

**Introduction to Biology Web Course
Informational and Test Schedule**

Spring 2011

Inquiry into Life

by Sylvia Mader

Introduction to Biological Science (BIO1100AAW1 & 2)

Three Hours Credit

Nancy Petersen

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Fall Office (#23) Hours:

1:00-1:50 MW

11:00-11:50 TR

12:00-12:50 F

Course Description

Introductory Biology for Nonmajors is an introductory course in the biological sciences for the nonmajor student. Topics included are cell structure and function, bioenergetics, DNA structure and function, cell reproduction, taxonomy, evolution, ecology, and an overview of the anatomy and physiology of the major organ systems.

Course Objectives

- Classify living organisms and assess their effect of the biosphere.
- Describe the chemical composition of cells and analyze the various processes that happen at the cellular level.
- State the different types of cells and distinguish between mitosis and cytokinesis.
- Compare and contrast the Mendelian and chromosomal patterns of inheritance.
- Enumerate the various applications of genomics and biotechnology.
- Trace the evolution of plants.
- Analyze the physical structure of plants and the process of transport of nutrients in plants.
- Analyze the reproductive strategies of angiosperms.
- Trace the evolution of invertebrates and create a table showing different classes of invertebrates.
- Summarize the evolution of vertebrates from the Paleozoic era, and the evolution of humans from primates.
- Give an overview of the different functional systems and distinguish between the circulatory systems of invertebrates and vertebrates.
- Outline the processes of ingestion and excretion in animals.
- Explain the function of the sensory organs and describe the central and peripheral nervous systems.
- Describe the respiratory organs and summarize the process of respiration in animals.

Course Prerequisites

There are no prerequisites to take Introductory Biology for Nonmajors.

Course Texts

- Mader, Sylvia S. *Inquiry into Life*, 13th edition, McGraw-Hill, 2008, ISBN: 9780077280109. An Access Code is required for the online material and accompanies the textbook.

You will need to use your MAC email for all correspondence for this class. The distribution list is automatically generated and I will keep copies of all correspondence

Course Evaluation

There will be 8 exams composed of 30-40 multiple choice questions. The source of test questions will come from any part of the online instructional materials and all of the assigned reading in the text. **MAKE SURE THAT YOU ARE READING THE TEXT MATERIAL SPECIFICALLY ASSIGNED FOR EACH LESSON.** All tests must be taken when they are scheduled.

The online window of testing will be open from midnight of the first day until midnight of the last day. The student will have 60 minutes to complete each exam. There will be only one login per exam. Be sure that you are ready to complete the test uninterrupted before you begin. Once you begin your exam you must finish it within 60 minutes.

There will be several brief papers on assigned topics during the semester.

Course Evaluation Criteria At the end of the course, each student is assigned a final grade as follows:

Grade	Percentage Range	Interpretation
A	90-100	Excellent
B	80-89	Above average
C	70-79	Average
D	60-69	Below average
F	59 & below	Failure
I		Incomplete

ACADEMIC DISHONESTY: Cheating on tests will result in the student receiving an F on that test. Plagiarism is the intentional use of someone else's work. Plagiarism will not be tolerated. Students caught plagiarizing will receive an F in the course and may be subject to college disciplinary proceedings.

HONORS: This class may not be taken as an honors course.

I highly recommend completing "Testing Yourself" at the end of the chapters. This is a good practice for the exams. The answers can be found in Appendix A on page A-1 in the back of the textbook. There are also practice exams online at www.mhhe.com/maderinquiry13.

Test Schedule, Course Topics, Objectives, and Reading assignments.

Topics	Topic	Objectives	Reading
1	<ul style="list-style-type: none"> Introduction to Biology 	<ul style="list-style-type: none"> Compare and contrast living and non-living things. Describe the biosphere and assess the effect of the human population on it. Classify living things into categories based on different criteria. 	<ul style="list-style-type: none"> Ch. 1 pages 3-9
2	<ul style="list-style-type: none"> Cellular Chemistry 	<ul style="list-style-type: none"> Describe the chemical composition of cells and recognize the interactions between the constituent elements. Analyze the chemical reactions and energy transformations in a cell. Summarize the process of photosynthesis. Associate chemical reactions with different sub-processes in cellular respiration. 	<ul style="list-style-type: none"> Ch. 2 pages 19-43 Ch. 6 pages 100-111 Ch. 8 pages 127-140 Ch. 7 pages 113-123
3	<ul style="list-style-type: none"> Cell Biology 	<ul style="list-style-type: none"> Identify the different types of cells and their characteristics. Analyze the structure of cell components with respect to their functions. Contrast the stages of the cell cycle. Distinguish between mitosis and cytokinesis. 	<ul style="list-style-type: none"> Ch. 3 pages 45-64 Ch. 5 pages 81-88
4	<ul style="list-style-type: none"> Genetics 	<ul style="list-style-type: none"> Describe the structure of DNA and its modes of replication. Summarize the process and phases of meiosis. Describe the theory of Mendelian patterns of inheritance and examine it for lapses and shortcomings. Compare and contrast the Mendelian and chromosomal patterns of inheritance. 	<ul style="list-style-type: none"> Ch. 25 pages 502-505 Ch. 5 pages 89-94 Ch. 23 pages 469-485

