Astron 0087: Basics of Spaceflight
Fall 2019
Lecture: Tues/Thurs 2:30PM-3:45PM
Thaw 104
Office Hours: Directly after class or by appointment

Contact Information:

Instructor: Dr. Melanie L. Good
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PLEASE USE "Astron0087" in the subject of all email correspondence!

Textbook (Required): *Basics of Spaceflight* Regina Schulte-Ladbeck `http://reslscience.weebly.com/space-books.html`

Course Description: Intended for non-science majors, this course focuses on identifying and understanding the general concepts associated with space flight.

Topics to be covered include:

- Chapter 1: Introducing Spaceflight
- Chapter 2: Outer Space
- Chapter 3: The Solar System
- Chapter 4: Space Navigation
- Chapter 5: Rocket Physics
- Chapter 6: Lift Off!
- Chapter 7: Spacecraft Trajectories
- Chapter 8: Space Exploration
- Chapter 9: Space Commercialization
- Chapter 10: Space Colonization

Study Tips: Read the textbook chapter BEFORE class. Take notes in class: Pay attention to what is emphasized, and clarifying comments. Do not attempt to copy Powerpoints verbatim. These will be made available to you on COURSEWEB. Additionally, take the time in your notebook to summarize each chapter (utilizing the textbook, lecture material and other resources), writing out important facts and dates. When studying for tests, have a friend ask you questions from your notes — this will test whether you truly remember/understand important concepts. Attempt all homework; working together is encouraged but make sure you understand the homework independently. Ask for help if you have difficulty (alternatively visit the physics resource room). Use any online resources provided.

Grading Scheme:
60% Exams (Best 2 of 3)
10% Homework
5% In-class clicker responses
25 % Final group project

Important Dates:
Jan. 17 Add/Drop Ends
Feb. 4 Exam 1
Mar. 3 Exam 2
Mar. 6 Student Withdrawal Ends
Mar. 31 Exam 3

Tentative Schedule:

Week	**Tues**	**Thurs**
1	**Jan.** 7 (Ch1)	9 (Ch2)
2	14 (Ch2)	16 (Ch3)
3	21 (Ch3)	23 (Ch3)
4	28 (Ch4)	30 (Ch4)
5	**Feb. 4(Exam 1)**	6 (Ch4)
6	11 (Ch5)	13 (Ch5)
7	18 (Ch6)	20 (Ch6)
8	25 (Ch6)	27 (Ch7)
9	**Mar. 3(Exam 2)**	5 (Ch8)
10	10 X	12 X
11	17 (Ch8)	19 (Ch9)
12	24 (Ch9)	26 (Ch10)
13	**Mar. 31(Exam 3)**	**Apr.** 2 (Ch10)
14	7 (Proj1)	9 (Proj2)
15	14 (Proj3)	16 (Proj4)

X = No Class
Ch1, Ch2, etc. = Chapter 1, Chapt 2, etc.
Proj1, Proj2, etc. = Final project presentations (four possible dates)

Homework:

Your homework will consist of reading the textbook and answering questions from the end of each chapter. You may choose to work together on homework assignments but each student must turn in their own homework assignment. While the direct impact on your grade may be small, taking homework seriously will have an indirect effect on other components of your grade. For example, careful reading of the textbook and demonstration of good comprehension from successfully answering assigned questions will typically result in better test performance. Moreover, reading the textbook IN ADVANCE of class will help you absorb the lecture so that you can peform better on exams.

Exams:

Exams will be mainly multiple choice, with some true/false, and potentially short-answer questions. The exams should be viewed as a learning experience, which is why you will be given 3 midterm exams, the lowest of which is dropped. This will allow you to learn from each exam experience and have an opportunity to improve.

