

Fall 2013 Syllabus for combined class EMA 4062 section 107A (Biopolymers: Manufacture, Stability and Biocompatibility) and EMA 6581C section 07B5 (Polymeric Biomaterials)

EMA 4062 Fall 2013, Section 107A

1. Catalog Description: Biopolymers: Manufacture, Stability and Biocompatibility
Credits: 3; Prereq: EMA 3066.
Polymer manufacturing processes and biochemical/biophysical behavior are considered from the perspective of achieving those properties needed for the engineering of polymeric implants and devices. Unique economic, ethical and regulatory issues are also presented.
2. Pre-requisites and Co-requisites:
EMA 3066 or Instructor Permission
3. Course Objectives:
 - a. Use their technical knowledge of materials science and engineering to understand the structure/property behavior of biopolymers as related to manufacture, stability and biocompatibility.
 - b. Perform and communicate in a professional environment.
 - c. Understand the societal considerations for biopolymer uses.
4. Contribution of course to meeting the professional component (ABET only):
 - a. To be completed by ABET Coordinator
5. Relationship of course to program outcomes (ABET only):
 - a. Outcome #1: Ability to conduct experiments, analyze and interpret data. (Low)
 - b. Outcome #2: Ability to apply and integrate knowledge of structure, properties, processing, and performance to solve materials selection and design problems within realistic constraints. (Medium)
 - i. project/ device
 - ii. project materials selection
 - c. Outcome #3: Understanding of professional and ethical responsibility. (Low)
 - i. Exam question(s)
 - ii. Design project
 - d. Outcome #4: Ability to communicate effectively in both oral and written form. (Medium)
 - i. Exam questions
 - ii. Design project
 1. Written report
 2. Verbal reports
 - e. Outcome #5: Understanding of the economic impact of engineering solutions. (Medium)
Design project requires cost analysis
 - f. Outcome #6: Ability to use the techniques, skills, and tools needed for practice as a materials engineer. (Low)

6. Instructor:
 - a. **Instructor:** Dr. C. Batich
 - b. **Office:** 317 Materials Sci. & Eng. Bldg.
 - c. **Telephone** 392-6630 (Office)
 - d. **Email** cbati@ufl.edu
 - e. **Office hours:** by appointment
7. Teaching Assistant: NA
8. Meeting Times:

Lectures: – Period 7 Tuesday Period 7 (1:55-1:45 pm) and 8 (3:00 -3:50 pm) on Thursday.
9. Class/laboratory schedule, i.e., number of sessions each week and duration of each session: Lectures: 3/wk for 50 minutes
10. Meeting Location: MAEA 303
11. Material and Supply Fees: NA
12. Textbooks and Software: none
13. Course Outline (Detailed Class Schedule On eLearn):

Class notes and assigned reading from library.
14. Attendance and Expectations:
 - a. Attendance is expected.
 - b. No cell phone use in class.
15. Grading: (Final Exam may be avoided if student has “A” average at that point)

<i>Quizzes:</i>	<i>80%</i>
<i>Project and reviews</i>	<i>10%</i>
<i>Exam:</i>	<i>10%</i>

16. Grading Scale

≥92	≥88	≥84	≥80	≥76	≥72	≥68	≥65	≥62	≥59	≥56	<56
A	A-	B+	B	B-	C+	C	C-	D+	D	D-	E
4.00	3.67	3.50	3.33	3.00	2.67	2.33	2.00	1.67	1.33	1.00	0.67

17. Make-up Exam Policy: Consult with Professor, case-by-case basis.
18. Honesty Policy: All students admitted to the University of Florida have signed a statement of academic honesty committing them 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.
19. 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.

20. UF Counseling Services: Resources are available on-campus for students having personal problems or lacking clear career and academic goals. The resources include:

- University Counseling Center, 301 Peabody Hall, 392-1575, Personal and Career Counseling.
- SHCC mental Health, Student Health Care Center, 392-1171, Personal and Counseling.
- Center for Sexual Assault/Abuse Recovery and Education (CARE), Student Health Care Center, 392-1161, sexual assault counseling.
- Career Resource Center, Reitz Union, 392-1601, career development assistance and counseling.

