



**Instructor:** Chuen H. Hsu, PhD    Office Hours: WF 10:00 - 11:50 AM    [chhsu@csuchico.edu](mailto:chhsu@csuchico.edu)  
Office Hour URL:  
<https://csuchico.zoom.us/j/89165938088?pwd=Z0NhYXJiRktFRU4xc3FBWnFXR01Edz09>  
Zoom meeting ID: 891 6593 8088,    Passcode: 093519

**Corequisite:** MECH 210 or equivalent

**Textbooks:** *Materials Science and Engineering Laboratory*, C. Hsu and W. Johnson, California State University, Chico, 2016 (available for download on Blackboard Learn)

**Class Time:** MECH 210L-01    M 2:00 – 4:50 PM (on Zoom)  
<https://csuchico.zoom.us/j/87511882394?pwd=YVRrTDlMaVRza0M2NzJiWG5iRVFpZz09>  
Zoom meeting ID: 875 1188 2394,    Passcode: 419690

**Course Description:** Standards and procedures for materials testing. Hands-on experience with commonly used equipment for materials testing. Test data acquisition and integration for material properties. Presentation of test data and findings in technical reports.

**General:**

1. On-time attendance is required. Absences are allowed only for illness (doctor's note required) or other serious reasons beyond the student's control. There will be grade penalty for absence, arriving late, or leaving before completion of the class. Reports submitted for missed labs will not be graded.
2. All cellular phones should be turned off while class is in session.
3. Students should come to class with a copy of experiment description, procedure, and blank datasheets (from the laboratory manual) for the scheduled experiment. Datasheets from the laboratory manual should be used in reports.
4. A report in pdf format is required for each experiment. All reports are individual work. Students are encouraged to work together in data processing, but sharing/copying the same figures or pages from classmates' reports is not allowed. Reports are due at the beginning of lab class a week after completion of the experiment. *No late reports will be accepted.*

**Grades:** Course grade is based on quality of work/reports, tests, and attendance.

Experiment work/reports	60%		A: $\geq 85\%$
Midterms	20%	and	B: 75% - 84%
Final exam	15%		C: 65% - 74%
Attendance	5%		D: 60% - 64%

- (a) In addition to a minimum overall of 60%, a minimum of 60% of combined grades on midterm tests and final exam (that is  $0.6 \cdot (20\% + 15\%) = 21\%$  of overall course grade) is needed to pass the course.
- (b) Missing three (3) or more experiments results in an F for the course.
- (c) Final exam will be on Friday (5/21) at 12:00 PM. (subject to change, will be finalized later)

### Experiment Schedule\*:

Week #	Week Days	Experiment
1	1/25 – 1/30	Class organization, Introduction
2	2/1 – 2/5	Electron Microscopy
3	2/8 – 2/12	Hardness Tests
4	2/15 – 2/19	Optical Microscopy
5	2/22 – 2/26	Tensile Test
6	3/1 – 3/5	Strain Hardening
7	3/8 – 3/12	<b>Midterm Test #1</b>
8	3/15 – 3/19	<i>University Holidays, no classes</i>
9	3/22 – 3/26	Stress Concentration Experiment
10	3/29 – 4/2	Review
11	4/5 – 4/9	Impact Test
12	4/12 – 4/16	<b>Midterm Test #2</b>
13	4/19 – 4/23	Precipitation Hardening
14	4/26 – 4/30	Jominy End Quench Tests
15	5/3 – 5/7	Infrared Spectroscopy of Plastics
16	5/10 – 5/14	Review
17	5/21 (F)	Final exam at 12:00 PM

\*The schedule may be adjusted as needed.

### Reports: The following rules should be followed.

1. Reports for each experiment should include the following sections each starts on a new page: (a) cover page, (b) List of Assignments (available from Laboratory Manual), (c) Calculation and Results (datasheets), and (d) Discussion (answers to questions) in that order.
2. The cover page should include class (prefix, class number, section, and name), experiment title, lab group number, student name, date of submission, and grade summary. A sample cover page can be found in the laboratory manual. All pages should be numbered at the bottom center, in the form of x of y, and stapled in the top left corner. No folders are necessary.
3. Reports should be Word-processed. Page margins of 1" should be observed. Graphs and tables should be properly inserted in reports. Figures should be produced using Excel (or similar programs). All figures and tables should be properly numbered with appropriate title.
3. Sample material used in experiment should be identified in datasheets and figures. Heat treatment history of samples should also be properly indicated in datasheets.
4. Figures should conform to good engineering practice. A simple figure is shown below.

