Course Syllabus - The Impact of Materials on Society  
FALL 2020  
EMA 1004, ANT 3930, CLA 3930  
Sections for EMA 1004: 06H7, OVER

_Meeting Times_ – MWF, Period 3 (9:35-10:25am)  
_Meeting Location_ – On Line  
_Credit Hours_ - 3 credit hours

_Instructor_ – Prof. Kevin Jones; Office: 160 Rhines; Telephone: 846-3301; e-mail: kjones@eng.ufl.edu, text: 352 219 6641  
_Office Hours:_ Tuesday, Wednesday, Friday Period 4; or when I’m in my office.

Prof. Jones will be joined by Dr. Sophia Krzys-Acord (Sociology), Prof. Susan Gillespie (Anthropology), Prof. Ken Sassaman (Anthropology), Prof. Mary Ann Eaverly (Classics), Prof. Florin Curta (History), Prof. Sean Adams (History), Prof. Haven Hawley (Libraries), Prof. Augusto Oyuela-Caycedo (Anthropology) and Prof. Marsha Bryant (English)

_Teaching Assistant/Peer Mentor/Supervised Teaching Assistant_  
TBA

_Catalog Description_ –  
This course explores the connections between the discovery of new materials -- such as ceramics, concrete, precious stones and metals, glass, steel, plastics and semiconductors - and social transformations worldwide. To see these connections, the course will fuse basic concepts in materials science and engineering with perspectives and methods from anthropology, history, English, classics, and sociology. From ancient cities and Roman baths, to steel foundries and Tupperware parties, to virtual communities and nanomedicine, we will learn how the physical properties of different materials intersect with cultural variables like gender, race, power/authority, religious beliefs, values, and financial and political systems to shape human civilization. By connecting lessons from the past to the inventions of cutting-edge materials, we will also explore the future social impacts of new materials in medicine, construction, transportation, clean energy, sports, and other areas. Engineers play important roles in changing or maintaining the structure and fabric of society. This course will explore how their materials-based technologies shape our society, as well as how society shapes engineering innovations.

_Prerequisites and Co-requisites_ - none
**Required Reading** – *The Substance of Civilization* by Stephen L. Sass, ISBN-13: 9781559704731. Additional readings and course materials will be provided On-Line throughout the semester. The class has a very comprehensive Canvas website.

**Course Objectives**
This course will introduce students to how new materials impacted social structure both historically and in the present day, and to the social and cultural forces that shape the development and use of materials and technologies from the past to future. To do this, this course will:

- Examine the interrelated nature of society and materials engineering
- Demonstrate how materials can be manipulated to solve technical and sociocultural problems
- Explore how social and cultural systems shape how humans perceive the intrinsic physical properties of materials
- Discuss how the impact of materials on society varies with the cultural and historical context.
- Give students a variety of approaches from the humanities, social sciences, and sciences to examine and shape the impact of materials on society.
- Teach students basic skills in cross-disciplinary communication, team work, and argumentative writing.
- Teach critical thinking about how disciplinary approaches and personal beliefs shape our understanding of materials.
- Teach creative thinking about how to apply this knowledge through applied projects discussing future materials innovations.

**Course Outline**
This course serves as a test bed for the development of a new course at universities and colleges around the country. Each week of the course will focus on a particular class of materials. The first two days of each week will examine the discovery of a particular material, its physical properties, and historical case studies of its major social impacts. In preparation for the third class meeting each week, you will watch a short video lecture on modern materials developed by scientists from around the U.S. The third class meeting of each module will feature a group activity to discover the possible social impacts of these future materials. A schedule of topics is provided below in the course notes.

**Attendance and Expectations** - All students are expected to attend and participate in class. The class is taught in an interactive lecture format, and includes discussion and practice activities. The TA’s will be present to monitor the chat discussion questions and I will be sure to break into the lecture to address questions. 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. There are a set of requirements for each module. This includes the following:

1) Before the module begins it is recommended you read the material in the Sass book. Its only a few pages and helps get you ready for the lecture.
2) Before the social Science lecture you should read the chapter from the open source textbook IMOS. The chapters are also posted in each module on the canvas website.

3) On the next day (after the social science lecture and before the third class for the module) you should watch the IMOS video on future materials (its short) and do a short homework assignment that is posted in canvas about the video.

