

The University of Findlay
College of Sciences
Fall Semester 2XXX

*The Mission of the University is to equip our students
for meaningful lives and productive careers.*

Course Number / Title:	BIOL 338: Introduction to Research
Credit Hours:	3
Class Time / Place:	Section 338.02 – FRST 221: T 8 – 1050
Prerequisites:	15 hours of biology or permission from the instructor
Instructor:	
Office Hours:	
Course Description:	This course is designed to introduce the student to research methods and techniques and develop an appreciation of the importance of the scientific method as applied to biological research. Through classroom discussions, assigned readings, and other activities, students will gain experience in designing, conducting, and reporting scientific experiments to more fully understand the importance of scientific research and its relations to social and ethical issues.
Special Services:	If you are a student with a disability, it is your responsibility to inform your instructor and register with the Office of Disability Services (ods@findlay.edu) at least one week prior to a needed service so reasonable accommodations can be made for you.
Honor Code:	<i>I will not knowingly engage in any dishonorable behavior, cheat, steal, lie, or commit any act of plagiarism during any academic work, course, or endeavor. If I observe an act which I believe violates the University's Honor Code, I may, in my discretion, report it to the appropriate personnel.</i> Academic dishonesty is a serious offense, and penalties for

violations of the honor code will be severe. By participating in this course, you are agreeing to comply with the University's Honor Code.

Course Objectives:

At the end of this course, students will be able to:

- Conduct an experiment from start to finish, including literature review, hypothesis generation, experimental design, data collection and analysis, and manuscript preparation.
- Explain the scientific method and study how it is applied in various biological fields.
- Conduct a full literature review and evaluate the quality of the sources.
- Differentiate between primary and secondary literature.
- Demonstrate proper use of existing scientific literature.
- Explain the format of research papers.
- Clearly present research in written and oral form.
- Explain the differences among selected statistical tests.
- Explain types of data collected for selected statistical tests.

Assessment

Students will be assessed with written reviews of current research, participation in the class experiment and animal care, presentations of research, and two written reports.

Required Textbook:

McMillan, Victoria E. 2006. *Writing Papers in the Biological Sciences*. 4th ed. Boston: Bedford/St. Martins.

Optional Textbook:

Dytham, Calvin. *Choosing and Using Statistics: A Biologist's Guide*. 2nd ed. Malden, MA: Blackwell.

Grading:

Animal Care	10 %
Data Collection	10 %
Assignments	20 %
Discussions / Presentations	15 %
Literature Review	10 %
Research Paper	25 %
Participation	10 %

Total	100%
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Grading Scale / Distribution:

A+ 100 – 99	A 98 – 93	A- 92 – 90
B+ 89 – 87	B 86 – 83	B- 82 – 80
C+ 79 – 77	C 76 – 73	C- 72 – 70
D+ 69 – 67	D 66 – 63	D- 62 – 60
	F < 60	

Final Exam:

The research paper will be the summative assessment for this course.

Course Policies and Practices:

Attendance is required. Absences are excused when a qualifying note is presented to the instructor prior to a known future absence or at the beginning of the first lecture following an unexpected absence. Attendance will be tracked using clickers. You must bring your clicker to class every day. Your attendance will not be recorded and you cannot take quizzes or exams without your clicker.

Make-up tests and quizzes for excused absences will be addressed on an individual basis. Students must schedule a make-up date with the instructor prior to a known absence or within one day following an unexpected absence. No make-up work will be allowed for unexcused absences.

Exams and quizzes will be administered in class and will consist of multiple-choice questions. You will submit your quizzes using Turning Point. In addition, you will be permitted to drop the two lowest quiz scores.

Grades will not be posted on Blackboard. Please keep track of your own grades.

Student emails will be read and addressed during office hours. Please write BIOL 338 in the subject line.

Cell phone use, including texting, during class is rude and strongly discouraged. If you are anticipating an important call, please leave the room politely when your phone vibrates.

Using a cell phone or any other device during an exam will be regarded as an attempt to cheat and a violation of the honor code.

Students interested in continuing research or developing a new project for an independent study should contact Dr. Wooten.

Instructional Strategies

Case Analysis		Library and Internet Research	X
Debate		Practice/drill	
Discovery/Independent Research	X	Problem solving	X
Discussion/Questioning/ Interviewing	X	Reading assignments	X
Experiential Learning	X	Role playing/simulation games	
Field Experience		Service Learning	
Group Presentation	X	Video/Audio Review and Critique	
Laboratory Experiences		Other	X
Lecture	X		

Methods of Assessment

Abstracts		Participation	X
Attendance		Peer Evaluation	
Capstone Project		Portfolio	
Case Study		Portfolio Lab Performance	
Exams		Presentations	X
Group Projects	X	Professional Evaluation	
Homework Assignments	X	Quizzes	
Internet Research		Research project	X
Journaling		Other	
Lab Performance			
Oral/written review of literature	X		

Introduction to Research

Fall 2009: Lecture Schedule*

*subject to change

Lecture Topics

Introduction

Experimental Design and Setup

Experimentation

Experimentation

Analyzing the Data

Analyzing the Data

Statistical Methods

Statistical Methods

Research and the Scientific Method

Using Biological Literature

The Science of Scientific Writing

Dissecting review papers

Dissecting research papers

Reading and Writing Techniques

Reading and Writing Techniques

Reading and Writing Techniques

Research Papers Due