21. 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.

Revised August 9, 2013

UF Religious Holidays Policy

Faculty members at the University of Florida should be familiar with the policy specified below and must comply with its provisions as they relate to accommodating students' religious observances.

Students and faculty must work together to allow students the opportunity to observe the holy days of his or her faith. A student needs to inform the faculty member of the religious observances of his or her faith that will conflict with class attendance, with tests or examinations, or with other class activities prior to the class or occurrence of that test or activity. The faculty member is then obligated to accommodate that particular student's religious observances. Because our students represent a myriad of cultures and many faiths, the University of Florida is not able to assure that scheduled academic activities do not conflict with the holy days of all religious groups. We, therefore, rely on individual students to make their need for an excused absence known in advance of the scheduled activities.

The UF Religious Holidays Policy is available at: <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

For University of Florida Students, the following guidelines apply: Students, upon prior notification of their instructors, shall be excused from class or other scheduled academic activity to observe a religious holy day of their faith. Students shall be permitted a reasonable amount of time to make up the material or activities covered in their absence. Students shall not be penalized due to absence from class or other scheduled academic activity because of religious observances.

Syllabus for EMA 6581 Polymeric Biomaterials

1. Biomedical implant and device applications of synthetic and natural polymers. Biocompatibility and interfacial properties of polymers in physiological environment, especially concerning short-term devices (catheters) and long-term implants (intraocular lenses, vascular and mammary prostheses, etc.).
2. *Prerequisite:* CHM2045 and EMA3066 or equivalent
3. Relationship of course to program outcomes: strengthen knowledge in context.
4. Contribution of course to meeting the professional component varies.
5. Course Objectives:
 - a. Extend basic materials knowledge to include materials in the biological environment.
 - b. Examine current literature in the areas of polymeric biomaterials synthesis, manufacture and use.
6. Dr. Chris Batich
 - a. Office location – 317 MAE
 - b. Telephone – 352.392.6630
 - c. Email address – cbatl.ufl.edu
 - d. Website –<http://batich.mse.ufl.edu>
 - e. Office hours by appointment
7. Teaching assistant - NA
8. Meeting Times – T, Th Period 7, Th Period 8
9. Class/laboratory schedule: 3 sessions per week, 50 minutes duration
10. Meeting Location – MAEA room 303
11. Material and supply fees: NA
12. Textbook and Software none required, suggest UF library ebook:
 - a. Title: Biomaterials Science, An Introduction to Materials in Medicine
 - b. Author: Ed. R. D. Ratner, A. S. Hoffman, F. J. Schoen, J. E. Lemons
Publication date and edition: 2004, 2nd Edition
 - d. ISBN number: ISBN 0-12-582463-7
 - e. Course Notes: Will be provided on web
13. Recommended Reading: (see 12e above)
14. Course Outline – on eLearn
15. Attendance and Expectations:
 - a. Attendance is strongly recommended
16. Grading: (Final Exam may be avoided if student has “A” average at that point)
 - a. Quizzes 80%
 - b. Project and reviews 10%
 - c. Exam 10%
17. Grading Scale:

≥92	≥88	≥84	≥80	≥76	≥72	≥68	≥65	≥62	≥59	≥56	<56
A	A-	B+	B	B-	C+	C	C-	D+	D	D-	E
4.00	3.67	3.50	3.33	3.00	2.67	2.33	2.00	1.67	1.33	1.00	0.67

“Graduate students need an overall GPA of 3.00 truncated and a 3.00 truncated GPA in their major (and in the minor, if a minor is declared) at graduation.” For more information on grades and grading policies, please visit:

<http://gradcatalog.ufl.edu/content.php?catoid=4&navoid=907#grades>

18. Make-up Exam Policy

- a. Requires Instructor Approval PRIOR to examination date.
- b. 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.a.spx>

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. Disciplinary action includes failure in this course. 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.

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