4) On the third class day for each module you will be required to
   a. Turn in the Homework
   b. There will be a short lecture and then you will join your groups in the breakout rooms to work in teams on an in class assignment
   c. Turn in one group in class assignment per group
   d. The group assignment will require you as a group of 4-5 to fill out a worksheet. You are allowed to use the internet and any other resources and a single grade will be given for each group. If you are not present you will receive a 0.

5) During the semester there will also be two exams. They will happen during the class period as scheduled below. They will be a combination of multiple choice and short answer questions. The second exam will not be comprehensive.

6) At the end of the semester there will be a final poster session where you will present your poster 5 times to 5 others in the class and you will evaluate 5 others posters. You will be graded both on your evaluation scores and how well you evaluated others. This comprises your final project grade.

7) You will be asked at the end of the semester to evaluate the others in your group. This will be used for your class participation grade.

8) There is no final exam.

9) If you have any questions feel free to email me at kjones@eng.ufl.edu and I will usually respond immediately or within 24 hours.

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<tr>
<th>Assignment</th>
<th>Due Date</th>
<th>Credit</th>
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<tbody>
<tr>
<td>Weekly Homework</td>
<td>See Due Dates Below</td>
<td>30%</td>
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<tr>
<td>Midterm</td>
<td>Wednesday Oct. 9 in class</td>
<td>20%</td>
</tr>
<tr>
<td>Second Exam</td>
<td>Monday Dec. 2 in class</td>
<td>20%</td>
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<tr>
<td>Final Project</td>
<td>Tuesday, Wednesday Dec. 3,4</td>
<td>20%</td>
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<tr>
<td>Class Participation</td>
<td>Weekly group exercise</td>
<td>10%</td>
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*Extra-credit opportunities may be announced throughout the semester.

**Grading Scale** - 92-100= A; 91-89 = A-; 88-86 = B+; 85-82 = B; 81-79= B-; 78-76 = C+; 75-72 = C; 71-69 = C-; 68-66 = D+; 65-62 = D; 61-59 = D-; Less than 59 = E

Grades are not curved.
Weekly Schedule

Fall 2020 – Course Outline

8/31-9/2 Introduction to class - Prof. Kevin Jones and course team;
- Introduction to Clay
  • 8/31 – KJ and SA introduction – overview
    o pre-survey
    o Hand out impact paradigm and go through it. Edit it ongoing
    o Kevin to define properties of materials
  • 9/2 – Lecture 2 KJ introduce concept map and synthesis

Clay 9/4-9/11 Entanglement of Earth: The Age of Clay versus the Age of Rare Earths - Team with Prof. Susan Gillespie (Anthropology)
  • 9/4 – (Friday) SG lecture Entanglement  (Homework 1 Due)
  • 9/7 (Monday)– labor day
  • 9/9 – (Wednesday) KJ intro to clay
  • 9/11 – (Friday) Homework/ rare earths activity. (Homework 2 Due)

Ceramics 9/14-9/18 Glass/Ceramics and Modern Functional Materials - Team with Prof. Ken Sassaman (Anthropology)
  • 9/14 (Monday)– KJ intro to glass/ ceramics
  • 9/16 (Wednesday)– KS lecture Chaine Operatoire
  • 9/18 (Friday) KJ Homework/Granta activity  (Homework 3 Due)

Copper 9/21-9/25 Copper and Bronze – Team with Prof. Florin Curta (History)
  • 9/21 (Monday) – KJ intro to copper/bronze
  • 9/23 (Wednesday) – FC Copper lecture/Trade
  • 9/25 (Friday) - KJ Homework/Trade Activity (Homework 4 Due)

Concrete 9/28-10/2 Concrete: Engineering Society through Social Spaces - Team with Prof. Mary Ann Eaverly (Classics)
  • 9/28 (Monday)-KJ Intro to concrete
  • 9/30 (Wednesday) – MAE lecture Roman Concrete/Affordance
  • 10/2 (Friday) – KJ Homework/Concrete activity (Homework 5 Due)

Gold 10/5-10/9 Gold, Silver, and the Creation of Value- Team with Prof. Florin Curta (History)
  • 10/5 (Monday) – KJ intro to gold/silver
  • 10/7 (Wednesday) - FC Gold lecture/Value
  • 10/9 – (Friday) – KJ Homework/ Gold activity /hand out midterm review sheets (Homework 6 Due)
Midterm 10/12-10/14
- 10/12 (Monday) - Review for Midterm
- 10/14 (Wednesday) – Midterm

