



COURSE OUTLINE

Course Number
PHY 296

Course Title
Honors Research in Physics IV

Credits
2

Hours:
lecture/Lab/Other
90 per semester

Pre-requisite
PHY 295

Implementation
Spring 2019

Catalog description:

Under the guidance of an area sponsor in an industrial or academic environment, students participate in a physics research project. This course requires a written and oral presentation to students and faculty. It may be applied to fulfill a technical elective requirement in the Biology, Chemistry or Physics program or other program upon the program coordinator's approval. *90 laboratory hours per semester.*

Participation in Biology, Chemistry and Physics laboratory courses is permitted provided the student has completed the required prerequisites, is a minimum of 16 years of age or by the permission of the instructor and the Dean of the division.

Is course New, Revised, or Modified?

Required texts/other materials:

STUDENT LAB NOTEBOOK

Revision date:

02/14/2019

Course coordinator:

Jing Huang, Rm. MS157
609-570-3429
huangj@mccc.edu

Information resources:

Other learning resources:

Course Competencies/Goals:

The student will be able to:

- Construct ,execute then evaluate a research plan in a research laboratory related to physics

- Develop skills in observation, organizing and analyzing data, synthesizing information, and communicating conclusions orally and in writing
- Demonstrate a working knowledge of basic physics concepts and methods
- Conduct literature searches and communicate findings orally and in writing
- Perform physics experimentation using proper scientific and laboratory safety procedures and maintaining an accurate and complete laboratory notebook
- Construct slides and present the research project to faculty and students

Course-specific General Education Knowledge Goals and Core Skills.

General Education Knowledge Goals

Goal 1. Communication. Students will communicate effectively in both speech and writing.

Goal 2. Mathematics. Students will use appropriate mathematical and statistical concepts and operations to interpret data and to solve problems.

Goal 3. Science. Students will use the scientific method of inquiry, through the acquisition of scientific knowledge.

Goal 4. Technology. Students will use computer systems or other appropriate forms of technology to achieve educational and personal goals.

MCCC Core Skills

Goal A. Written and Oral Communication in English. Students will communicate effectively in speech and writing, and demonstrate proficiency in reading.

Goal B. Critical Thinking and Problem-solving. Students will use critical thinking and problem solving skills in analyzing information.

Goal D. Information Literacy. Students will recognize when information is needed and have the knowledge and skills to locate, evaluate, and effectively use information for college level work.

Goal E. Computer Literacy. Students will use computers to access, analyze or present information, solve problems, and communicate with others.

Goal F. Collaboration and Cooperation. Students will develop the interpersonal skills required for effective performance in group situations.

Evaluation of student learning: [Describe general guidelines for examinations, required work, course work, assignments, and tests. Explain how assignments evaluate student achievement of course competencies/goals (course-level SLOs). Multiple measures (quizzes, tests, essays, projects, portfolios, practicums, etc.) are recommended.]

Research Advisor Evaluation:	33%
*Mid-semester Project Review:	33%
**Final Presentation:	33%

*Determination by MCCC Advisor

**Determined by both the MCCC Advisor & Research Advisor

See attached forms below

Academic Integrity Statement: [Include a statement affirming the college's Academic Integrity policy and any specific implications for the course. See <http://mlink.mccc.edu/omb/OMB210.pdf>]

Cheating of any kind is not tolerated. This includes copying papers or website information or presenting another person's work as one's own, looking at a student's paper during a test or quiz, looking at notes during an exam or quiz, obtaining information about an exam, quiz, or any other information that other students do not have and the instructor does not intend them to have, and talking during an exam or quiz. Other academic integrity violations include giving answers to or writing papers for another student, submitting a paper which includes words or the creative work of another without acknowledging the source, presenting another individual's work as your own, and falsifying data or bibliographic entries. Any observed instance of cheating is punishable by confiscation of the work and being assigned a grade of zero. *All violations of academic integrity will be reported to the Academic Integrity Committee.* For more information, consult the Student Handbook

MERCER COUNTY COMMUNITY COLLEGE
Science & Health Professions Division
Honors Research Laboratory
BIO 293/294/295/296 Biology
CHE 293/294/295/296 Chemistry
PHY 293/294/295/296 Physics

STUDENT

Name: _____ Student ID #: _____

e-mail address: _____ Phone #: _____

MCCC ADVISOR

Name: _____ e-mail address: _____ Phone#: _____

RESEARCH ADVISOR

Name: _____ Facility: _____ e-mail address: _____

Student Responsibilities: Please read carefully.

1. You are required to devote a minimum of 6 hours/week of time in the research lab working on your project. Under no circumstances are you to work on unauthorized lab projects.
2. Specific days/time in the lab should be coordinated and agreed upon by you and the Research Advisor. In the event of an absence, it is your responsibility to notify the Research Advisor and make-up the missed scheduled time.
3. On a weekly basis, you are to contact the MCCC advisor either by e-mail or verbal communication, to keep them informed of your progress in the lab.
4. Between weeks 6 and 8 of the semester, the MCCC advisor will schedule a meeting at the facility so that you can review your research project. Scheduled meeting time will be _____.
5. During the 15th week of the semester you will present your research project at MCCC to the Science faculty, invited science students, guests and Research Advisor. The presentation should be about 15 to 20 minutes in length and should include the use of overhead transparencies or Power Point. Your presentation must be reviewed by the MCCC advisor several days prior to the presentation. Presentation date tentatively will be _____.
6. You are required to keep a Research Log Book of your research that is up-to-date, accurate and thorough.
7. Your grade will be calculated as follows:

Research Advisor Evaluation:	33%
*Mid-semester Project Review:	33%
**Final Presentation:	33%

*Determination by MCCC Advisor

**Determined by both the MCCC Advisor & Research Advisor

Date: _____ Student Signature: _____

MCCC Advisor Signature: _____

Research Advisor Signature: _____

When signed, please forward to the MCCC advisor.

MERCER COUNTY COMMUNITY COLLEGE
SCIENCE AND HEALTH PROFESSIONS DIVISION

Honors Research Laboratory
BIO 293/294/295/296 Biology
CHE 293/294/295/296 Chemistry
PHY 293/294/295/296 Physics

Final Student Evaluation by Research Advisor

Date: _____

Student: _____

Research Advisor: _____

Please check the appropriate response for each question regarding the performance of the above-mentioned student at your facility this semester.

	Excellent	Good	Satisfactory	Unsatisfactory
1. Preparation for lab				
2. Attendance and punctuality				
3. Cooperation with you				
4. Cooperation with others				
5. Attitude				
6. Laboratory performance				
7. Organizational skills				
8. Data collection skills				
9. Quality and thoroughness of Research Log Book				
10. Progress by the end of semester				

On an average, how many hours/week did the student devote to the research project?

6 hours/week _____ more than 6 hours/week _____

Any additional comments:

Numerical Project Grade (33% of final grade): _____

This evaluation should be completed before the student's presentation and forwarded to _____, MCCC Advisor.