

# Minnesota State University Moorhead

## PHYS 342: Introduction to Research

### A. COURSE DESCRIPTION

Credits: 1

Lecture Hours/Week: 1

Lab Hours/Week: 0

OJT Hours/Week: \*.\*

Prerequisites:

This course requires the following prerequisite

PHYS 350 - Computational Methods for Physical Science

Corequisites: None

MnTC Goals: None

The course will prepare students for independent undergraduate research. The students will be introduced to the literature search process, common research techniques, safety aspects, faculty research interests and applications of science in industry.

**B. COURSE EFFECTIVE DATES:** 06/01/1995 - Present

### C. OUTLINE OF MAJOR CONTENT AREAS

1. What is research and what is scientific literature?
2. Ethics in Scientific Research
3. Organization, Record Keeping, and Planning/Budgeting for Research
4. Literature search techniques
5. Peer-review
6. How to Write Proposals and Apply for Grants
7. Final Proposal Presentations

### D. LEARNING OUTCOMES (General)

1. Describe some ethical challenges which face researchers.
2. Write a short research report in the style of a professional scientific journal.
3. Conduct a literature search and to distinguish between the types of publications in the scientific literature.
4. Prepare an outline/proposal of a research project, including proposal and budget.
5. Develop the skills of a physicist: checking units, limiting cases, developing conceptual and mathematical skills.

### E. Minnesota Transfer Curriculum Goal Area(s) and Competencies

None

### F. LEARNER OUTCOMES ASSESSMENT

As noted on course syllabus

### G. SPECIAL INFORMATION

None noted