

**I. CATALOG INFORMATION**A. Discipline: BIOLOGYB. Subject Code and Number: BIOL M02BC. Course Title: General Biology II

D. Credit Course units:

Units: 5Lecture Hours per week: 4Lab Hours per week : 3Variable Units : No

E. Student Learning Hours:

Lecture Hours:

Classroom hours: 70 - 70

Laboratory/Activity Hours:

Laboratory/Activity Hours 52.5 - 52.5**Total Combined Hours** in a 17.5 week term: 122.5 - 122.5

F. Non-Credit Course hours per week \_\_\_\_\_

G. May be taken a total of:  1  2  3  4 time(s) for creditH. Is the course co-designated (same as) another course: No  Yes 

If YES, designate course Subject Code &amp; Number: \_\_\_\_\_

I. Course Description:

Surveys the basic biology and diversity of unicellular and multicellular organisms. Emphasizes general biological principles, classification, structure, function and evolutionary adaptations of organisms (including plants, fungi, animals, and unicellular organisms) to their environments.

J. Entrance Skills

\*Prerequisite: No  Yes  Course(s)BIOL M02A or BIOL M02AH\*Corequisite: No  Yes  Course(s)

\_\_\_\_\_

Limitation on Enrollment: No  Yes 

\_\_\_\_\_

Recommended Preparation: No  Yes  Course(s)

\_\_\_\_\_

Other: No  Yes 

\_\_\_\_\_

## K. Other Catalog Information:

C-ID: BIOL 140 and BIOL 135S (with BIOL M02A)

## II. COURSE OBJECTIVES

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

		<b>Methods of evaluation will be consistent with, but not limited by, the following types or examples.</b>
1	explain the essential elements of life, major hypotheses for life's history, and mechanisms for the diversification of life.	Examination Laboratory reports Projects Papers
2	compare and contrast the development, life cycles, anatomical and physiological characteristics of major taxa of organisms.	Examinations Laboratory reports Projects Papers
3	evaluate the relationships of organisms to each other and their environments.	Examinations Laboratory reports Projects Papers
4	describe, identify key characteristics, and classify representative specimens down to representative phyla.	Examinations Laboratory reports Projects Papers
5	apply the processes of scientific inquiry, phylogenetic analysis, and experimental design to the diversity of organisms.	Examinations Laboratory reports Projects Papers

## III. COURSE CONTENT

Estimated %	Topic	Learning Outcomes
<b>Lecture</b> (must total 100%)		
25.00%	Evolutionary theory, including mechanisms of diversification of life and evidence for evolution	1, 2, 3, 4, 5
25.00%	Phylogeny of life on earth (including plants, fungi, animals, and unicellular organisms)	1, 2, 3, 4, 5
25.00%	Anatomy, physiology, organismal life cycles and development of living organisms (including plants, fungi, animals and unicellular organisms)	1, 2, 3, 4, 5
	Interaction of organisms with the environment (including plants, fungi,	1, 2, 3, 4,

25.00%	animals, and unicellular organisms)	5
<b>Lab</b> (must total 100%)		
32.00%	Microscopic, gross comparative anatomy, and dissection of organisms from representative phyla	1, 2, 3, 4, 5
32.00%	Observations of the functional morphology of representative phyla	1, 2, 3, 4, 5
4.00%	Study of developmental stages of representative organisms	1, 2, 3, 4, 5
32.00%	Observations of the physiology of representative organisms	1, 2, 3, 4, 5

#### IV. TYPICAL ASSIGNMENTS

##### A. Writing assignments

Writing assignments are required. Possible assignments may include, but are not limited to:

1	laboratory reports and lab practicals.
2	projects and papers on organisms and their role in the environment.

##### B. Appropriate outside assignments

Appropriate outside assignments are required. Possible assignments may include, but are not limited to:

1	utilization of keys to identify representative phyla.
2	utilization and reading of Internet resources to prepare for paper on diversification of species.

##### C. Critical thinking assignments

Critical thinking assignments are required. Possible assignments may include, but are not limited to:

1	critique evidence for evolution.
2	compare morphology and physiology of specific animal species.

