MS 132  Diffraction and Structure of Materials (3 3 6)
MS 130  Diffraction and Structure (3 0 6)

Lectures:  TBA
MS 132 Labs:  9-12 or 1-4 M-F (TBA)
Rm 042 Keck

Instructors:  B. Fultz and C. C. Ahn
Fultz: Rm 239 Keck    (x2170)   btf@caltech.edu
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Lecture TA:  TBA
Office Hours: TBA

Lab TA: TBA
Lab TA: TBA

Secretary:  Pam Albertson
Room 307 or 335  Keck Laboratory for Engineering Materials

Required text:

B. Fultz and J. M. Howe,  Transmission Electron Microscopy and Diffracctometry of

Recommended Books:

B. E. Warren,  X-Ray Diffraction, Dover

J. M. Cowley,  Diffraction Physics, North Holland

Plenum

J. Edington, Practical Electron Microscopy in Materials Science (4 Vols), Philips
Electronic Instruments

Other Books:

Marc De Graef,  Introduction to Conventional Transmission Electron Microscopy
(Cambridge,  2003).

P. B. Hirsch et al.  Electron Microscopy of Thin Crystals, Krieger


R. Heidenreich,  Fundamentals of Transmission Electron Microscopy, Wiley-
Interscience.


**Content:**

Jim Howe and I spent 20 years working on the course text, and we finally got it right(!) The course will indeed follow the book, generally linearly. The table of contents is online:
http://www.its.caltech.edu/~matsci/btf/TEM_Book/TOC.pdf

The preface discusses the organization of the book, and the reason for selecting the topics in the text:
http://www.its.caltech.edu/~matsci/btf/TEM_Book/preface.pdf

The coverage is approximately one chapter per week, at least until Chapter 8. This is near the end of the class, and topics will be selected from Chapters 8-11.
Grades

Students may elect to take MS 130 or MS 132 either Pass/Fail or for Grades.

MS 132 Determination of Grades:

  25 %  Homework
Do not look at old assignments.
Late problem sets will receive 1/3 credit, but it is okay to copy from the solution sets.
Students may collaborate on the problem solutions, and may show each other any written work.

  25 %  Lab Notebook
This notebook will include answers to questions in lab handouts and experimental results from completed laboratory assignments.

  25%  Late Midterm Exam
2 hr take-home exam.
Open book and open notes, no reference to previous exams or assignments.
Tools like a scientific calculator, ruler, and protractor may be needed.

  25%  Final Exam
2 hr take-home exam.
Closed book, closed notes, no reference to previous exams or assignments.
Tools like a scientific calculator, ruler, and protractor may be needed.
(There is a possibility that this exam will be replaced with a final problem set. Student preference for an exam or a problem set will be considered, but not necessarily followed.)

MS 130 Determination of Grades:

  33 %  Homework
  33%  Late Midterm Exam
  34%  Final Exam