

URSC 102

Introduction to Undergraduate Research Skills

1 Credit

Community College of Baltimore County

Common Course Outline

Description

URSC 102 – Introduction to Undergraduate Research Skills: students in this course will have the opportunity to learn laboratory skills found in chemistry, molecular biology and field sampling. They will be exposed to primary literature and lab instruments that will enable them to complete a project in each of the three respective areas. This course includes field trip activities.

Pre-requisites: ARSC 107 or URSC 101 with a grade of C or better

Overall Course Objectives

Upon completion of this course, students will be able to:

1. Work safely within a laboratory setting by following all lab regulations;
2. Utilize various instruments found in a chemistry lab to analyze substances;
3. Carry out chemical processes such as synthesis and polymerization reactions;
4. Complete calculations necessary for performing experiments or analyzing data;
5. Utilize various instruments found in a molecular biology lab, such as micropipettors and thermocyclers to manipulate DNA;
6. Work safely in an outdoor environment;
7. Utilize various instruments to collect and analyze field samples;
8. Find, use, and cite literature to locate appropriate protocols;
9. Use the appropriate protocols to evaluate results;
10. Properly maintain a laboratory notebook;
11. Analyze data collected from a project in order to draw conclusions; and
12. Present conclusions from a research project in the form of a poster.

Major Topics

- I. Synthesis reactions
- II. Polymerization reactions
- III. Measurement
- IV. Micropipetting
- V. Vector construction
- VI. Gel electrophoresis
- VII. Polymerase Chain Reaction
 - a. Theory
 - b. Practice
- VIII. Water chemistry

The Common Course Outline (CCO) determines the essential nature of each course.

For more information, see your professor's syllabus.

- a. Dissolved oxygen
- b. pH
- c. Nitrogen
- d. Temperature
- IX. Stream geomorphology
- X. Benthic macro-invertebrates

Course Requirements

Grading will be determined by the individual faculty member, but shall include the following, at minimum:

- Maintenance of a lab notebook
- One assignment per module
- Poster presentation

Written assignments and research projects: Students are required to use appropriate academic resources in their research and cite sources according to the style selected by their professor.

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