

PHYS 4197: Physics Research Honors Thesis Course Syllabus for Spring 2021

Instructor: Dr. Wayne Keith 793-3874, keith.wayne@mcm.edu
Office Hours: S 110-C: MTWRF 9-11, and MWF 1-2:30
Web: <http://www.mcm.edu/~keith.wayne>
Text: *None*
Required: paper, pencil, access to a computer
Prerequisites: See requirements for Honors for Physics majors

Course Description: This course provides the Honors student in Physics with the opportunity to pursue a research topic under the direction of a Physics faculty member. The project will result in a final presentation (written and oral) to an appropriate audience.

Grading: 15% Participation: Students are expected to be present and engaged in all group or individual meetings throughout the semester. Regular times to work on the research should be established so that progress is made throughout the semester.

15% Progress Reports: Students will submit informal memos (emails) to the instructor periodically (see schedule) as a written record of their progress. First report should include an updated project schedule and specific times the student plans to set aside for project work.

10% Thesis Draft: A draft of the formal written thesis will be submitted for comment.

10% Presentation Draft: A draft of the oral presentation will be presented to the instructor for comment.

25% Final written report: This should be a well-polished document detailing the research conducted.

25% Final oral presentation: This presentation should be given in PowerPoint or similar format to an audience of science faculty and physics majors.

Classroom Rules: Students are expected to be present and on-time for all individual meetings as scheduled. Excessive absences (more than 3 consecutive unexcused) may result in the student being dropped from the course. Late work will **NOT** be accepted on bold items without prior written permission.

Final notes: It is important to establish a regular schedule for conducting your work, or else risk getting behind schedule as you get busier during the semester. A project that is presented “incomplete” or as a “work-in-progress” **WILL NOT BE ACCEPTED** for credit.

PHYS 4197 Course Schedule

All dates are tentative and subject to change except **bold** dates.

Date	Activity or Item Due
1/14	NO CLASS
1/21	Research
1.28	Memo 1 (Schedule) Due
2/4	Research
2/11	Research
2/18	Memo 2 Due
2/25	Research
3/4	Research
3/11	NO CLASS
3/18	Research
3/25	Memo 3 Due
4/1	Draft Thesis
4/8	Draft Thesis
4/15	Thesis Draft Due
4/22	Draft Oral Presentations
4/29	Thesis Due/Oral Presentations
5/6	Final Exams – NO CLASS

PHYS 4197 Course Objectives

Course objectives and goals	Linked to which departmental program goal(s)	Linked to which institutional goal(s)?	Types of evidence used to demonstrate student achievement of objectives & goals
Students will demonstrate the ability to employ the methods of science for inquiry.	- to prepare physics graduates for a wide range of career opportunities including not only graduate study in physics, engineering, pre-med, or other sciences; but also, science teaching and careers in industry and science-related business	1,2,3,8	Students will show the ability to carry out their chosen course of research, whether their chosen project is conceptual or a hands-on experiment.
Students will demonstrate the ability to formally communicate scientific findings and interpretations, both in writing and speaking, using formats appropriate to the audience and the discipline.	- to prepare physics graduates for a wide range of career opportunities including not only graduate study in physics, engineering, pre-med, or other sciences; but also, science teaching and careers in industry and science-related business	1,2,3,8	Students will demonstrate their ability to present their work formally in writing through the writing and revision of the project report. Students will demonstrate their ability for formal speaking during oral presentation of the project in front of an audience.
Students will demonstrate the ability to critically assess the validity of scientific findings and conclusions.	- to prepare physics graduates for a wide range of career opportunities including not only graduate study in physics, engineering, pre-med, or other sciences; but also, science teaching and careers in industry and science-related business	1,2,3,4,8	Students will demonstrate their ability to critically assess the validity of scientific findings and conclusions through the process of carrying out their research and compiling the project report.