#### V. METHODS OF INSTRUCTION

Methods of instruction may include, but are not limited to:

- Distance Education – When any portion of class contact hours is replaced by distance education delivery mode (Complete DE Addendum, Section XV)
- Lecture/Discussion
- Laboratory/Activity
- Other (Specify) Dissection
- Optional Field Trips
- Required Field Trips

**VI. METHODS OF EVALUATION**

Methods of evaluation may include, but are not limited to:

- |  |   |   |
|--|---|---|
| <input checked="" type="checkbox"/> Essay Exam           | <input checked="" type="checkbox"/> Classroom Discussion    | <input checked="" type="checkbox"/> Skill Demonstration |
| <input checked="" type="checkbox"/> Problem Solving Exam | <input checked="" type="checkbox"/> Reports/Papers/Journals | <input checked="" type="checkbox"/> Participation       |
| <input checked="" type="checkbox"/> Objective Exams      | <input checked="" type="checkbox"/> Projects                | <input checked="" type="checkbox"/> Other (specify)     |

Laboratory practicals

**VII. REPRESENTATIVE TEXTS AND OTHER COURSE MATERIALS**

Urry, Lisa A., et al. Campbell Biology. 11th ed. Pearson, 2017.

Raven, Peter, et al. Biology. 11th ed. McGraw-Hill, 2017.

Mader, Sylvia, and Michael Windelspecht. Biology. 12th ed. McGraw-Hill, 2016.

Moorpark College. The Pearson Custom Library for the Biological Sciences. Investigating Biology Laboratory Manual for 2B, Custom Edition for Moorpark College. Pearson, 2014.

**VIII. STUDENT MATERIALS FEES**

No  Yes

**IX. PARALLEL COURSES**

<i>College</i>	<i>Course Number</i>	<i>Course Title</i>	<i>Units</i>
CSU Northridge	BIOL 106/106L	Biological Principles I and Biology Lab I	3/1
CSU Los Angeles	BIOL 1200	Principles of Biology II	5
UC Davis	BIOLSCI 2C	Intro Biology: Biodiversity & the Tree of Life	5
UC Riverside	BIOL 005B	Introduction to Organismal Biology	4

**X. MINIMUM QUALIFICATIONS****Courses Requiring a Masters Degree:**

Master's degree in any biological science OR bachelor's degree in any biological science AND master's degree in biochemistry, biophysics, or marine science OR the equivalent

**XI. ARTICULATION INFORMATION**

A. Title V Course Classification:

1. This course is designed to be taken either:

- Pass/No Pass only (no letter grade possible); or  
 Letter grade (P/NP possible at student option)

2. Degree status:

Either  Associate Degree Applicable; or  Non-associate Degree Applicable

B. Moorpark College General Education:

1. Do you recommend this course for inclusion on the Associate Degree General Education list?

Yes:  No:  If YES, what section(s)?

- A1 - Natural Sciences - Biological Science
- A2 - Natural Sciences - Physical Science
- B1 - Social and Behavioral Sciences - American History/Institutions
- B2 - Social and Behavioral Sciences - Other Social Behavioral Science
- C1 - Humanities - Fine or Performing Arts
- C2 - Humanities - Other Humanities
- D1 - Language and Rationality - English Composition
- D2 - Language and Rationality - Communication and Analytical Thinking
- E1 - Health/Physical Education
- E2 - PE or Dance
- F - Ethnic/Gender Studies

C. California State University(CSU) Articulation:

1. Do you recommend this course for transfer credit to CSU? Yes:  No:
2. If YES do you recommend this course for inclusion on the CSU General Education list?  
 Yes:  No:  If YES, which area(s)?  
 A1  A2  A3  B1  B2  B3  B4   
 C1  C2  D1  D2  D3  D4  D5   
 D6  D7  D8  D9  D10  E

D. University of California (UC) Articulation:

1. Do you recommend this course for transfer to the UC? Yes:  No:
2. If YES do you recommend this course for the Intersegmental General Education Transfer Curriculum (IGETC)? Yes:  No:

IGETC Area 1: English Communication

- English Composition
- Critical Thinking-English Composition
- Oral Communication

IGETC Area 2: Mathematical Concepts and Quantitative Reasoning

- Mathematical Concepts

IGETC Area 3: Arts and Humanities

- Arts
- Humanities

IGETC Area 4: Social and Behavioral Sciences

- Anthropology and Archaeology
- Economics
- Ethnic Studies
- Gender Studies
- Geography
- History
- Interdisciplinary, Social & Behavioral Sciences
- Political Science, Government & Legal Institutions
- Psychology
- Sociology & Criminology

IGETC Area 5: Physical and Biological Sciences (mark all that apply)

