

**Library Resources****Assignments requiring library resources**

Assignments focusing on published primary sources and research articles.

**Sufficient Library Resources exist**

Yes

**Example of Assignments Requiring Library Resources**

Students will be required to evaluate or summarize assigned articles from primary and secondary sources (e.g., evaluate and compare the information from a primary source to a secondary source summary).

**Distance Education Addendum****Definitions****Distance Education Modalities**

Hybrid (51%–99% online)

Hybrid (1%–50% online)

100% online

**Faculty Certifications**

**Faculty assigned to teach Hybrid or Fully Online sections of this course will receive training in how to satisfy the Federal and state regulations governing regular effective/substantive contact for distance education. The training will include common elements in the district-supported learning management system (LMS), online teaching methods, regular effective/substantive contact, and best practices.**

Yes

**Faculty assigned to teach Hybrid or Fully Online sections of this course will meet with the EAC Alternate Media Specialist to ensure that the course content meets the required Federal and state accessibility standards for access by students with disabilities.**

**Common areas for discussion include accessibility of PDF files, images, captioning of videos, Power Point presentations, math and scientific notation, and ensuring the use of style mark-up in Word documents.**

Yes

**Regular Effective/Substantive Contact****Hybrid (1%–50% online) Modality:**

Method of Instruction	Document typical activities or assignments for each method of instruction
Asynchronous Dialog (e.g., discussion board)	Discussions focusing on a subject for which students will make an original post and then thoughtfully respond to other student postings; may also allow instructor and students to address miscellaneous questions and related subjects.
E-mail	Communication venue to allow instructor-student and student-student dialogue for problem-solving/question/answer purposes and to submit certain types of assignments.
Other DE (e.g., recorded lectures)	Recorded tutorials, lectures, and video meetings.

Synchronous Dialog (e.g., online chat)	Instant messaging and/or chat to allow instructor-student and student-student dialogue for teaching and/or studying.
Telephone	Communication venue to allow instructor-student and student-student dialogue for problem-solving/question/answer purposes.
Video Conferencing	Video meetings to allow the instructor to highlight important information (perhaps lecture) and facilitate immediate student interaction (such as problem-solving/question/answer session). ADA compliance will be upheld with Closed Captioning during the session or of the recorded session. Recordings of all live sessions will be made available within the LMS.

**Hybrid (51%–99% online) Modality:**

<b>Method of Instruction</b>	<b>Document typical activities or assignments for each method of instruction</b>
Asynchronous Dialog (e.g., discussion board)	Discussions focusing on a subject for which students will make an original post and then thoughtfully respond to other student postings; may also allow instructor and students to address miscellaneous questions and related subjects.
E-mail	Communication venue to allow instructor-student and student-student dialogue for problem-solving/question/answer purposes and to submit certain types of assignments.
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Telephone	Communication venue to allow instructor-student and student-student dialogue for problem-solving/question/answer purposes.
Video Conferencing	Video meetings to allow the instructor to highlight important information (perhaps lecture) and facilitate immediate student interaction (such as problem-solving/question/answer session). ADA compliance will be upheld with Closed Captioning during the session or of the recorded session. Recordings of all live sessions will be made available within the LMS.

**100% online Modality:**

<b>Method of Instruction</b>	<b>Document typical activities or assignments for each method of instruction</b>
Asynchronous Dialog (e.g., discussion board)	Discussions focusing on a subject for which students will make an original post and then thoughtfully respond to other student postings; may also allow instructor and students to address miscellaneous questions and related subjects.
E-mail	Communication venue to allow instructor-student and student-student dialogue for problem-solving/question/answer purposes and to submit certain types of assignments.
Other DE (e.g., recorded lectures)	Recorded tutorials, lectures, and video meetings.
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Telephone	Communication venue to allow instructor-student and student-student dialogue for problem-solving/question/answer purposes.
Video Conferencing	Video meetings to allow the instructor to highlight important information (perhaps lecture) and facilitate immediate student interaction (such as problem-solving/question/answer session). ADA compliance will be upheld with Closed Captioning during the session or of the recorded session. Recordings of all live sessions will be made available within the LMS.

**Examinations****Hybrid (1%–50% online) Modality**

Online  
On campus

**Hybrid (51%–99% online) Modality**

Online  
On campus

**Primary Minimum Qualification**

BIOLOGICAL SCIENCES

**Review and Approval Dates****Department Chair**

09/15/2020

**Dean**

09/16/2020

**Technical Review**

10/14/2020

**Curriculum Committee**

10/14/2020

**Curriculum Committee**

12/09/2020

**CCCCO**

MM/DD/YYYY

**Control Number**

CCC000265799

**DOE/accreditation approval date**

MM/DD/YYYY