SPACE 478: Engineering for the Space Environment
Fall 2018 Syllabus and Course Conduct Statement

Time: 11:30-1:30pm Tuesdays, Thursdays
Location: 2246 Space Research Building
Instructor: Professor Susan Lepri
2429 Space Research Building
slepri@umich.edu

Grader: Daniel Brandt, CLaSP graduate student, branddan@umich.edu

Office Hours: Thursdays 1:30-2:30

Text: The Space Environment and Its Effects on Space Systems 2nd Ed (Aiaa Education Series) by Vincent L. Pisacane
https://www.amazon.com/Environment-Effects-Systems-Second-Education/dp/1624103537

Make-up Classes: The professor will attend several out of town meetings during the semester; therefore some lectures may need to be rescheduled from time to time, and guest lecturers may appear on occasion.

Tentative Schedule and Topics:

Week 1	W1_Tues	Intro to Class, Chapter 1: Introduction
	W1_Thurs	Intro to Plasmas, E&M
Week 2	W2_Tues	Start Chapter 2: Risk Management
	W2_Thurs	Chapter 2
Week 3	W3_Tues	Start Chapter 4: The Solar System
	W3_Thurs	Chapter 4
Week 4	W4_Tues	Start Chapter 5: The Sun
	W4_Thurs	Chapter 5
Week 5	W5_Tues	Start Chapter 7: Gravitational Fields
	W5_Thurs	Chapter 7
Week 6	W6_Tues	Start Chapter 8: Magnetic and Electric Fields
	W6_Thurs	Chapter 8
Week 7	W7_Tues	No Class- Fall break
	W7_Thurs	Midterm Exam 1
Week 8	W8_Tues	Start Chapter 9: Magnetosphere
	W8_Thurs	Chapter 9
Week 9	W9_Tues	Start Chapter 10: Space Radiation Environment
	W9_Thurs	Chapter 10
Week 10	W10_Tues	Start Chapter 11: Radiation Interactions
	W10_Thurs	Chapter 11

Week 11	W11_Tues	Start Chapter 12: Neutral Environment	
	W11_Thurs	Chapter 12	
Week 12	W12_Tues	Start Chapter 13: Plasma Interactions	
	W12_Thurs	No Class - Thanksgiving Break	
Week 13	W13_Tues	Exam Review	
	W13_Thurs	Midterm Exam 2	
Week 14	W14_Tues	Presentations	
	W14_Thurs	Presentations	
Week 15	W15_Tues	Presentations	last class

Grading Apportionment:
Homework: 30%
2 Midterms: 40%
Final Project: 25%
Attendance/Participation: 5%

Milestone Dates:
9/5 First day of class
10/19 Midterm 1
10/18 Fall Break
11/22 Thanksgiving Break
11/30 Midterm 2
12/12 Last Day of class Case Study Final Presentations

Final Project: There will be a Final Project that will require both a written and oral component, each counting for 50% of the Final Project grade. The topic of the project will be discussed in class. It will be due after thanksgiving and oral presentations will be given during the last two weeks of class. This project will be a group project, but everyone must hand in an individual written report. The report will be on the order of 10-20 pages, and the presentations will be on the order of 20-30 minutes. Details will be discussed in more depth in the end of September.

Course Conduct Statement

The College of Engineering has an honor code, which is taken seriously. For more details, please visit: http://honorcode.engin.umich.edu/wp-content/uploads/sites/147/2014/07/Honor-code-pamphlet-Adobe-Prof.pdf

Policy on Homework

You are encouraged to form study groups to work on homework problems and to study in other ways. You are allowed to consult with other students during the conceptualization of a problem. However, all written work, whether in scrap or final form, is to be generated by you alone. Show all work for homework problems, a correct answer can be marked down if work is not shown on how you arrive at the answer. You are not allowed to possess, look at, use, or in anyway derive advantage from the existence of solutions

prepared in prior years, whether these solutions were former students' work product or copies of solutions that had been made available by others. You may be required to use a computational math program (Mathematica, MATLAB, etc.) for homework. Be sure such work is clearly annotated. In modern software, the number of comment lines describing the calculation is expected to exceed the number of lines of actual code. You should meet this standard. Unless arrangements are made beforehand, late homework will be given half credit if submitted before the on-time homework is graded and returned. After the homework has been graded and returned, late homework will no longer be accepted.

Policy on Exams

You are to complete all examinations on your own, with only benefit of the allowed aids that you yourself have prepared, and without looking or talking about at the examination work of others. Violation of this policy is grounds for me to initiate an action that would be filed with the Dean's office and would come before the Honor Council of the College of Engineering. If you have any questions about this policy, PLEASE do not hesitate to contact me.

Grading policy:

Grading of each homework or exam problem will be numerical on a 10-point nominal scale. The meanings of the points are:

10. A complete and correct yet succinct treatment of the problem, methods used for generating the answer are explained clearly, and logically move through the steps.
8. Nearly correct work deficient in various details.
5. Correct approach and concepts, however lacking the necessary mathematics or conceptual reasoning to obtain the correct result.
3. Shows the ability to identify relevant known formulae or simple concepts but not to successfully apply them, or work that fails to adequately set up and define the problem.)
1. Some work, but incorrect approach and incomplete work.