Fall 2016 Syllabus
ECE 6240 – Engineering in the Spacecraft Environment
MWF – 9:30 AM – 10:25 AM

Instructor: Ryan Davidson
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Office Hours: Mon/Wed 10:30 AM – 11:30 AM

Overview: This course will provide an overview of the near-Earth space environment and how the conditions that exist there impact engineering decisions.

Required Materials:

Textbook: The required text for the class is *The Space Environment and its Effects on Space Systems* by Vincent L. Pisacane

Highlighters: Four highlighters will be required. They must be yellow, orange, pink, and green.

Computer: Some homework assignments as well as some in class work will require a computer. Students must have access to a laptop that can be brought to class when needed. The library can provide a laptop if a student doesn't have access to one.

Course Fee: This course requires a fee that is used to maintain the computer labs.

Course Policies

Homework: Homework will be assigned weekly and will be due at the beginning of the class period one week after it has been assigned. Collaboration with classmates is encouraged, however, any homework assignment turned in must represent the work and knowledge of the student turning it in. Homework may be hand-written in blue or black pen, pencil, or typed. If pen is used homework must be written cleanly, with minimal mistakes and cross-outs. Homework must be done on blank white paper or graph paper with clean edges. If more than one sheet of paper is used, they must be stapled together. Homework must have the following notations placed in the correct area and highlighted with the corresponding color:

Information	Location	Highlighted Color
Name and Date	Upper Right Corner	Yellow
Assignment Title	Upper Center	Green
Problem Number	Upper Left Corner	Orange
Final Answer	Lower Right	Pink
Page Number of Total	Lower Center	Green

This information is to be present and highlighted on all pages it applies to. There is to be no more than two problems per page. If a problem takes more than one page, the back of the page or more sheets of paper may be used. Pages can be either one-sided or two-sided. An example homework page is attached. Homework not formatted correctly may receive less than full credit.

All final answers must have units and should be mindful of significant figures.

Late homework suffers a 50% reduction in possible points for each 24 hr period after it is initially due. For example; if homework is due at the beginning of class Monday:

Turned in at or before the 9:30 AM Monday – 100% possible

Turned in between 9:30 AM Monday and 9:30 AM Tuesday – 50% possible

Turned in between 9:30 AM Tuesday and 9:30 AM Wednesday – 25% possible

Turned in between 9:30 AM Wednesday and 9:30 AM Thursday – 12.5% possible

Turned in between 9:30 AM Thursday and 9:30 AM Friday – 6.25% possible

Turned in after 9:30 AM Friday – 0% possible

To be considered "turned in" homework must be physically in the possession of the instructor. Homework may not be turned in electronically unless otherwise noted.

Quizzes: Quizzes may be given throughout the semester. The topics of quizzes may encompass material that has or has not been covered in class. Quizzes may occur at any time during class, contain any number of questions, and have an arbitrary time limit. There may be group or individual quizzes and your grade may be curved or absolute.

Tests: There will be four tests given throughout the semester. Test days will be tentatively scheduled and notification of a test will be given at least one week prior to the date of the test. Tests will generally cover information already presented in class but can possibly test knowledge that hasn't been presented in class. Tests may be group or individual and the format will be specified at least one week prior to the date of the test. When a test is an individual test, no interaction between students is allowed within the classroom for as long as any student has the test in their possession. Once a test has been turned in, it will not be returned until it has been graded. The materials allowed to be used during the test will be specified at least one week prior to the date of the test. Tests must be formatted in the same manner as homework (do not forget to bring highlighters). Time limits on tests will be strictly enforced.

Presentations: Students will be required to make presentations to the class throughout the semester. These presentations will be 15 to 45 minutes long and will require the presenter to speak to the class and prepare slides. The requirements for a given presentation will be given to the student at least one week before the presentation is to take place. Failing to give a required presentation on the assigned date will result in a zero on the assignment. Students listening to the presentation are required to be respectful, attentive, and engaged. Grading of presentations will be based on objective qualities like content, length, and format as well as subjective qualities like clarity, expressiveness, and polish.

Attendance: Attendance will be crucial to success in this course. It is, however, not required. Attendance will not be recorded and will not influence your grade directly. Voluntary absence will not excuse a student from any homework, tests, quizzes, or presentations they are responsible for during the class period they missed. Extraordinary circumstances (gunshot wound, child birth, Whitehouse invitation, etc…) may be considered and a waiver of these rules potentially allowed.

