

# Biology 12 Course Outline

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Text: Inquiry Into Life, 13<sup>th</sup> edition



**Welcome to Biology 12**, the senior Biology course which concentrates on **Cellular Processes** and **Human Biology**. You will find that this is a **challenging course** in which you will learn innumerable interesting and exciting facts and theories about the processes of life. The work load, you will soon find, is **considerably higher** than in Biology 11. This is a course that contains a **great deal of information**, and is designed to prepare the student for the **standards and content of university level** Biology and Biochemistry. Hence, the standards and expectations found in this course are similar to those in a university introductory Biology course. **With perseverance, hard work, and good study habits**, you will do well in Biology 12. It is my hope that you will leave this course with a greater appreciation for the importance of Biology, and a stronger personal interest in all the processes of life. As the material in this course can be intellectually challenging, I **strongly urge** you to scrupulously **keep up with all homework, reading, and assignments** and, **most importantly**, see me for extra help and clarification as necessary. I wish you the **best of luck** in this most worthwhile endeavor.



## BIOLOGY 12 TOPICS & CHAPTER SEQUENCE

TOPIC	Chapter*	Classes allotted (70 min. classes)
1. Biologically Important Molecules	1, 2	8
2. DNA, Protein Synthesis, & Recombinant DNA	25, 26	9
3. Cell Organelles	3	6
4. Cell Membrane and Cell Wall Function	4	5
5. Enzymes, Cellular Respiration	6	5
6. Human Organization, Tissues	11	1
7. Digestion, Human Nutrition	12	8
8. Circulation	13	7
9. Blood	14	4
10. Respiration	15	4
11. Excretion	16	6
12. The Nervous System	17	8
13. Reproductive System	21	6
14. Review		4
*based on <i>Inquiry Into Life, 11<sup>th</sup> Edition, by Sylvia Mader</i>		
	Total	81

### Prescribed Learning Outcomes: Biology 12

It is expected that students will:

#### PROCESSES OF SCIENCE

- A1 demonstrate safe and correct technique for a variety of laboratory procedures
- A2 design an experiment using the scientific method
- A3 interpret data from a variety of text and visual sources

#### CELL BIOLOGY

##### Cell Structure

- B1 analyse the functional inter-relationships of cell structures

##### Cell Compounds and Biological Molecules

- B2 describe the characteristics of water and its role in biological systems
- B3 describe the role of acids, bases, and buffers in biological systems in the human body
- B4 analyse the structure and function of biological molecules in living systems, including
  - carbohydrates
  - lipids
  - proteins
  - nucleic acids

##### DNA Replication

- B5 describe DNA replication
- B6 describe recombinant DNA

##### Protein Synthesis

- B7 demonstrate an understanding of the process of protein synthesis
- B8 explain how mutations in DNA affect protein synthesis

##### Transport across Cell Membrane

- B9 analyse the structure and function of the cell membrane
- B10 explain why cells divide when they reach a particular surface area-to-volume ratio

##### Enzymes

- B11 analyse the roles of enzymes in biochemical reactions

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### Prescribed Learning Outcomes: Biology 12

Biology 12 Prescribed Learning Outcomes continued from page 19

#### HUMAN BIOLOGY

##### Digestive System

- C1 analyse the functional inter-relationships of the structures of the digestive system
- C2 describe the components, pH, and digestive actions of salivary, gastric, pancreatic, and intestinal juices

##### Circulatory System

- C3 describe the inter-relationships of the structures the heart
- C4 analyse the relationship between heart rate and blood pressure
- C5 analyse the functional inter-relationships of the vessels of the circulatory system
- C6 describe the components of blood
- C7 describe the inter-relationships of the structures of the lymphatic system

##### Respiratory System

- C8 analyse the functional inter-relationships of the structures of the respiratory system
- C9 analyse the processes of breathing
- C10 analyse internal and external respiration

##### Nervous System

- C11 analyse the transmission of nerve impulses
- C12 analyse the functional inter-relationships of the divisions of the nervous system

##### Urinary System

- C13 analyse the functional inter-relationships of the structures of the urinary system

##### Reproductive System

- C14 analyse the functional inter-relationships of the structures of the male reproductive system
- C15 analyse the functional inter-relationships of the structures of the female reproductive system

## Evaluation

- Your overall mark in Biology 12 is based on two separate marks: the mark you earn in class with me (worth **80% of your overall mark**) for the course. This is your "school mark". **ALL STUDENTS WILL WRITE A COMPREHENSIVE FINAL EXAM AT THE END OF THE COURSE.** The final is worth 20% of your overall mark.
- Your in-school mark will be calculated as follows:

<b>CELL BIOLOGY</b>	Cell Structure; Cell Compounds/Biological Molecules; DNA Replication	<b>18%</b>
<b>PROCESSES OF SCIENCE/ CELL BIOLOGY</b>	Scientific Method; Enzymes; Protein Synthesis; Transport Across Cell Membrane	<b>18%</b>
<b>HUMAN BIOLOGY</b>	Digestive System; Circulatory System; Respiratory System; Nervous System; Urinary System; Reproductive System	<b>64%</b>

## Important Notes

- Marks will not be given for assignments handed in after the work has been reviewed in class.** In order to receive marks for the assignment, an alternative assignment must be completed – usually a harder assignment!
- Test Policy.** If you miss a test, please be prepared to write on the day of your return, either at lunch or afterschool. Please provide a note from your parents or have them phone in your absence. Regardless of the validity of the excuse, you will be required to write a longer or harder makeup test. DON'T MISS TESTS!  
I do allow test rewrites for those students who are working and making an effort in class. You must have "Good" work habits in order to be considered for a rewrite. Rewrites will take place afterschool after you have made arrangements with me and criteria have been met.

## Classroom Expectations

- Attend class and arrive on time.** Attendance issues will cause you to have difficulty with the course. If you miss a class obtain handouts from the Assignment Folder. Please arrive on time as late students are a disturbance.
- Be prepared for class** by bringing the following material every day: binder & textbook, pencil, blue or black and a red pen and ruler.
- Be respectful of others** by being considerate of others around you.
- Respect our learning environment** Please do not write on the desks or test dividers, or put your litter on the floor. All drink containers should be put in the recycling bin.
- Electronics must be used appropriately and for educational purposes only (and with permission)**

Good Luck! I wish you much success and enjoyment in your studies.