

**Course: EMA 3050**  
**Title: Introduction to Inorganic Materials**  
**Syllabus Fall 2018**

1. Catalog Description – Credits: 3.

*Uses, structure, processing and properties of inorganic materials, including metals, alloys and ceramics. Scientific principles are introduced through discussion of developed inorganic materials for high technology applications.*

<https://catalog.ufl.edu/ugrad/current/courses/descriptions/materials-science-and-engineering.aspx>

2. Prerequisites - EMA 3050

3. Course Objectives – To gain an understanding of the relationships between crystal structure, processing, and properties of inorganic materials. To develop the ability to select appropriate materials to meet design specifications for engineering applications.

4. Contribution of course to meeting the professional component - This is a 3-credit course that provides 3 credits towards engineering sciences.

5. Relationship of course to program outcomes (ABET):

*I. Ability to apply knowledge of mathematics, science, and engineering to materials systems (high)*

*As an introductory course, this course provides students with fundamentals in the structure, properties, and processing of ceramics and metals. Students demonstrate this knowledge on homework problems and exams.*

*II. Ability to engage in lifelong learning (low)*

*Each student communicates with a material scientist or engineer as a component of the contemporary issue topic. They select the person to which they communicate and, through this process, learn how to become aware of new technological, industrial, and scientific developments related to materials science and engineering. Students are also asked to identify information from other engineering resources including primary articles, standards, patents, and technical reports.*

*8a. Ability to communicate effectively in written form (medium)*

*Each student communicates with a material scientist or engineer as a component of the contemporary issue topic, transferring that information and understanding into a written document. The document is written for the general public and must communicate scientific information to this audience.*

6. Instructor -

Dr. Wolfgang Sigmund

Office location: 225 Rhines Hall

Telephone: 352-846-3343 (office)

E-mail address: [sigmund@ufl.edu](mailto:sigmund@ufl.edu)

Web site: <http://sigmund.mse.ufl.edu/>

Office hours: T, 9:30-11:30 am

7. Teaching Assistant –

Floyd Hilty

Phone: 352-846-3766 (research group lab phone)

Email: [fhilty@ufl.edu](mailto:fhilty@ufl.edu)

Office: TBD, maybe Library West study room

Hours: R 2-4 pm

8. Meeting Times – T 8:30 -9:20 am, R 8:30-9:20 am, 9:35-10:25 am

9. Class schedule - Three hours of class time each week.

10. Meeting Location – CSE E121

11. Material and Supply Fees - None.

12. Textbooks and Software Required –

Modern Ceramic Engineering, Richerson, Fourth Edition, ISBN 978-1-4987-1691-8;

Modern Physical Metallurgy, R. E. Smallman & A. J. W. Ngan, Butterworth-Heinemann, ISBN 9780080982045, available as online book UF library.

You must have access to a computer and the following software to complete course assignments: word processing software, such as Word; spreadsheet software, such as Excel; Pdf writer.

This course will use e-learning as an electronic course management system. The course website will have reading and homework assignments, updated grades, and course announcements. You can access e-learning at <http://elearning.ufl.edu/> and log in with your Gatorlink and password.

Recommended Reading –

Supplementary reading and links to various other websites are provided and updated throughout the semester.

13. Homework - Homework will be assigned and is usually due back the following week. The purpose of homework is to give students an opportunity to evaluate and apply their knowledge. Students may collaborate on homework; however, the actual submitted assignment must represent their own work and preparation.

Note: Homework in its entirety must be word processed on your computer. For some problems you will require a suitable math package with graphing capability (e.g., Excel, MatLab, or others). Picture files (jpg, etc.) are not accepted. Files have to pdf, doc, docx, or pptx.

Homework needs to be submitted online on e-learning. Email is not acceptable for submission of homework. Hard copies are also not accepted.

Homework will be evaluated on the following basis:

- Excellent work: 100
- Assignment acceptable: 85
- Homework submitted (showing effort): 70
- Homework submitted no or small effort: 0
- Note - late homework is not accepted: 0

14. Course Outline –

Class starts August 23, 2018 and ends on December 4. Detailed outline with exam dates, lecture contents is in a separate document.

15. Attendance and Expectations -All students are expected to attend class. Attendance also requires participation in class by solving problems in small groups and presenting the solutions in front of the class. Cell phones should be turned to silent. You will need a cell phone, computer or tablet to take part in some of the quizzes. 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.

16. Grading –

3 of 4 exams (20% each)	60 %
Homework	20 %
Quizzes	10%
Term paper	10%
Total	100%

## 17. Grading Scale –

%	≥92	≥90	≥87	≥84	≥80	≥77	≥74	≥71	≥67	≥63	≥60	<60
Letter	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	E

Grades are not curved. There is no final exam in this class.

*“C- will not be a qualifying grade for critical tracking courses. In order to graduate, students must have an overall GPA and an upper-division GPA of 2.0 or better (C or better). Note: a C-average is equivalent to a GPA of 1.67, and therefore, it does not satisfy this graduation requirement.” For more information on grades and grading policies, please visit: <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx> “*

18. *Requirements for class attendance and make-up exams, assignments, and other work are consistent with university policies that can be found at: <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>*
19. *Honesty Policy – All students admitted to the University of Florida have signed a statement of academic honesty committing themselves to be honest in all academic work and understanding that failure to comply with this commitment will result in disciplinary action. This statement is a reminder to uphold your obligation as a UF student and to be honest in all work submitted and exams taken in this course and all others.  
Note that failure to comply with this commitment will result in disciplinary action compliant with the UF Student Honor Code Procedures. See <https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>*
20. *Accommodation for Students with Disabilities – Students Requesting classroom accommodation must first register with the Dean of Students Office. That office will provide the student with documentation that he/she must provide to the course instructor when requesting accommodation.*
21. *UF Counseling Services –Resources are available on-campus for students having personal problems or lacking clear career and academic goals. The resources include:  
UF Counseling & Wellness Center, 3190 Radio Rd, 392-1575, psychological and psychiatric services.  
Career Resource Center, Reitz Union, 392-1601, career and job search services.*
22. *Your well-being is important to the University of Florida. The U Matter, We Care initiative is committed to creating a culture of care on our campus by encouraging members of our community to look out for one another and to reach out for help if a member of our community is in need. If you or a friend is in distress, please contact [umatter@ufl.edu](mailto:umatter@ufl.edu) so that the U Matter, We Care Team can reach out to the student in distress. A nighttime and weekend crisis counselor is available by phone at 352-392-1575. The U Matter, We Care Team can help connect students to the many other helping resources available including, but not limited to, Victim Advocates, Housing staff, and the Counseling and Wellness Center. Please remember that asking for help is a sign of strength. In case of emergency, call 9-1-1.*
23. *Software Use – All faculty, staff and student 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.*

24. Record keeping - all materials from this class that students did not pick up (graded exams, etc.) within 1 year of the end of class will be shredded on or after December 31, 2019.
25. Syllabus Changes – I reserve the right to make changes in the syllabus as needed. Any changes will be clearly announced on canvas and in class.

**Sections in italics are from the UF catalog or from the Herbert Wertheim College of Engineering suggested syllabus.**