- Physical Science Lab or Physical Science Lab only (non-sequence)
- Physical Science Lecture only (non-sequence)
- Biological Science
- Physical Science Courses
- Physical Science Lab or Biological Science Lab Only (non-sequence)
- Biological Science Courses
- Biological Science Lab course
- First Science course in a Special sequence
- Second Science course in a Special Sequence
- Laboratory Activity
- Physical Sciences

IGETC Area 6: Language other than English

- Languages other than English (UC Requirement Only)
- U.S. History, Constitution, and American Ideals (CSU Requirement ONLY)
- U.S. History, Constitution, and American Ideals (CSU Requirement ONLY)

**XII. REVIEW OF LIBRARY RESOURCES**

- A. What planned assignment(s) will require library resources and use?

The following assignments require library resources:

Utilize the Library's print and online resources in preparation for writing research papers on such topics as biology kingdom, physiology, and ecology.

- B. Are the currently held library resources sufficient to support the course assignment?

YES:  NO:

If NO, please list additional library resources needed to support this course.

### XIII. PREREQUISITE AND/OR COREQUISITE JUSTIFICATION

#### Requisite Justification for BIOL M02A



#### A. Sequential course within a discipline.

1. understand and discuss the basic themes of biology that permeate all levels of organization:
  - a. Define the basic vocabulary
  - b. Compare and contrast the interactions between the basic vocabulary words
  - c. Construct mental models for the various systems studied
  - d. Evaluate and appraise the evidence behind the various models discussed
  - e. Given a body of data from a scientific paper, analyze how that evidence affects the scientific models studied.
  
2. discuss the chemical basis of biological systems including the structure and function of biological molecules:
  - a. Define the basic vocabulary
  - b. Compare and contrast the interactions between the basic vocabulary words
  - c. Construct mental models for the various systems studied
  - d. Evaluate and appraise the evidence behind the various models discussed
  - e. Given a body of data from a scientific paper, analyze how that evidence affects the scientific models studied.
  
3. explain the concepts and processes of cellular metabolism including photosynthesis, cellular respiration and the role of adenosine triphosphate in the thermodynamics of living systems:
  - a. Define the basic vocabulary
  - b. Compare and contrast the interactions between the basic vocabulary words
  - c. Construct mental models for the various systems studied
  - d. Evaluate and appraise the evidence behind the various models discussed
  - e. Given a body of data from a scientific paper, analyze how that evidence affects the scientific models studied.
  
4. identify and describe prokaryotic and eukaryotic cell structures, relating structure to function, including the current model of membrane structure and function and a discussion of cellular transport:
  - a. Define the basic vocabulary
  - b. Compare and contrast the interactions between the basic vocabulary words
  - c. Construct mental models for the various systems studied
  - d. Evaluate and appraise the evidence behind the various models discussed
  - e. Given a body of data from a scientific paper, analyze how that evidence affects the scientific models studied.
  
5. describe current models of cell communication:
  - a. Define the basic vocabulary
  - b. Compare and contrast the interactions between the basic vocabulary words

- c. Construct mental models for the various systems studied
- d. Evaluate and appraise the evidence behind the various models discussed
- e. Given a body of data from a scientific paper, analyze how that evidence affects the scientific models studied.

6. discuss cellular reproduction and its controls in prokaryotes and eukaryotes including sexual and asexual life cycles:

- a. Define the basic vocabulary
- b. Compare and contrast the interactions between the basic vocabulary words
- c. Construct mental models for the various systems studied
- d. Evaluate and appraise the evidence behind the various models discussed
- e. Given a body of data from a scientific paper, analyze how that evidence affects the scientific models studied.

7. apply the principles of classical and molecular genetics to solve problems in genetics or biotechnology:

- a. Define the basic vocabulary
- b. Compare and contrast the interactions between the basic vocabulary words
- c. Construct mental models for the various systems studied
- d. Evaluate and appraise the evidence behind the various models discussed
- e. Given a body of data from a scientific paper, analyze how that evidence affects the scientific models studied.

8. explain prokaryotic and eukaryotic genome organization, DNA structure, DNA replication, gene expression and the control of gene expression. Relate theoretical models to the practical applications of biotechnology:

- a. Define the basic vocabulary
- b. Compare and contrast the interactions between the basic vocabulary words
- c. Construct mental models for the various systems studied
- d. Evaluate and appraise the evidence behind the various models discussed
- e. Given a body of data from a scientific paper, analyze how that evidence affects the scientific models studied.

