

# ASEN 5519-001 Introduction to Hypersonic Aerothermodynamics

## Course Syllabus, Fall 2022

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### **INSTRUCTOR**

Dr. Hisham K. Ali  
Assistant Professor

<https://www.colorado.edu/aerospace/hisham-ali>

Ann and H.J. Smead Department of Aerospace  
Engineering Sciences, University of Colorado Boulder  
3775 Discovery Drive, Boulder, CO 80303

### **TEACHING ASSISTANT**

TBD  
TBD  
Email: TBD

Ann and H.J. Smead Department of Aerospace  
Engineering Sciences, University of Colorado Boulder  
3775 Discovery Drive, Boulder, CO 80303

### **OFFICE HOURS AND CONTACT INFORMATION**

**In-Person / Zoom Office Hours:** Tuesday and Thursday 11am to 12pm

**In-Person Office Location:**

**Zoom Virtual Office Link:**

**Email:**

**Email Policy:** It is my intent to make myself as accessible as possible to you during this semester within the bounds of my other responsibilities. In general, I will do my best to accommodate student needs and respond as promptly as possible to e-mails. In your email, please identify yourself by providing your name and the course number at the start of your message. However, all technical questions on course content should be asked during lecture, office hours, or on the course Slack Workspace. One-on-one meetings with the instructor will only be scheduled to address individual administrative or academic issues.

### **COURSE SCHEDULE, LOCATION, and LINKS**

- **Schedule:** 2:30 PM

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### COURSE TEXTBOOK AND WEBSITE

There is no required textbook, but interested students may refer to the following books for further discussion and resources. Reading may be assigned from these books, but they will either be available online through the CU Library or the relevant sections will be provided.

- Bertin, *Hypersonic Aerothermodynamics*", AIAA, 1994. Full text is available online through the library at <http://tinyurl.com/y292lqnt>.
- Anderson, *Hypersonic and High-Temperature Gas Dynamics*", AIAA, 2006. Full text is available online through the library at <https://tinyurl.com/yyyxpjvr>.
- Hankey, *Re-entry Aerodynamics*", AIAA, 1988. Full text is available online through the library at <http://tinyurl.com/yymhlaw9>.
- Heiser and Pratt, *Hypersonic Airbreathing Propulsion*", AIAA, 1994. Full text is available online through the library at <https://tinyurl.com/yybuuvwh>.

### ASSIGNMENTS, EXAMS, AND GRADING

This course will be assessed through assignments and examinations, with a more detailed breakdown below:

8 problem sets, 5% each	40%
1 midterm exam, Thursday, October 27 <sup>th</sup>	25%
1 final exam, Wednesday, December 14 <sup>th</sup>	35%
Total	100%

**Extensions and Late Assignments:** The late penalty for assignments is 10% per day, for up to 5 days. Beyond 5 days late, the assignment is worth 0%. Please email me for accommodations due to illness or other extenuating circumstances.

**Assignment Policy:** Students are asked to complete their homework assignments on standard plain white or engineering paper, however this is not a requirement. That said students should keep individual problems separated on different pages. In other words, page breaks should be inserted between problems to simplify the uploading to the website and identification of individual problems. Students should make an effort to turn in assignments that are organized, professional looking, and they must be legible. **Collaboration is permitted on homework.** This means students may discuss the means and methods for solving problems and even compare answers, but students are not free to copy assignments from other students/sources. The work that a student turns in must be their own copying is not allowed for any assignment and will not be tolerated.

**Exam Policy:** The time-limited midterm and final examinations will cover all material in the course including lecture, discussions, readings, and assignments. The final examination will be cumulative. **There is no collaboration allowed on exams.** All exams will be administered with an in-person option and will tentatively take place at the days and times provided in the course schedule portion of this syllabus. To allow flexibility for both distance and in-person students but also ensure consistency in the assessments, students will have an option to complete the timed exams (with the same time limit as the in-person exam) remotely within a reasonable (24-36 hour) window of the in-person exam date.

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### **CLASSROOM BEHAVIOR**

Both students and faculty are responsible for maintaining an appropriate learning environment in all instructional settings, whether in person, remote or online. 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. For more information, see the



