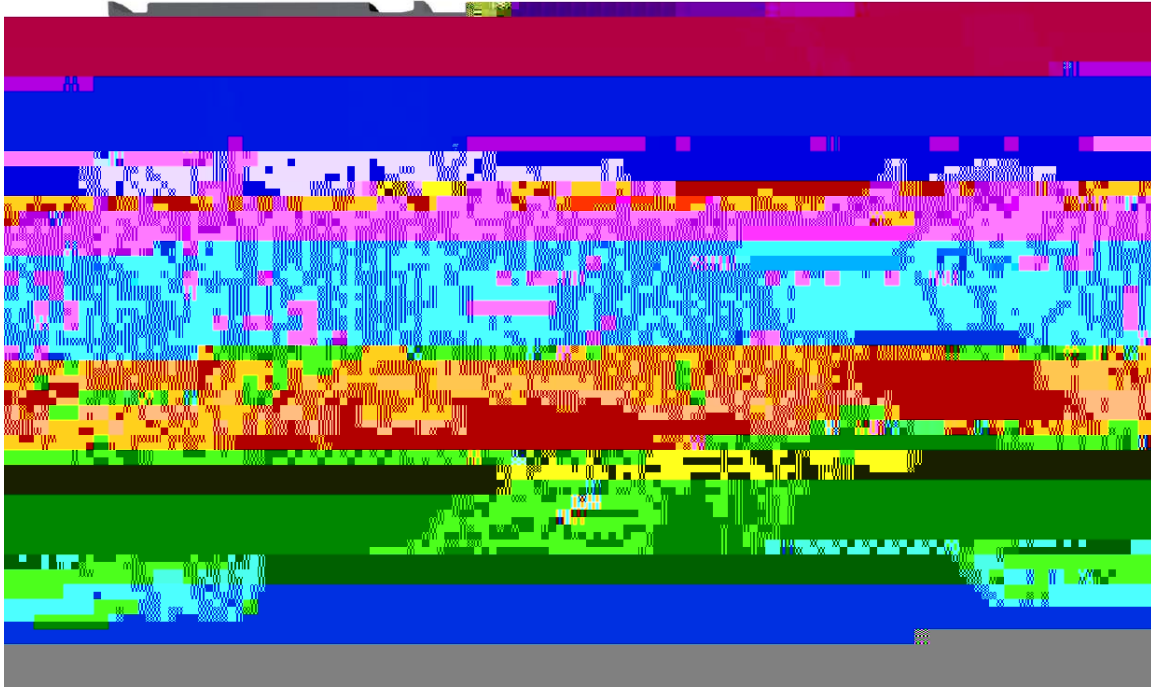


ASEN 4013: Foundations of Propulsion



CLASSROOM: Benson Earth Sciences (BESC) 180
TuTh, 11:00am – 12:15pm

INSTRUCTOR: Prof. James Nabity
Office: ECAE 105
Phone: 303 492 3243
Email: james.nabity@colorado.edu
Office Hours: TuW, 1:00 – 2:00pm

ASSISTANTS: ...

TA: Mitch Woolever
Mitchell.Woolever@colorado.edu
Office Hours: Undergrad Lounge – M 1:00pm – 3:00pm, F 11:00am – 12:00pm
(Other locations such as the Seebass or BioServe Conference Rooms)

CA: Nick Dawson
nickdawson95@gmail.com

WEB SITE: <https://learn.colorado.edu/>

TEXTBOOK: ...

Required: Mattingly and Boyer (2016). **Elements of Propulsion Gas Turbines and Rockets, 2nd Ed.**, ISBN 13: 978 1 62410 371 1 (including supplementary material available by download)

Other Useful References:

1. Textbooks
 - a. Mattingly, J. D. (2006). Elements of Propulsion: Gas Turbines and Rockets, AIAA (Predecessor to the current text)
 - b. Oates, Aerothermodynamics of Gas Turbine and Rocket Propulsion, AIAA (A somewhat dated book on propulsion)
 - c. Hill P., and C. Peterson (1992). Mechanics and Thermodynamics of Propulsion, 2nd Ed., Addison Wesley (an excellent, albeit dated, reference on the subject)
 - d. Sutton, G. P. and O. Biblarz (2001). Rocket Propulsion Elements, 8th Ed., Wiley (Classic text on rocket propulsion, extensively updated an excellent reference on the subject)
2. Journal and conference papers
3. Technical reports
4. Personal notes