9. discuss and relate evolutionary processes to the origin and evolution of cells, species and populations:

- a. Define the basic vocabulary
- b. Compare and contrast the interactions between the basic vocabulary words
- c. Construct mental models for the various systems studied
- d. Evaluate and appraise the evidence behind the various models discussed
- e. Given a body of data from a scientific paper, analyze how that evidence affects the scientific models studied.

10. explain and apply the scientific method in the study of biological concepts and laboratory exercises:

- a. Define the basic vocabulary



- b. Compare and contrast the interactions between the basic vocabulary words
- c. Construct mental models for the various systems studied
- d. Evaluate and appraise the evidence behind the various models discussed
- e. Given a body of data from a scientific paper, analyze how that evidence affects the scientific models studied.

11. acquire, read, evaluate, apply and cite scientific literature.

- B. Standard Prerequisite or Corequisite required by universities.
- C. Corequisite is linked to companion lecture course.
- D. Prerequisite or Corequisite is authorized by legal statute or regulation.  
Code Section: \_\_\_\_\_
- E. Prerequisite or Corequisite is necessary to protect the students' health and safety.
- F. Computation or communication skill is needed.
- G. Performance courses: Audition, portfolio, tryouts, etc. needed.

or

#### Requisite Justification for BIOL M02AH

- A. Sequential course within a discipline.
  - 1. understand and discuss the basic themes of biology that permeate all levels of organization:
    - a. Define the basic vocabulary
    - b. Compare and contrast the interactions between the basic vocabulary words
    - c. Construct mental models for the various systems studied
    - d. Evaluate and appraise the evidence behind the various models discussed
    - e. Given a body of data from a scientific paper, analyze how that evidence affects the scientific models studied.
  - 2. discuss the chemical basis of biological systems including the structure and function of biological molecules:
    - a. Define the basic vocabulary

- b. Compare and contrast the interactions between the basic vocabulary words
  - c. Construct mental models for the various systems studied
  - d. Evaluate and appraise the evidence behind the various models discussed
  - e. Given a body of data from a scientific paper, analyze how that evidence affects the scientific models studied.
3. explain the concepts and processes of cellular metabolism including photosynthesis, cellular respiration and the role of adenosine triphosphate in the thermodynamics of living systems:
- a. Define the basic vocabulary
  - b. Compare and contrast the interactions between the basic vocabulary words
  - c. Construct mental models for the various systems studied
  - d. Evaluate and appraise the evidence behind the various models discussed
  - e. Given a body of data from a scientific paper, analyze how that evidence affects the scientific models studied.
4. identify and describe prokaryotic and eukaryotic cell structures, relating structure to function, including the current model of membrane structure and function and a discussion of cellular transport:
- a. Define the basic vocabulary
  - b. Compare and contrast the interactions between the basic vocabulary words
  - c. Construct mental models for the various systems studied
  - d. Evaluate and appraise the evidence behind the various models discussed
  - e. Given a body of data from a scientific paper, analyze how that evidence affects the scientific models studied.
5. describe current models of cell communication:
- a. Define the basic vocabulary
  - b. Compare and contrast the interactions between the basic vocabulary words
  - c. Construct mental models for the various systems studied
  - d. Evaluate and appraise the evidence behind the various models discussed

- e. Given a body of data from a scientific paper, analyze how that evidence affects the scientific models studied.
6. discuss cellular reproduction and its controls in prokaryotes and eukaryotes including sexual and asexual life cycles:
  - a. Define the basic vocabulary
  - b. Compare and contrast the interactions between the basic vocabulary words
  - c. Construct mental models for the various systems studied
  - d. Evaluate and appraise the evidence behind the various models discussed
  - e. Given a body of data from a scientific paper, analyze how that evidence affects the scientific models studied.
7. apply the principles of classical and molecular genetics to solve problems in genetics or biotechnology:
  - a. Define the basic vocabulary
  - b. Compare and contrast the interactions between the basic vocabulary words
  - c. Construct mental models for the various systems studied
  - d. Evaluate and appraise the evidence behind the various models discussed
  - e. Given a body of data from a scientific paper, analyze how that evidence affects the scientific models studied.
8. explain prokaryotic and eukaryotic genome organization, DNA structure, DNA replication, gene expression and the control of gene expression. Relate theoretical models to the practical applications of biotechnology:
  - a. Define the basic vocabulary
  - b. Compare and contrast the interactions between the basic vocabulary words
  - c. Construct mental models for the various systems studied
  - d. Evaluate and appraise the evidence behind the various models discussed
  - e. Given a body of data from a scientific paper, analyze how that evidence affects the scientific models studied.
9. discuss and relate evolutionary processes to the origin and evolution of cells, species and populations:
  - a. Define the basic vocabulary

