Instructor: Brian Cantwell, 250A Durand, x 3-4825, cantwell@stanford.edu

Class hours: TTh 10:30-11:50

Instructor office hours: TTh 12:30-2:00, open door and by appointment

Required Text: Course Reader, *Aircraft and Rocket Propulsion* - available online at my website www.stanford.edu/~cantwell.

Reserve Book List
Mattingly, *Elements of Gas Turbine Propulsion*,

Tentative List of Topics
AIRCRAFT GAS TURBINES
1. Thermodynamics of propulsion systems
2. Principle performance parameters of aircraft engines
3. The ramjet cycle
4. The turbojet cycle,
5. The gas generator, compressor operating line, compressor map
6. Cycle variations, afterburning
7. Cycle variations, turbofan, turboprop

ROCKET PROPULSION
8. Rocket performance parameters
9. Multistage rockets
10. Reacting gas mixtures, nozzle flow
11. Solid rockets
12. Hybrid rockets
13. Space sailing (if time permits)

Exam Dates - Mid Term - Thursday February 13, 10:30 to 11:50
Final Exam - Thursday, March 19, 3:30 to 6:30

Grading - Homework - 25%, Mid Term - 25%, Final Exam - 50%

Exam policy - Exams are taken in class during the assigned time. Students are permitted to bring books, notes, tables and a graphing calculator. A laptop and/or smart phone is allowed in order to access the class notes or use as a calculator. Exams will not be provided at any other time than that indicated above.

Homework policy - The understanding gained through solving problems is absolutely crucial to learning the course subject matter and demonstrating proficiency on the exams. Indeed, most of the homework problems contained in the class notes were exam problems at some time in the past. You are not expected to work on homeworks in total isolation; seek out your peers, the Course Assistants and the Instructor when you need help on the problems. This is a fundamental part of the learning experience. Just be sure that whatever you hand in is your own work. Homeworks that are turned in by 5:00 PM on the date due will be carefully examined, graded and returned. There is a considerable effort required to grade the homeworks. Please be considerate of the Course Assistants and make every effort to turn your homework in on time. Late homeworks will not be graded. They will be assigned up to 3/5 credit depending on effort and returned without examination.