Instructor: Pascal Bellon, 312D MSEB, 265-0284, bellon@illinois.edu
Lecture: MWF 9-9:50 am, online synchronous (Zoom)
Office Hours: Pascal Bellon: by appointment (Zoom)
Websites: https://compass2g.illinois.edu/; www.piazza.com; www.gradescope.com [GS]


Recommended books:

Alloying, understanding the basics, ASM, Ed. J. R. Davis (reserve).
Physical metallurgy handbook, A. K. Sinha, 669.9 Si64p (reference).
ASM Handbook, Desk Edition and vols. 1-20, Q.669.1Am35mabr (reference);
Materials Selection in Mechanical Design, M. Ashby, 1992, 620.11AS34M (reference)

Course Outline: 9 modules

1. Iron-carbon alloy system (Chaps 1 & 2)
2. Carbon and alloy steels (Chaps. 3 & 4)
3. Stainless steels (Chap. 7)
4. Copper alloys (Chap. 6)
5. Nickel alloys (Chap. 11)
6. Intermetallics and superalloys (class notes, Chap. 11)
7. Aluminum alloys (Chap. 5)
8. Titanium alloys (Chap. 10)
9. Refractory metal alloys (Chap. 13)

Grading: 15% Homework [GS]: 8/31; 9/14; 9/28; 10/12; 10/26; 11/9; 11/30 (keep 6 best scores)
15% Quizzes [GS]: 9/9; 9/21; 10/5; 11/2; 11/16 (keep 4 best scores)
30% mid-term exam [GS-CBTF]: Monday 10/19, 9:00-9:50 am (during class session)
40% Comprehensive final exam [GS-CBTF]: Wednesday 12/16, 7:00 to 10:00 pm
ACTIVE LEARNING APPROACH

1/ Learning is an interactive process
   - Implement and develop methods to increase your learning efficiency.

2/ Come prepared to class
   - Read and reflect on assigned reading in textbook before lecture; prepare and post questions and answers on Gradescope for reading assignments, use Piazza for other course-related questions.
   - Read and study assigned articles and questions.

3/ Participate actively during online Zoom classes
   - Ask and answer questions.
   - Share with the class your knowledge and interests in certain alloys and applications.

GRADING POLICIES

You are expected to have read the Student Code section related to Academic Integrity (http://admin.illinois.edu/policy/code/article1_part4_1-401.html). All infractions listed in the Student Code, including cheating and plagiarism, will result in penalties in accordance with the Student Code. If you have any question regarding what constitutes an infraction, contact me.

QUIZZES

There will be 5 quizzes throughout the semester (roughly one every two weeks), all taking place on Monday except for the first one, which will be on Wednesday 9/9. You will take these quizzes online through the Gradescope website between 10 am and midnight on each assigned day. I trust that you will complete each quiz alone, without any help from notes, books or people. For each quiz you will have 30 minutes to complete it once you start it. Your overall quiz grade will be the average of your 4 best scores.

HOMEWORK ASSIGNMENTS

There will be 7 homework assignments throughout the semester (roughly one every two weeks), each due on Monday by 9 am. Late assignment will not be graded (and thus will not count toward that average grade). You will complete these assignments through the Gradescope website. Your overall assignment grade will be the average of your 6 best scores.

EXAMS

There will be a 50-minute mid-term exam on Monday 10/19 during the normal class time, and a final exam on Wednesday 12/16 from 7:00 to 10:00 pm (per University schedule for final exams). These exams will be proctored by the Computer-Based Testing Facility on Gradescope.