Grading: All homework, tests, quizzes, and presentations will be graded and that grade will be relayed to the student. In most cases the material being graded will be returned to the student but this isn't required. The breakdown of the contribution of the various categories to your total grade is as follows:

Homework – 25%
Quizzes – 10%
Exams – 35%
Presentations – 30%

Point totals will be arbitrary in a given category but will be consistent within a category. Overall grades will be assigned using the following scale:

A	>93%
A-	90-93%
B+	87-90%
B	84-87%
B-	80-84%
C+	77-80%
C	74-77%
C-	70-74%
D+	67-70%
D	64-67%
D-	60-64%
F	<60%

A curve may or may not be applied at the end of the year to increase the top performer in the class to an "A".

Tentative Schedule:

Monday	August	29	Syllabus	
Wednesday	August	31	Introduction	
Friday	September	2	Student Presentations	
Monday	September	5	**Labor Day**	
Wednesday	September	7	Overview of the Solar System	HW #1 assigned
Friday	September	9	Student Presentation	
Monday	September	12	The Sun	
Wednesday	September	14	The Sun	HW #1 due HW #2 assigned
Friday	September	16	Student Presentation	
Monday	September	19	The Sun	
Wednesday	September	21	E&M	HW #2 due HW #3 assigned
Friday	September	23	Student Presentation	
Monday	September	26	E&M	
Wednesday	September	28	E&M	HW #3 due HW #4 assigned
Friday	September	30	Test #1	
Monday	October	3	Magnetosphere	
Wednesday	October	5	Magnetosphere	HW #4 due HW #5 assigned
Friday	October	7	Student Presentation	
Monday	October	10	Magnetosphere	
Wednesday	October	12	Magnetosphere	HW #5 due HW #6 assigned
Friday	October	14	Student Presentation	
Monday	October	17	Magnetosphere	
Wednesday	October	19	Neutral Environment	HW #6 due HW #7 assigned
Friday	October	21	**Fall Break**	
Monday	October	24	Neutral Environment	
Wednesday	October	26	Neutral Environment	HW #7 due HW #8 assigned
Friday	October	28	Test #2	
Monday	October	31	Plasma	
Wednesday	November	2	Plasma	HW #8 due HW #9 assigned
Friday	November	4	Student Presentation	
Monday	November	7	Plasma	
Wednesday	November	9	Plasma	HW #10 due HW #11 assigned
Friday	November	11	Student Presentation	
Monday	November	14	Radiation	
Wednesday	November	16	Radiation	HW #11 due HW #12 assigned
Friday	November	18	Test #3	
Monday	November	21	Radiation	
Wednesday	November	23	**Thanksgiving Break**	
Friday	November	25	**Thanksgiving Break**	
Monday	November	28	Contamination	
Wednesday	November	30	Debris	HW #12 due HW #13 assigned
Friday	December	2	Student Presentation	
Monday	December	5	Debris	
Wednesday	December	7	Thermal	HW #12 due HW #14 assigned
Friday	December	9	Student Presentation	

Final will be on Dec 14th from 9:30 to 11:20 AM

Student Outcomes:

Objective	Method
Gaining factual Knowledge (terminology, classifications, methods, trends)	Learning the terminology associated with the near-earth space environment
Learning fundamental principles, generalizations, or theories	Develop a working knowledge of various principles and theories including E&M, radiation, and kinetic theory
Developing skill in expressing oneself orally or in writing	Students will give periodic presentations to the class

General Policies

Classroom Decorum: Students are expected to be polite, respectful, courteous, and attentive in class at all times. Interruptions, inappropriate language or comments, disruptions, and disrespectful behavior will not be tolerated. Inappropriate behavior is cause for exclusions from class, grading penalties, and referral to university administration.

Academic Honesty: Students are required to honestly and faithfully represent any work they have done or contributed to. Any willful appropriation of others' work or misrepresentation of an individual's work will be grounds for a failing grade on the affected problem, assignment, or the entire course. The instructor has sole discretion in the determination and consequences in cases of academic dishonesty unless they are escaladed to the college or university level, at which point these rules are superseded by university policy.

Disabilities: Students with legitimate disabilities that require accommodation are encouraged to contact the USU Disability Resource Center and notify the instructor or their situation so that reasonable accommodations can be made. A disability must be disclosed prior to an assignment for accommodations to be made. Any reasonable effort will be made to accommodate those that are differently-abled.

Example Homework Formatting:

Homework #1 **Ryan Davidson**

Problem 1.12 **8/25/2014**

Show Work Here

FINAL ANSWER