Description
Hands-on experience in solid and fluid mechanics and heat transfer. Emphasis is on the understanding of fundamental principles as well as familiarity with modern experimentation. Lectures at the beginning of the course provide background information and theories of experimentation. Student groups perform five experiments each in solid mechanics and in fluid mechanics and heat transfer. Report writing is an integral part of the course, with emphasis on design of experiment, interpretation and presentation of data, error analysis, and conclusions.

Instructors
Solid part: Prof. Fu-Pen Chiang (2–8311)
Fluid/thermal part: Prof. Thomas Cubaud (2-9431)
Lab. Supervisor: Mr. Ta-Yung Hsu (2-8307)

Preparation Lectures for Experiments, Monday & Friday 12:50 – 2:10 PM
Jan. 23, Melville Lbr W4550, All students.
Topics: Introduction, course overview, basics of writing lab reports.

Jan. 27 Melville Lbr W4550, All students.
Topics: Basics of measurement, significant digits, error analysis and propagation

Jan 30 & Feb. 3: Lectures
• Solid labs: Groups 1 – 10 (Rm 206 Heavy Engr.)
• Fluid/thermal labs: Groups 11 – 20 (Melville Lbr W4550)

Mar. 12 & 16: Lectures
• Fluid/thermal labs: Groups 1 – 10 (Melville Lbr W4550)
• Solid labs: Groups 11 – 20 (Rm 206 Heavy Engr.)

Laboratory Location and Time
Fluid section: Rm. 101 Heavy Engr.
Solid section: Rm. 206 (upstairs) Heavy Engr.
Tuesday or Thursday 1:30 – 4:30 PM.
**First period:** Groups 1 – 10: Solid part.  
Groups 11 – 20: Fluid/thermal part.

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**Second period:** Groups 1 – 10: Fluid/thermal part  

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(Spring break: 4/2 – 4/6)

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Note: schedule is tentative, and will be adjusted for holidays and other special functions accordingly.

**Grading Policy**

The final grade will be determined from:

Ten (10) lab reports: total 100 % (minimum of 2 reports per student as first author\(^1\))

Lab reports will be graded out of a maximum 100 points each.

**Lab Reports**

You must submit your previous lab report when you *arrive* at the lab for the next lab class.

**Penalty for Late Submission of Reports**

10 points (10%) deducted from final score for *each* day late. No exceptions will be made.

**T.A. Assignments**

T.A. Office hours = Lab. hours.

Solid section: Heng-Tseng Liao  
Fluid/thermal section: Martin Sauzade

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\(^1\) Students will form groups of three or four people to perform all labs. The group will collectively submit a single report. Each student must write at least two reports as a first author (one in the Solid section and one in the Fluid/Thermal section) to satisfy the MEC 300 writing requirements (details will be provided in class). All lab partners will receive the same grade for the lab.
Report Content

1. Title Page (experiment title, all names, date due)
2. Abstract
3. Introduction
4. List of Equipment
5. Theory (includes drawings and descriptions)
6. Experimental Procedures
7. Results (includes calculation of experimental results; figures, graphs and tables must be labeled with a number and a caption; units with all numerical quantities must be included)
8. Discussion (trends in the results, comparison with theoretical predictions)
9. Error Analysis
10. Conclusions
11. References (if you have them)
12. Appendices (You can place handwritten calculations, spreadsheet calculations, and other data)
13. Prelab notebooks from all members

- Reports must be typed with a 12 pt font and double-spaced. Handwritten equations, calculations, and experiment drawings are OK. Graphs of data may be done by hand, but it is not recommended (it is much easier to use a computer, e.g., Excel).

Text Book

A commercial textbook is not used for this course. Rather, we will provide you with two lab manuals, one for solids, and one for thermal systems, the cost of which is included in the lab fee. You will be given both books within the first two week of class. The beginning of the thermal lab manual has a section on effective report writing, error analysis, and other items to make life a bit easier when writing the dreaded lab reports. Additional books for reference are listed below.

Reference Books


All reference books above are reserved in the engineering library.
STONY BROOK UNIVERSITY SYLLABUS STATEMENT:
If you have a physical, psychological, medical, or learning disability that may impact your course work, please contact Disability Support Services at (631) 632-6748 or http://studentaffairs.stonybrook.edu/dss/.
They will determine with you what accommodations are necessary and appropriate. All information and documentation is confidential.

Students who require assistance during emergency evacuation are encouraged to discuss their needs with their professors and Disability Support Services. For procedures and information go to the following website:
http://www.sunysb.edu/ehs/fire/disabilities.shtml

STUDENT CONDUCT:
Stony Brook University expects students to maintain standards of personal integrity that are in harmony with the educational goals of the institution; to observe national, state, and local laws and University regulations; and to respect the rights, privileges, and property of other people. Faculty are required to report to the Office of Judicial Affairs any disruptive behavior that interrupts their ability to teach, compromises the safety of the learning environment, and/or inhibits students’ ability to learn.

STATEMENT ON ACADEMIC DISHONESTY
Academic dishonesty is an extremely serious offense and will not be tolerated in any form. Academic dishonesty in general is the presentation of intellectual work that is not originally yours. Examples include, but are not limited to, copying or plagiarizing class assignments including homework, reports, designs, computer programs, and other submitted materials; copying or otherwise communicating answers on exams with other students; bringing unapproved aids, either in physical (written) or electronic form to an exam; obtaining copies of an exam prior to its administration, etc. Academic dishonesty violates both the ethical and moral standards of the Engineering profession and all infractions related to academic dishonesty will be prosecuted to the fullest via the CEAS CASA committee. For you, the honest student, academic dishonesty results in lower class curves, hence a depression in your GPA and class standing, while cheapening the degree you earn.