

# ESS : Introduction to Materials Science & Engineering I 材料科學導論一



## **Course Objective...**

Introduce fundamental concepts in Materials Science

### **You will learn about:**

- material structure
- how structure dictates properties
- how processing can change structure

### **This course will help you to:**

- use materials properly
- realize new design opportunities with materials

# LECTURES

## Instructor:

- Fan-Yi Ouyang (歐陽汎怡)
- Room 509, ESS building 工科舊館  
509
- EXT: 34321
- Email: [fyouyang@ess.nthu.edu.tw](mailto:fyouyang@ess.nthu.edu.tw)



# COURSE MATERIALS (with text)

## **Required textbook:**

- *Materials Science and Engineering: An Introduction*, W.D. Callister, Jr. and D.G. Rethwisch, 8th edition, John Wiley and Sons, Inc. (2010).

# WEBSITES

## Course Website:

LMS數位學習系統

<http://lms.nthu.edu.tw/>

- Syllabus
- Lecture notes
- Homework problem
- Answer keys
- Grades

# READING SCHEDULE

Chapter	Topic	week
1	General Intro	1
2	Atomic Bonding	1,3
3	Crystalline Structures	3,4
4	Imperfections	5
5	Diffusion	6,7
6	Mechanical Properties	8,9
7	Strengthening Mechanisms	10,11
8	Failure	12,13
9	Phase Diagrams	14,15,
10	Phase Transformations	16,17

**Lectures:** will highlight important portions of each chapter.

# GRADING

## **Weekly in-lecture quizzes 10%**

Held on **Thursday** at the beginning of class, starting from week 3

## **Homework 15%**

Homework for every chapter, due on **Thursday**

## **Midterm #1 20%**

Tentatively scheduled for: **ww6**

Material covered: **chapter 1 to chapter 4**

## **Midterm #2 25%**

Tentatively scheduled for: **week 12**

Material covered: **chapter 5 to chapter 7**

## **Final 30%**

Tentatively scheduled for: **2011/6/20**

Material covered: **chapter 8 to chapter 10**

# TEACHING ASSISTANTS

Name	Office	Tel.	E-mail
徐皓	新館402	0911272622	u942103@oz.nthu.edu.tw
朱偉誠	新館402	0920-621533	hsmk1018@gmail.com
陳政揚	新館406	0963183357	s9911502@m99.nthu.edu.tw
陳香如	新館404	0988017594	s9811532@m98.nthu.edu.tw

## Teaching Assistants will

- Discuss homework.
- have office hours to help you with course material and problem sets.



# RECITATIONS

Homework discussion will be hold after handing in homework.

## **Times and Places:**

Mon 19:00-21:00 舊館406

Wed 19:00-21:00 舊館406

## **Purpose:**

- Discuss homework, quizzes, exams
- Hand back graded quizzes, exams

Try to attend your registered recitation.

If necessary, attend an alternate recitation.

# OFFICE HOURS

徐皓	新館402	Mon 19:00-20:00
朱偉誠	新館402	Mon 20:00-21:00
陳政揚	新館406	Wed 19:00-20:00
陳香如	新館404	Wed 20:00-21:00

\*\*Contact professors for special arrangements

## Activities:

- Discuss homework, quizzes, exams
- Discuss lectures, book
- Pick up missed homework

# Class rule

- Be in time to the class.
- The cellular phone should be turned off or in the vibration mode in class.
- No food is allowed in class
- Turn in homework on time. No late homework can be accepted.
- Welcome to stop by my office with questions to the courses