Final Group Project:

Utilizing the information covered during the semester, the group project is meant as a synthesis activity, culminating in a presentation of your efforts. You must work in groups of 3-4 students and arrange times to meet outside of class (occassional brief meeting times may be provided during class, but this will not be sufficient to fully research, design, and implement your final project). You will be given a prompt about halfway through the semester, which will serve as a general question or problem to answer in a variety of possible ways. Your group will decide on an answer or solution to the question/problem, and carry out research to support your idea. Don't worry–you are not expected to do "rocket science" and take on rigorous scientific experimentation! You mainly will need to find some literature sources to support your idea and design your solution accordingly. During the last two weeks of the semester, you will choose a time-slot to present the results of your project in 5-10 minutes, to the rest of your class. You may choose to do this as a Powerpoint (or equivalent) presentation, a movie, a skit, a model, etc. Your instructor will approve the mode of presentation and all group members should be active participants. In order to get full credit for this grade component, you must attend all four project presentation classes, even though you will only present your presentation during one class. In addition, a representative from each group must pose at least one question to another group during the presentations in order to receive full credit for your presentation.

Clickers:

We will make use of clickers for conceptual discussion questions, and as a means of responding to other activities. Clicker questions will be formatted as multiple choice questions; however, you will receive 80% credit simply for participating in the clicker response. Should you get the correct answer, then you will receive 100% credit for that question. You do not have to give the same response as those with whom you discuss the answer–your clicker responses are confidential and individual. Discussions among your classmates helps you think about what you believe the answer might be, but ultimately you are free to take a dissenting position from the members of your group.

Attendance:

Your regular attendance is absolutely crucial for obtaining a good grade. If you must miss class for health-related reasons, you should notify me in advance of your absence. If you must miss class for an emergency, please notify me as soon as you possibly can. Whether or not you are excused from in-class clicker points will be at my discretion. Generally-speaking, if you have been absent more than three times, I will request a doctor's note to justify excusing any further absences. If an absence is unexcused, you will not receive credit for any in-class graded activities. If an absence is excused, the activities will be excused from your grade, but you will be responsible for ensuring that you understand the material, concepts, and facts that have been covered in class, as you will still be expected to utilize this understanding on exams, homework, and project work. Feel free to ask your peers to share any information they have about what you missed.

Code of Conduct:

Communication is key to a productive learning environment, and we can maintain productive communication by exhibiting respect for one another. The success of the course for yourself and others depends on all of our commitment to behavior that demonstrates respect for differences, understanding towards others and a willingness to listen and learn. For these reasons, it is unacceptable to harass, discriminate against, or abuse anyone because of race, ethnicity, gender, disability, religious affiliation, sexual orientation, or age. If you witness or are subject to such harassment, please report it to the instructor or to the Office of Diversity and Inclusion.

Honor Code:

Students are expected to uphold the University's standard of conduct relating to academic honesty. Students assume full responsibility for the content and integrity of the academic work they submit. Students shall be guilty of violating the honor code if they:

1. represent the work of others as their own
2. use or obtain unauthorized assistance in any academic work
3. give unauthorized assistance to other students
4. modify, without instructor approval, an examination, paper, record, or report for the purpose of obtaining additional credit
5. misrepresent the content of submitted work

Any student violating the honor code is subject to receive a failing grade for the course and will be reported to the Vice President of Academic Affairs.

Disability Services:

If you have a disability that requires special testing accommodations or other classroom modifications, you need to notify both the instructor and Disability Resources and Services no later than the second week of the term. You may be asked to provide documentation of your disability to determine the appropriateness of accommodations. To notify Disability Resources and Services, call (412) 648-7890 to schedule an appointment. The Disability Resources and Services office is located at 140 William Pitt Union, and is open Monday-Friday from 8:30AM to 5:00PM.

Title IX:

Legal text: "No person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving Federal financial assistance." As a professor I am a mandatory reporter, and I am required to report violations of Title IX that I observe or am made aware of to the Title IX office. Title IX violations include, but are not limited to, sexual harassment, sexual violence and verbal or sexual abuse. Within the classroom, behavior in violation might appear as: suggestive jokes or innuendos, inappropriate touching, and unwanted sexual behavior or advances, but my capacity and obligation to report does not end at the classroom.