

COURSE OUTLINE
Patience Browne, November 2010

DEPARTMENT: Academic Programs

CURRICULUM: The Natural World

COURSE TITLE: Introduction to Scientific Research

COURSE NUMBER: UGR 214

TYPE OF COURSE: Elective
Special Requirement Met: None

AREA(S) OF KNOWLEDGE: The Living World

COURSE LENGTH: 1 quarter

CREDIT HOURS: 1 - 5

LECTURE HOURS: variable

CLASS SIZE: 27

PREREQUISITES: Concurrent enrollment in Major's level Biology, or Chemistry or Physics core (BIOL& 211, CHEM& 161, PHYS& 221) or instructor permission

COURSE DESCRIPTION:

This course prepares students to be successful completing their own independent research projects. Topics include the application of the scientific method, ethics, research methods, proposal writing and presentation techniques.

STUDENT LEARNING OUTCOMES ADDRESSED

Upon successful completion of the course the student will be able to:

1. **Communication:** Read technical documents and listen actively to learn and communicate.
2. **Computation:** Apply quantitative skills related to research.
3. **Human Relations:** Use social interactive skills to work in groups effectively. Learn to work in teams with others to achieve goals in the laboratory.
4. **Critical Thinking:** Think critically in evaluating technical information, solving problems and making decisions
5. **Technology:** Select and use appropriate technological tools related to scientific research.
6. **Personal Responsibility:** Be motivated and able to continue learning and adapt to change. Be aware of environmental issues
7. **Information Literacy:** Access and evaluate information from a variety of sources and contexts, including technology.

GENERAL COURSE OBJECTIVES- *At the end of the class the student should be able to:*

1. Describe the scientific process, including the scientific method, hypothesis testing, the various ways science is done, and the limits of different types of scientific study.
2. Distinguish scholarly information from other types of information available for research and identify valid sources of scientific information.
3. Apply search strategy to research databases to locate research articles on a specific topic.
4. Synthesize information and apply sound evaluation criteria, citing and incorporating sources according to academic convention.
5. Distinguish between qualitative and quantitative methodologies.
6. Present scientific publications to peers.
7. Write a variety of types of communications following a scientific format.
8. Understand the ethics of research.
9. Think critically, leading to the generation of a research question and testable hypothesis.
10. Present scientific information in a discipline-specific format (orally, in writing, or scientific poster).

TOPICAL OUTLINE:

APPROX. HOURS

I. Scientific Method	4
II. Information Literacy	4
III. Hypothesis Generation and Experimental Design	4
IV. Scientific Writing	4
V. Presentation of Scientific Information	2
VI. Peer-reviewed Literature	2
VII. Scientific Ethics	2
Total	22

PREPARED BY: Patience Browne
DATE: November 2010

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