

MASC 561 Dislocation Theory and Applications

INSTRUCTOR: M.E. Kassner (kassner@usc.edu)

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OFFICE: RTH 502

OFFICE HOURS: TTh 1:30-2 PM

CLASS TIME/PLACE: TTh 12:30-1:20 THH 114

TEXT: Introduction to Dislocations, D. Hull and D.J Bacon, 5th ed.

GRADING: Midterm Exams (3) 60%
Final Exam 40%

MASC 561 Spring Semester Lecture Schedule

WEEK	DATE	LECTURE TOPIC
1	1/8 1/10	Introduction Yielding in Single Crystals
2	1/15 1/17	Theoretical Shear Stress Dislocation Structure
3	1/22 1/24	Elementary Dislocation Motion Dislocation Stress Fields I
4	1/29 1/31	Dislocation Stress Fields II FIRST EXAM
5	2/5 2/7	Dislocation Interactions Taylor Hardening Equations
6	2/12 2/14	Partial Dislocations in FCC Metals I Partial Dislocations in FCC Metals II
7	2/19 2/21	Partial Dislocations in FCC Metals III Dislocation Velocities
8	2/26 2/28	SECOND EXAM Dislocation Cross-slip
9	3/5 3/7	Dislocations in HCP Metals Dislocations in BCC Metals
10		SPRING RECESS
11	3/19	Dislocations in Ionic Solids

	3/21	Dislocations in Ordered Materials
12	3/26 3/28	Dislocation Boundaries Dislocation Pile-ups
13	4/2 3/4	THIRD EXAM Grain Boundaries I
14	4/9 4/11	Grain Boundaries II Grain Boundaries III
15	4/16 4/18	Vacancies in Metals Point Defects in Ionic Solids I
16	4/23 4/25	Point Defects in Ionic Solids II Point Defects in Ionic Solids III
17	5/8	FINAL EXAM (2-4)