5	<ul style="list-style-type: none"> Genomics and Biotechnology 	<ul style="list-style-type: none"> Describe and differentiate between gene regulation in prokaryotes and eukaryotes. Explain the process of gene mutations and its effects. State the various applications of biotechnology. Identify the applications of genomics and gene therapy. 	<ul style="list-style-type: none"> Ch. 25 pages 512-522 Ch. 26 pages 525-538
6	<ul style="list-style-type: none"> Plant Evolution and Diversity 	<ul style="list-style-type: none"> Discuss microscopic organisms like viruses and bacteria. Compare and contrast fungi and plants. Trace the evolution of plants to current forms. Classify plants into different categories. 	<ul style="list-style-type: none"> Ch. 28 pages 569-598 Ch. 29 pages 601-617
7	<ul style="list-style-type: none"> Plant Biology 	<ul style="list-style-type: none"> Analyze the physical structure of a plant. Analyze the process of intake and transport of nutrients by plants. Associate movements and changes in plants to the corresponding stimuli. 	<ul style="list-style-type: none"> Ch. 9 pages 143-168 Ch. 10 pages 184-189
8	<ul style="list-style-type: none"> Plant Reproduction 	<ul style="list-style-type: none"> Analyze the reproductive strategies of angiosperms. Distinguish between types of seeds and fruits. Explain seed dispersal mechanisms in angiosperms. Elaborate on asexual reproduction in plants and its application in tissue culture and genetic engineering. 	<ul style="list-style-type: none"> Ch. 10 pages 171-183
9	<ul style="list-style-type: none"> Invertebrates 	<ul style="list-style-type: none"> Identify the different criteria for the classification of animals. Discuss basic characteristics that define animals and identify invertebrates that display these characteristics. Discuss different classes of invertebrates and their functional systems. Develop a graphical representation of major evolutionary changes in invertebrates. 	<ul style="list-style-type: none"> Ch. 30 pages 619-643

10	<ul style="list-style-type: none"> • Vertebrates 	<ul style="list-style-type: none"> • Identify the major characteristics of chordates. • Associate different classes of vertebrates with their environments and lifestyles. • Trace the evolution of vertebrates from the Paleozoic era to the current era. • Summarize the evolution of primates into humans. 	<ul style="list-style-type: none"> • Ch. 31 pages 645-667
11	<ul style="list-style-type: none"> • Introduction to Functional Systems: The Cardiovascular System and the Immune System 	<ul style="list-style-type: none"> • Tabulate the different functional systems in the body. • Describe the circulatory systems in invertebrates. • Describe the circulatory systems in vertebrates. • Distinguish between the components of blood with respect to appearance and functions. • Separate and sequence the steps taken the body to defend itself against pathogens. 	<ul style="list-style-type: none"> • Ch. 12 pages 213-236 • Ch. 13 pages 235-252
12	<ul style="list-style-type: none"> • Digestive and Excretory Systems 	<ul style="list-style-type: none"> • Describe the animal digestive tract and classify animals based on the digestive tract. • Explain how enzymes react chemically to aid digestion. • Analyze the functioning of the organs of excretions and the process of body fluid regulation. • Describe the urinary system in humans and homeostasis. 	<ul style="list-style-type: none"> • Ch. 14 pages 255-282 • Ch. 16 pages 299-315
13	<ul style="list-style-type: none"> • Sensory and Nervous Systems 	<ul style="list-style-type: none"> • Describe the chemical, visual, and hearing and balance sensory organs and their construction. • Analyze the structure of nervous tissue and its function. • Describe the components of the central and peripheral nervous systems and their functions. 	<ul style="list-style-type: none"> • Ch. 18 pages 345-364 • Ch. 17 pages 315-343

14	<ul style="list-style-type: none">• Respiratory Systems	<ul style="list-style-type: none">• Identify the respiratory organs and surfaces in animals which allow exchange of gases.• Describe the human respiratory system and infections/disorders to the system.• Associate disorders and infections in the respiratory tract with their causes and symptoms.	<ul style="list-style-type: none">• Ch. 15 pages 281-297
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PRINT AND HANG IN A CONSPICUOUS PLACE

INTRODUCTION TO BIOLOGICAL SCIENCE WEB COURSE

BIO1100AAW1 and BIO1100AAW2

TESTING DATES AND CONTENTS

(Content refers to lessons in the online instructional material-NOT CHAPTERS)

TEST ONE

January 20-26

TOPICS ONE & TWO

TEST TWO

February 3-9

TOPIC THREE

TEST THREE

February 17-23

TOPICS FOUR & FIVE

TEST FOUR

March 3-9

TOPICS SIX & SEVEN

TEST FIVE

March 17-23

TOPIC EIGHT

TEST SIX

March 31-April 6

TOPICS NINE & TEN

TEST SEVEN

April 14-20

TOPICS ELEVEN & TWELVE

TEST EIGHT-Final Exam

April 28-May 4

TOPICS THIRTEEN AND FOURTEEN

LAST DAY TO DROP A CLASS WITH A "W" IS

April 15, 2011