

**Course Syllabus**  
**EMA 4324, Stability of Materials**  
**Section 3009, Fall 2016**

1. **Course Description** – This is an undergraduate course in degradation and stability of materials. Topics covered include the mechanisms, energetics and kinetics of environmental degradation of materials as well as the economic impact, prevention and mitigation strategies, and contemporary issues (3 credit hours).

2. **Pre-requisites and Co-requisites** – EMA 4314.

**3. Course Objectives Include:**

- a. to develop an understanding of environmental conditions and degradation mechanisms that drive the deterioration of engineering materials and what is necessary for prevention or control;
- b. to become familiar with traditional terminology, conventions and sources of materials degradation;
- c. to be able to identify contemporary issues in environmental degradation of materials and how to go about understanding degradation mechanisms, rates, control, etc. in these novel problems;
- d. to develop an understanding of the environmental and economic impact of materials and their degradation throughout their life cycle;

**Relation to Program Outcomes (ABET):**

Outcome	Coverage*
a. Apply knowledge	
B1. Conduct experiments	
B2. Statistical design of experiments	
c. Design	
d. Function on teams	
e. Solve programs	High
f. Professional and ethical responsibility	
g. Communicate	
H1. Economic impact	
H2. Global, societal, and environmental impact	High
i. Lifelong learning	
j. Contemporary issues	
k. Techniques, skills, and tools for degree program	High

\*Coverage is given as high, medium, or low. An empty box indicates that this outcome is not assessed in this course.

**5. Instructor** – Simon R. Phillpot

- a. Office location: 164 Rhines
- b. Telephone: 352-846-3782
- c. E-mail address: sphil@mse.ufl.edu
- d. Course website: <http://lss.at.ufl.edu> (e-learning)
- e. Office hours: Tuesday Period 8 (3:00 -3:50pm); Thursday Period 4 (10:50 – 11:40am)

**6. Teaching Assistant** –

- a. Office location: TBA
- b. E-mail address: TBA
- c. Office hours: TBA

**7. Meeting Times** – MWF, Period 6 (12:50 PM – 1:40 pm).

**8. Meeting Location** – PSY 151.

**9. Final Exam** – Thursday December 15, 12:30 – 2:30 pm

**10. Textbook Required** –

- a. Title: Principles and Prevention of Corrosion, 2<sup>nd</sup> edition
- b. Author: Denny A. Jones
- c. Publication: Prentice Hall, 1996
- d. ISBN: 0-13-359993-0

**11. Other Reading Materials and Resources** –

- “Fundamentals of Radiation Materials Science,” by Gary S. Was, <http://link.springer.com/book/10.1007%2F978-3-540-49472-0>
- Various other materials provided or indicated throughout the course

**12. Attendance and Professional Expectations** – Attendance is *strongly* encouraged. Attendance will inevitably be reflected in the course grade through previously unannounced classroom activities during the lecture period. Cell phones should be turned off, or muted, prior to the start of 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 lecture. Students who do not comply with these requirements or who behave disorderly or disrespectfully may be asked to leave the classroom and will not be allowed to make up quizzes or other assignments.

**13. Grading** –

- a. 25 %: Homework, not all assignments will have the same weight

- b. 45 %: 3 Exams. Contributing equally
- c. 25 %: Contemporary issue report
  - o Concept report: 5%
  - o Materials science, physics, chemistry and/or biology of stability problem 10%
  - o Final Report: 10%
- d. 5%: Classroom activities

Homework assignments are due at the beginning of class on the date listed on the course outline and are to be handed in to the instructor.

There will be 3 exams for this course. Exams are NOT “open book” unless explicitly designated as such. Calculators and rulers are allowed and encouraged. Unless prior written approval has been granted by the instructor, no make-up exams will be allowed; students not in attendance for the scheduled exam time and place will receive a score of zero. Make-up exams will only be allowed in exceptional cases with sufficient documentation and in accordance with University policies.

Contemporary Issues: The field of Stability of Materials is undergoing a transformation in topical coverage and breadth, leading to increasingly new applications and expanding fundamental scientific principles. This course, historically rooted in metallic corrosion in aqueous environments, is evolving with this transformation. To more fully incorporate these contemporary issues into the classroom, each student will choose a contemporary issue topic that will be approved by the instructor. Students will then perform literature and/or other research on the topic and develop a set of three progressively more thorough contemporary issues reports.

**14. Grading Scale** – Grades will not be curved and there is no extra credit.

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
Grade Points	4.0	3.67	3.33	3.0	2.67	2.33	2.0	1.67	1.33	1.0	0.67	0

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](mailto: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 support**, 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](https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf).

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