PREREQUISITES: 'ASEN 3113 & APPM 2360'

REQUIRED EQUIPMENT: 'Clickers'

COURSE OBJECTIVES: 'The goal of this course is to build an understanding of the different types of propulsion systems (both airbreathing and rocket), their relative performance

5. Rocket Propulsion (Chapter 10)
6. Other Relevant Topics of Interest

COURSE ASSIGNMENTS:

- Reading
- Quizzes
- Homework
- Term Exams
- Final Exam

ACADEMIC INTEGRITY AND GRADE SCHEDULE:

Evaluated Outcomes: The Department of Aerospace Engineering Sciences has adopted a policy of assigning grades according to “evaluated outcomes” in each course:

- O1 Professional context and expectations (ethics, economics, business environment, etc.)
- O2 Current and historical perspective
- O3 Multidisciplinary, systems perspective
- O4 Written, oral, graphical communication ability
- O5 Knowledge of key scientific/engineering concepts
- O6 Ability to define and conduct experiments, use instrumentation
- O7 Ability to learn independently, find information
- O8 Ability to work in teams
- O9 Ability to design
- O10 Ability to formulate and solve problems
- O11 Ability to use and program computers

Evaluation of these outcomes allows an assessment of your performance and provides a major portion

Table 2. Letter Grade Assignment for Final Student Grading

Letter Grade	Percent Grade	4.0 Scale
A	93-100	4.0
A-	90-92	3.7
B+	87-89	3.3
B	83-86	3.0
B-	80-82	2.7
C+	77-79	2.3
C	73-76	2.0
C-	70-72	1.7
D	60-69	1.0
F	Below 60	0.0

IMPORTANT NOTES AND CLASS POLICIES:

1. Homework assignments are due at the start of class on the due date and quizzes may be given at any point during a class, so be sure to attend regularly and arrive on time! If you must miss class for an excused absence, you may submit your homework early. **Late homework**

5. Group collaboration is permitted on homework, but efforts are individual. This means you may discuss the means and methods for solving problems and even compare answers, but you are not free to copy someone's work or the solutions manual. **The homework you submit must be your own. Copying material from any resource (including solutions manuals) and submitting it as one's own work is considered plagiarism and is an Honor Code violation. Keep in mind that the more you think about the problems yourself, the more you will learn, and the easier it will be to succeed on exams.**

Homework solutions must demonstrate an understanding of the principles involved by including diagrams, using correct notation and terminology, explaining the approach, showing the key steps to obtaining the solution, and outlining the answer with proper units. These problem solving steps are critical for developing problem formulation skills.

6. Collaboration on quizzes or exams, using another student's work as your own, or allowing

10. Rationale for course assignments:

- Reading assignments are to be completed *before* the lecture/discussion since this material will be on the quizzes. The lecture/discussions should help to clarify and supplement what you have read.
 - Homework reinforces the mental processes that help you to become proficient in a subject. In addition to the assigned homework, we encourage you to work additional problems for practice.
- Before

Observance of Religious Holidays and Absences from Classes and/or Exams:

Campus policy regarding religious observances requires that faculty make every effort to deal reasonably and fairly with all students who, because of religious obligations, have conflicts with scheduled exams, assignments or required attendance. In this class, the due dates for completion of assignments and the take home exam will be scheduled to avoid conflict with the observance of religious holidays. Please notify your professor should a conflict or need arise due to religious observance obligations.

See the [campus policy regarding religious observances](#) for full details.

Classroom Behavior:

Students and faculty each have responsibility for maintaining an appropriate learning environment. Those who fail to adhere to such behavioral standards may be subject to discipline. Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with race, color, national origin, sex, pregnancy, age, disability, creed, religion, sexual orientation, gender identity, gender expression, veteran status, political affiliation or political philosophy. Class rosters are provided to the instructor with the student's legal name. I will