

M: Course Objectives / Learning Outcomes

Upon completion of Biology 1103, the student will be able to:

1. Use a compound microscope, and describe and identify cell and tissue types in the body.
2. Describe the chemistry and properties of water, and the structure and biological significance of carbohydrates, lipids, proteins and nucleic acids.
3. Describe the basic principles of homeostasis and negative feedback systems, and provide at least one example of a homeostatic mechanism.

- 4 Computational and Information Technology Skills.
This is a lab based course and students will be required to take measurements and make various calculations in a laboratory setting. They will be required to make calculations on weekly tests, theory examinations and practical laboratory examinations.
- 5 Teamwork.
Students will be required to demonstrate the ability to cooperate with other students in problem solving exercises in class and in some laboratory experiments.

Academic Signature:

This course will contain the following elements of the college's academic signature:

1. Applied Skills and Abilities

This is a laboratory course which requires students to develop practical skills and knowledge on a regular basis throughout the course. Students will also be required to demonstrate these skills and abilities on a practical laboratory examination.

Interdisciplinary Studies

Students will be expected to learn and/or apply basic mathematics and chemistry to the study of human anatomy and physiology.

2. Ethical Behaviour and Social Responsibility - Effective Citizenship

Students will discuss the political and ethical implications of biological research and discoveries and will be expected to demonstrate an understanding of the relevance of biological knowledge to society.

3. Intercultural, International, and Global Perspective

Biological knowledge gained in this course will be considered in the context of its international and global implications. For example, issues such as the implications of intensive use of antibiotics, the significance of adequate nutrition, and availability of clean water, and the spread of disease have cultural and global significance and will be among topics discussed in the course.

N: Course Content:

The major topics in the course include the following:

1. The structure and function of cells:
 - The structure and function of cell membranes and various cytoplasmic and nuclear components.
 - The preparation of and exa/MCID this courcells:

4. The organization of the human body beyond the cellular level:
 - The structure and function of the four tissue types.
 - The major body systems, their major organs, and the general function of each organ.
 - Directional terms as they relate to the human body.
 - The body cavities and their organs.
5. The integumentary system:
 - The identification and description of the components of the epidermis and the dermis.
 - Specialized cells, structures, and glands.
6. The skeletal system:
 - The basic structure, histology, and components of the human skeleton.
 - The structure, physiology, and function of bone.
 - The changes in skeletal structure during growth and development (ossification).
 - Articulations (joints) with respect to their structures and types of movement allowed.
 - The basic mechanical principles of movement as they relate to joints (biomechanics).
7. The muscular system:
 - The types of movements found in humans as a result of skeletal muscle contraction.
 - The identification of the principal muscles and muscle groups and their movements.
 - The gross anatomy of muscles and microscopic anatomy of muscle tissue.
 - The physiology of muscle contraction.
8. The circulatory system:
 - A description of the human circulatory and lymphatic systems.
 - The composition and properties of blood.
 - The types, characteristics and functions of white blood cells.
 - The ABO blood groups and the Rh factor.
 - The tissues related to the heart.
 - The heart conduction system.
 - Major arteries and veins.
 - Blood pressure and pulse.
 - Major blood reservoirs in the body.
 - The mechanism of blood clotting.
9. Resistance and Immunity:
 - Nonspecific versus specific resistance.
 - The nature and roles of cellular and humoral specific immunity.
10. The respiratory system:
 - The major components of the human respiratory system and their functions.
 - The mechanism and types of ventilation.
 - How oxygen and carbon dioxide are transported in the blood.
 - The nervous control of breathing.

O: Methods of Instruction

This course involves three hours per week of classroom instruction and two hours per week of laboratory activity. Classroom work will consist of two hours of lectures per week and one hour of group work (with instructor assistance) per week.