- b. Compare and contrast the interactions between the basic vocabulary words
  - c. Construct mental models for the various systems studied
  - d. Evaluate and appraise the evidence behind the various models discussed
  - e. Given a body of data from a scientific paper, analyze how that evidence affects the scientific models studied.
10. explain and apply the scientific method in the study of biological concepts and laboratory exercises:
- a. Define the basic vocabulary
  - b. Compare and contrast the interactions between the basic vocabulary words
  - c. Construct mental models for the various systems studied
  - d. Evaluate and appraise the evidence behind the various models discussed
  - e. Given a body of data from a scientific paper, analyze how that evidence affects the scientific models studied.
11. acquire, read, evaluate, apply and cite scientific literature.
12. HONORS: critically read, analyze and summarize original scientific data and research.
13. HONORS: report on seminars, conferences or presentations within the academic setting or community.
14. HONORS: identify, discuss and provide scientific significance and explanations for current biological issues impacting society.
- a. Define the basic vocabulary
  - b. Compare and contrast the interactions between the basic vocabulary words
  - c. Construct mental models for the various systems studied
  - d. Evaluate and appraise the evidence behind the various models discussed
  - e. Given a body of data from a scientific paper, analyze how that evidence affects the scientific models studied.

B. Standard Prerequisite or Corequisite required by universities.

C. Corequisite is linked to companion lecture course.

- D. Prerequisite or Corequisite is authorized by legal statute or regulation.  
Code Section: \_\_\_\_\_
- E. Prerequisite or Corequisite is necessary to protect the students' health and safety.
- F. Computation or communication skill is needed.
- G. Performance courses: Audition, portfolio, tryouts, etc. needed.

**XIV. WORKPLACE PREPARATION**

BIOL M02B: Not Applicable

**XV. DISTANCE LEARNING COURSE OUTLINE ADDENDUM**

BIOL M02B: Not Applicable

**XVI. GENERAL EDUCATION COURSE OUTLINE ADDENDUM**

**General Education Division of Learning** [check all applicable boxes]:

- Natural Sciences
  - Biological Science
  - Physical Science
- Social and Behavioral Sciences
  - American History/Institutions
  - Other Social Science
- Humanities
  - Fine or Performing Arts
  - Other Humanities
- Language and Rationality
  - English Composition
  - Communication and Analytical Thinking
- Health/Physical Education
- Ethnic/Women's Studies

**Check either Option 1 or Option 2**

- OPTION #1:** Moorpark College has already received approval from the CSU and/or UC systems for this course to fulfill a GE requirement.  
Note: This option applies only to technical revisions and updated courses.
- OPTION #2:** Moorpark College has not received approval from the

- CSU and/or UC systems for this course to fulfill a GE requirement. This option applies to all new and substantively revised courses.

**XVII. STUDENT MATERIALS FEE ADDENDUM**

BIOL M02B: Not Applicable

**XVIII. REPEATABILITY JUSTIFICATION TITLE 5, SECTION 55041**

BIOL M02B: Not Applicable

**XIX. CURRICULUM APPROVAL**

Course Information:

Discipline: BIOLOGY

Discipline Code and Number: BIOL M02B

Course Revision Category: Outline Update

Course Proposed By:

Originating Faculty Jana Johnson 09/12/2018

Faculty Peer: Paul Kores 09/13/2018

Curriculum Rep: Beth Miller 09/12/2018

Department Chair: Audrey Chen 09/12/2018

Division Dean: Carol Higashida 09/13/2018

Approved By:

Curriculum Chair: Jerry Mansfield 02/08/2019

Executive Vice President: \_\_\_\_\_

Articulation Officer: Letrisha Mai 02/06/2019

Librarian: Mary LaBarge 02/04/2019

Implementation Term and Year: Fall 2019

Approval Dates:

Approved by Moorpark College Curriculum Committee: 03/05/2019

Approved by Board of Trustees (if applicable): \_\_\_\_\_

Approved by State (if applicable): 03/08/2019