### Sample Figure

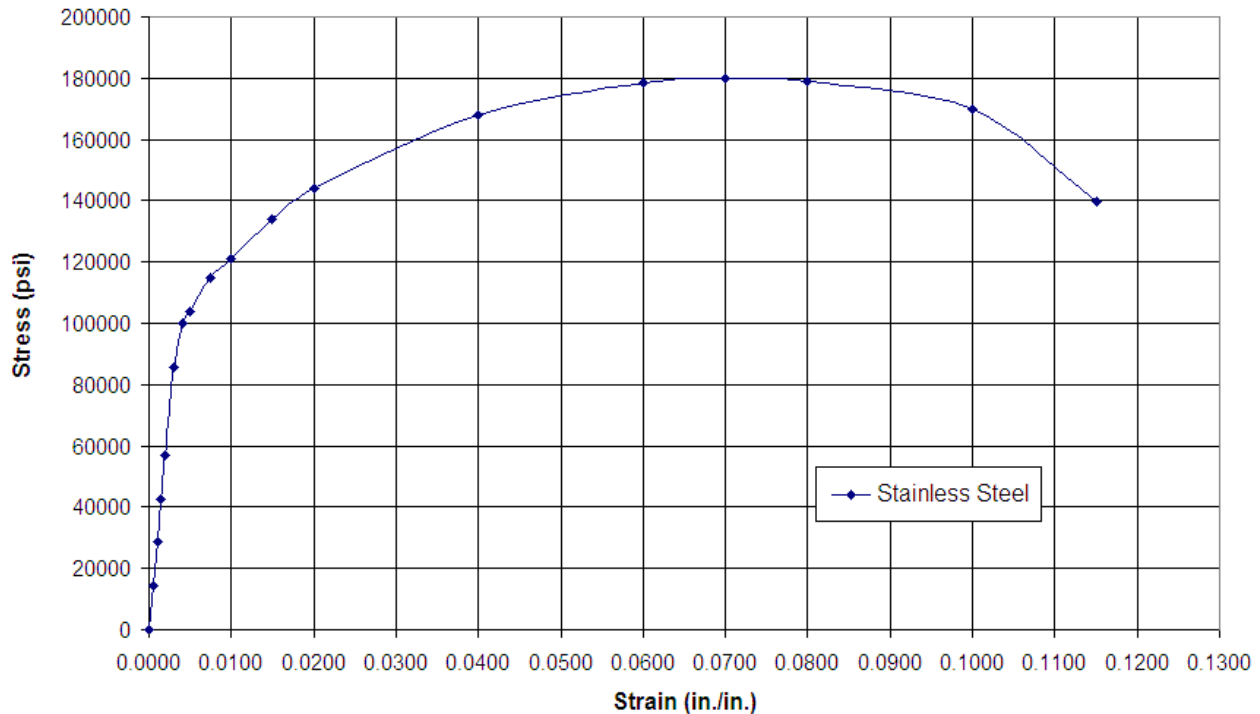


Figure 1 - Stress-strain curve for a stainless steel.

Suggested check list for completeness of figures and tables:

1. Identify the figure with a figure number followed by a self-explanatory title at the bottom of the graph. Table number and title usually are at the top. Figures and tables should be numbered separately according to the order of appearance in the report.
2. Use suitable scales; identify the variables, and state units. Variables should be identified with full names, not just abbreviations or symbols.
3. Show all data points clearly with distinctive symbols such as  $\Delta$ ,  $\diamond$ ,  $\square$  or  $\circ$ . *Do not draw free-hand symbols.*
4. Plot a smooth curve of best fit through data points using Excel's *trendline* function or manually with a curve board. *No free-hand curves!* An equation in desired form/types for the *trendline* can be added in Excel.
5. Insert a legend in the figure to identify symbols and materials.

## **Classroom Protocol**

On-time class attendance is required. For on-line classes, some common expectations include, but limited to:

1. Students are initially muted on entry, unmute only when there is a need to communicate with the instructor and the class.
2. Avoid inappropriate talk and material. No screen sharing without instructor's permission.
3. No disruptive behavior that interferes with or obstructs the teaching or learning process in the context of a classroom or educational setting.
4. Respect others' privacy.

## **Dropping and Adding**

You are responsible for understanding the policies and procedures about add/drops, academic renewal, etc., found at <https://www.csuchico.edu/sro/registration/class-add-drop.shtml> . There are new deadlines and penalties for adding and dropping classes.

## **University Policies and Campus Resources**

### **Academic Integrity**

Students are expected to be familiar with the University's Academic Integrity Policy. Your own commitment to learning, as evidenced by your enrollment at California State University, Chico, and the University's Academic Integrity Policy requires you to be honest in all your academic course work. Faculty members are required to report all infractions to the Office of Student Judicial Affairs. The policy on academic integrity and other resources related to student conduct can be found on the [Student Judicial Affairs web site](#).

### **Americans with Disabilities Act**

If you need course adaptations or accommodations because of a disability or chronic illness, or if you need to make special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible, or see me during office hours. Please also contact Accessibility Resource Center (ARC) as they are the designated department responsible for approving and coordinating reasonable accommodations and services for students with disabilities. ARC will help you understand your rights and responsibilities under the Americans with Disabilities Act and provide you further assistance with requesting and arranging accommodations.

#### **[Accessibility Resource Center](#)**

530-898-5959

Student Services Center 170

[arcdept@csuchico.edu](mailto:arcdept@csuchico.edu)

### **Blackboard ALLY**

Chico State is committed to providing you the best learning experience possible. With this goal we have activated Blackboard ALLY in your courses. ALLY is a revolutionary product that focuses on making digital course content more accessible to all students. You will now be able to download any content in this course in the format that fits best with your learning style. PDF, HTML, .EPUB and Audio files are now available for most content items. Here is a link to more [information on formats available](#) as well as what each format offers. Should you have any questions or experience issues while using ALLY please contact the Office of Accessible Technology and Services at [oats@csuchico.edu](mailto:oats@csuchico.edu) or 530-898-6532