EMA 6114: Advanced Materials Principles 2
Syllabus, Spring 2018

Sec. 4785 – In Class
Secs. I6C6, 4792, 4798 - EDGE

1. Catalog Description (including credit hours) – Structure, properties, processing, and applications of semiconductors, metals, ceramics, polymers, and biomaterials. Structure and properties of thin films, surfaces, and interfaces. 3 credits.

2. Pre-requisites and Co-requisites – EMA 6313

3. Course Objectives

To gain an understanding of the principles underlying the structure and properties of materials. The specific objectives for the course include understanding the electronic, magnetic, and optical properties of materials, how processing affects structure and properties, and the selection of materials for particular applications.

4. Instructor – Prof. Simon R. Phillpot
a. Office location: 164 Rhines Hall
b. Telephone: 352-846-3782 (office)
c. E-mail address: sphil@mse.ufl.edu
d. Class Web site: login to e-Learning at https://lss.at.ufl.edu/
e. Office hours: T 1:15 – 2:15, F 9:00 – 10:00

5. Teaching Assistants – Ke "Lucas" Luo (kluo123@ufl.edu)
Akshay Rajopadhe (arajopadhye@ufl.edu)

Office Hours: TBD

6. Meeting Times – Lecture: M, W, F period 8 (3 – 3:50pm)

7. Class/laboratory schedule – Three 50-minute lecture periods per week.

The following is an approximate outline of the 43-class schedule. This may be subject to change:

- Quantum theory (3 classes)
- Electronic Properties (6 classes)
- Optical Properties (5 classes)
- Magnetic, Dielectric, Ferroic Properties (6 classes)
- Electrical Properties of Organic and Biological Systems (2 classes)
- Surfaces, Interfaces, Composites, Growth and Nanostructures (10 classes)
- Materials Processing (6 classes)

- Materials Selection (2 classes)
- In-class exams (3 classes)

8. Meeting Location – 100 NEB

9. Material and Supply Fees – None

10. Textbooks and Software Recommended:

An Introduction to Materials Engineering and Science for Chemical and Materials Engineers, Brian S. Mitchell, 2004, Wiley, ISBN 978-0-471-43623-2.

11. Recommended Reading:

Principles of Electronic Materials and Devices, S.O. Kasap, 3rd Edition, ISBN: 0072957913,

12. Course Outline - General topics are electronic, magnetic, and optical properties, materials processing, and materials selection. List of specific topics covered in lectures will be provided.

13. Attendance and Expectations - Attendance in lecture is not part of the course grade; however, all students are expected to attend class. Cell phones should be turned off in class. Reading of newspapers, work on assignments for this or other classes, or other activities that are not part of the class are not allowed during class time.

14. Grading –

Three in-class exams - 20% each
One final exam (50% new content; 50% cumulative) – 25%
Homework - 15%

Homework deadlines will be provided during the semester. Homework assignments are posted on the website. For on-campus students, all HW must be handed in in-person to the Instructor by the date and time designated. For off-campus students, all homework must be submitted as a PDF file through the website by the date and time designated.

There are three in-class mid-term exams and a final exam. Unexcused absence from any exam will result in a zero on the test. Mid-term exams will be held in class, tentative exam dates will be announced, and posted on the course website. Final exam will be Wednesday May 2, 3-5pm in NEB 100.

15. Grading Scale - The grading scale is indicated below. Grades are not curved.

Percentage	≥92	≥88	≥84	≥80	≥76	≥72	≥68	≥65	≥62	≥59	≥56	<56
Letter Grade	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	E

More information on UF grading policy may be found at:
https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

Students Requiring Accommodations

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, https://www.dso.ufl.edu/drc) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

Course Evaluation

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at https://evaluations.ufl.edu/evals. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at https://evaluations.ufl.edu/results/.

University Honesty Policy

UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Honor Code (https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

Software Use

All faculty, staff, and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

Student Privacy

There are federal laws protecting your privacy with regards to grades earned in courses and on individual assignments. For more information, please see:
http://registrar.ufl.edu/catalog0910/policies/regulationferpa.html

Campus Resources:

Health and Wellness

U Matter, We Care:
If you or a friend is in distress, please contact umatter@ufl.edu or 352 392-1575 so that a team member can reach out to the student.

Counseling and Wellness Center: http://www.counseling.ufl.edu/cwc, and 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

Sexual Assault Recovery Services (SARS)
Student Health Care Center, 392-1161.

University Police Department at 392-1111 (or 9-1-1 for emergencies), or http://www.police.ufl.edu/.

Academic Resources

E-learning technical suppor*t*, 352-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu. https://lss.at.ufl.edu/help.shtml.

Career Resource Center, Reitz Union, 392-1601. Career assistance and counseling. https://www.crc.ufl.edu/.

Library Support, http://cms.uflib.ufl.edu/ask. Various ways to receive assistance with respect to using the libraries or finding resources.

Teaching Center, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring. https://teachingcenter.ufl.edu/.

Writing Studio, 302 Tigert Hall, 846-1138. Help brainstorming, formatting, and writing papers. https://writing.ufl.edu/writing-studio/.

Student Complaints Campus*:* https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf.

On-Line Students Complaints*:* http://www.distance.ufl.edu/student-complaint-process.