PHYSICS 1 (Phys 1101) Fall 2017

Dr. Greg Story
Room 108 Physics
Story@mst.edu
341-4792

Class meets every Tuesday 2:00-2:50 pm in room 127 Physics.

Course Description
The course description for Physics 1101 reads: An introduction to the study of physics and its intellectual and professional opportunities. The student will be acquainted with the various areas of physics and with the departmental and campus facilities useful to their future studies. Required for all freshman Physics majors.

Goals
In this class you will find out about what type of research is going on in the physics department, learn how to communicate about physics (both written and oral).

Activities
Research Paper, Research Paper Presentation, Final Physics Talk, Occasional Homework Assignments, Departmental Photos, Join Society of Physics Students, Visits from Research Faculty Members

Grading

Attendance	30%	Excused absences require notification with valid excuse.
Research Paper	30%	5% for each of the six elements.
Homework	20%	
Final Physics Talk	20%	

Tentative Schedule

Week 1 Introductions, mathematics.
Homework
a. Introduce yourself to Pam Crabtree and Jan Gargus.
b. Get your picture taken.

Week 2 Energy, impact craters, Discussion of Research Paper
Homework
Graphs and fits of impact crater data

Week 3 Discussion of Degree Requirements, error bars, and Research Paper
Due: **Impact Graphs**

Week 4 Due: **Research Title**

Week 5 Due: **Research Introduction with notes**

Week 6 Due: **Research Justification Part 1**

Week 7 Due: **Research Justification Part 2**

Week 8 Due: **Research Proposal**

Week 9 Research Talks

Week 10 Research Talks

Week 11 Research Talks

Week 12 Final Physics Talks

Week 13 Final Physics Talks

Week 14 Final Physics Talks

Week 15 Final Physics Talks

Research Paper

The purposes of this project is to introduce you to the world of physics research, give you experience in technical writing and speaking, give you a starting point for possible undergraduate research, and give you a little understanding of the elements of a research proposal. All turned in assignments must be typed with the exception of you interview notes.

1. Select Topic Research the projects currently being investigated by the physics faculty in this department. Pick the project you find most interesting. Contact the faculty member and make sure they will be willing to talk with you about the project.

Hand in: Write a title for the project, and give the name of the faculty member.

2. Introduction Talk with the faculty members about the project. Take notes. You may also want to talk with graduate students and undergraduates working on the project. Again, take notes.

Write up two or three paragraph description of the project. The description should include the physical question being examined, the goals of the project, and the methods which are being used to reach those goals.

Hand in: Your description and copy of notes taken.

3. Justification Part 1

Hand in: Write a paragraph or two describing how this project will advance the understanding of its field of physics.

4. Justification Part 2

Hand in: Write a paragraph or two describing how this project will help society. You can focus either on why the field is important, or what technological advancements will come out of the project, or preferably, both.

5. Research Proposal Write a proposal for funding the research project.

Hand in: The proposal should include:

a. The edited information from parts 1-4.
b. A budget (Salaries for students, equipment, travel, summer salary for yourself)
c. References (reference critical papers in the field)

6. Presentation

Prepare a brief PowerPoint presentation (Approximately 6 minutes) about the research project to give to the class.

Final Physics Talks

The purpose of this project is to start your search for what field of physics you are interested in and give you more opportunity to hone your presentation skills.

You will choose a Physics topic and prepare brief (Approximately 8 minute) PowerPoint presentation to give to the class.