

**NOVA COLLEGE-WIDE COURSE CONTENT SUMMARY  
BIO 102 - GENERAL BIOLOGY II (4 CR.)**

**Course Description**

Explores fundamental characteristics of living matter from the molecular level to the ecological community with emphasis on general biological principles. Introduces the diversity of living organisms, their structure, function and evolution. Lecture 3 hours. Recitation and Laboratory 3 hours. Total 6 hours per week.

**General Course Purpose**

This course is to provide students with an opportunity to acquire fundamental knowledge of the principles and living systems and their applications to everyday life. The course is designed for both science and non-science majors. The course may serve as a prerequisite for advanced biology courses, a laboratory science graduation requirement, or as transfer credit for a four-year institution. BIO 101 is a prerequisite for BIO 102, or BIO 102 may be taken without BIO 101 with Division approval.

**Course Prerequisites/Co-requisites**

Prerequisite is BIO 101, or division approval.

**Course Objectives**

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

- describe the levels of organization of multicellular organisms
- describe the structure and functions of the major organ systems in animals
- describe the evolutionary development of the major organ systems in animals
- describe the mechanisms, principles and processes involved in the maintenance of homeostasis in animals
- describe the main features of animal development and its regulation at the molecular level
- describe the relationship between structure and function in plants
- describe the evolutionary development of plants in terms of levels of complexity and life cycles
- describe the regulation of growth and development in plants
- relate the basic principles of ecology to the diversity and distribution of organisms on the earth
- outline the main principles governing ecosystems and describe how the activities of humans affect ecosystems

**Major Topics to be Included**

- Multicellularity
- Homeostasis
- Overview of animal kingdom
- Animal structure and function
  - Digestion
  - Nutrition
  - Circulation
  - Immunology
  - Gas exchange
  - Excretion
  - Hormonal regulation
  - Reproduction
  - Development
  - Responsiveness

- Overview of plant kingdom
- Plant structure and function
  - Primary tissues and primary growth
  - Secondary tissues and secondary growth
  - Plant transport mechanisms
  - Plant hormones
  - Plant reproduction
- Ecology
  - Populations
  - Communities
  - Ecosystems

### **Optional Topics**

Research projects, field trips, research papers and seminars may be available for interested students or for students who need these elements for a particular purpose. The optional elements may be offered at the instructor's discretion.