Steel 10/16-10/21 Iron, Steel, and the Entrepreneur - Team with Prof. Sean Adams (History)
- 10/16 (Friday) – KJ intro to Steel
- 10/19 (Monday) – SA lecture Creative Destruction
- 10/21 (Wednesday) – KJ Homework/Steel activity (Homework 7 Due)

Aluminum 10/23-10/28 Aluminum, Transportation, and Company Development - Team with Prof. Seam Adams (History) (monopolies)
- 10/23 (Friday) – KJ intro to Aluminum
- 10/26 (Monday) – SA lecture Monopolies
- 10/28 (Wednesday) – KJ Homework/Aluminum activity (Homework 8 Due)

Plastics 10/30 -11/4 Plastics, Polymers, Earl Tupper, and Materials Marketing - Team with Prof. Marsha Bryant (English)
- 10/30 (Friday) – KJ intro to Polymers
- 11/2 (Monday) – MB lecture/Marketing
- 11/4 (Wednesday) - KJ Homework/Plastics Activity (Homework 9 Due)

Polymer Membranes 11/6-11/13 Reverse Osmosis for Creating Clean Water
- 11/6 (Friday) – KJ intro to Polymer Membranes and Water purification
- 11/9 (Monday) – CO lecture/Clean Water
- 11/11 (Wednesday) Holiday
- 11/13 (Friday) – KJ Homework/Membrane activity (Homework 10 Due)

- 11/16 (Monday) – KJ intro to writing materials
- 11/18 (Wednesday) --HH lecture/Information storage
- 11/20 (Friday) – KJ Homework/Writing activity (Homework 11 Due)

Thanksgiving
- 11/23 (Monday) - KJ intro to semiconductors
- 11/21 (Wednesday) Thanksgiving
- 11/23 (Friday) Thanksgiving

Silicon 11/30-12/4 Semiconductors and Cyborgs: Human-Material Relations in the Networked Society - Team with Dr. Sophia Acord (Sociology)
- 11/30 (Monday) SA lecture Human-Material Relations
- 12/2 (Wednesday) – KJ and SA Homework/Activity for semiconductors (Homework 12 Due)

- 12/4 (Friday) – Review for exam 2 and poster session

Exam 2 and Final Posters  12/2-12/4
- 12/7 (Monday) – Exam 2 in class
- 12/8 (Tuesday evening) – Poster session 1 6:15-8:00PM
- 12/9 (Wednesday evening) – Poster session 2 6:15-8:00PM

Make-up Exam Policy - Make-up exams are given only for reasons of illness and in accordance with University of Florida regulations.

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

Also here is the Zoom privacy policy https://zoom.us/privacy

Campus Resources:

Health and Wellness

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<th>U Matter, We Care:</th>
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<tr>
<td>If you or a friend is in distress, please contact <a href="mailto:umatter@ufl.edu">umatter@ufl.edu</a> or 352 392-1575 so that a team member can reach out to the student.</td>
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<th>Counseling and Wellness Center:</th>
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<td><a href="http://www.counseling.ufl.edu/cwc">http://www.counseling.ufl.edu/cwc</a>, and 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.</td>
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<th>Sexual Assault Recovery Services (SARS)</th>
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<td>Student Health Care Center, 392-1161.</td>
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<td>at 392-1111 (or 9-1-1 for emergencies), or <a href="http://www.police.ufl.edu/">http://www.police.ufl.edu/</a>.</td>
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Academic Resources

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<td>352-392-4357 (select option 2) or e-mail to <a href="mailto:Learning-support@ufl.edu">Learning-support@ufl.edu</a>. <a href="https://lss.at.ufl.edu/help.shtml">https://lss.at.ufl.edu/help.shtml</a>.</td>
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<td><a href="http://cms.uflib.ufl.edu/ask">http://cms.uflib.ufl.edu/ask</a>. Various ways to receive assistance with respect to using the libraries or finding resources.</td>
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<td>Broward Hall, 392-2010 or 392-6420. General study skills and tutoring. <a href="https://teachingcenter.ufl.edu/">https://teachingcenter.ufl.edu/</a>.</td>
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Writing Studio, 302 Tigert Hall, 846-1138. Help brainstorming, formatting, and writing papers. [https://writing.ufl.edu/writing-studio/](https://writing.ufl.edu/writing-studio/).

