

APPROVED

RECEIVED

NOV 01 2011

COLLEGE OF GRADUATE STUDIES

The page is for view only.

If you wish to submit a new course, please [login](#)

The University Of Toledo

NEW COURSE PROPOSAL

* denotes required fields

1. College*:

Department*:

Level (check one)*

Undergraduate

Graduate

Type of course (check all that apply):

Academic Skills Enhancement Writing Intensive (WAC) Honors

Univ. Core: English Hum Math Nat. Sciences Social Sciences

Multicultural: Diversity of US Culture Non-US Culture

Transfer module: Arts&Hum Engl Math Nat Sci & Phys Soc Sci
(to be considered as core curriculum, question 18 must be completed)

Will this course impact program requirements? Yes No If yes, a Program Modification must be completed.

2. Contact Person*: A. Champa Jayasuriya Phone: (419) 383-6557 (XXX - XXXX) Email: a.jayasuriya@utoledo.edu

3. Alpha/Numeric Code (Subject area - number)*: _____
If this is a renumbering, please request an electronic copy of the old course approval through the Register's Office at x4865, and attach it to #15 in this form. Remember to delete the old course ID in #13.

4. Proposed title*: BIOMATERIALS IN MEDICINE
Proposed effective term: 2012 Spring

5. Planned enrollment per section: 20 per term: 20

6. Is the course cross-listed with another academic unit? Yes No

Is the course offered at more than one level? Yes No
If yes to either question, please list additional Alpha/Numeric codes, and submit a separate New Course form or Course Modification form for the course(s) referenced below.

a. _____ - _____ b. _____ - _____ c. _____ - _____

Approval of other academic unit (signature) _____

Name and title _____

If course is to be offered at more than one level, attach an explanation of the different requirements that students must meet for each level. If the requirements are the same for each level, justification must be provided.

7. Credit hours*: Fixed: 3 or Variable: _____ to _____

8. Delivery Mode:	Primary*	Secondary	Tertiary
a. Activity Type†	* Lecture <input checked="" type="checkbox"/>	Independent Stud <input checked="" type="checkbox"/>	
b. Minimum Credit Hours	* 3		
Maximum Credit Hours	* 3		
c. Weekly Contact Hours	* 1		

† Choices are: Lecture, Recitation, Seminar, Regular Lab, Open Lab, Studio, Clinic, Field, Independent Study, Workshop, Computer Assisted Instruction, Other

9. Terms offered: Fall Spring Summer

Years offered: Every Year Alternate Years

10. Are students permitted to register for more than one section during a term? No Yes

May the courses be repeated for credit? No Yes Maximum Hours

11. Grading System*:

Undergraduate Normal Grading (A-F,PS/NC,PR, I) Passing Grade/No Credit (A-C, NC) Credit/No Credit Grade Only (A-F, PR, I) Audit only No Grade	Graduate <input checked="" type="checkbox"/> Normal Grading (A-F,PS/NC,PR, I) Grade Only (A-F) Satisfactory/Unsatisfactory (G only) Audit only No Grade
---	--

12. Prerequisites (must be taken before): a. - b. - c. -
 PIN (Permission From Instructor) PDP (Permission From Department) Reset

Co-requisites (must be taken together): a. - b. - c. -

13. If course is to replace an existing, course(s) will be deleted, and when should that deletion occur?

<u>Course to be removed from inventory</u>	<u>Final Term to be offered (YYYYT. i.e. use 20064 for Fall'06)</u>
a. -	
b. -	
c. -	
d. -	

14. Catalog description* (30 words Maximum)
Biomaterials use in a wide variety range of applications in medicine including drug delivery carriers and replacement of tissues.

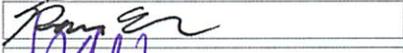
15. Attach an electronic copy of a complete outline of the major topics covered.
 Syllabus: * Browse...
 Additional Attachment 1: Browse...
 Additional Attachment 2: Browse...

16. Where does this course fit in the University/College/Department curriculum? (Be specific by course level, if applicable). Indicate prospective demand.
college of Medicine / college of Pharmacy / college of Engineering

17. If the proposed course is similar to another course in the College or University, please describe the difference and provide a rationale for the duplication. (If this course duplicates material covered in another course within your department or college or in another college, attach a letter of endorsement from that area's dean and department chairperson indicating their support. Clarify the manner in which this course will differ).

18. If the course is intended to meet a University Undergraduate Core requirement, complete the following and submit a course syllabus using the template:
Please explain how this course fulfills the general education guidelines. (Guidelines are available in Faculty Senate Website)

Course Approval:

Department Curriculum Authority:	<input type="text"/>	Date	Month	/	Day	/	Year
X Department Chairperson:		Date	Month	10	/	Day	31 / Year 2011
College Curriculum Authority:		Date	Month	10	/	Day	31 / Year 2011
College Dean:		Date	Month	10	/	Day	31 / Year 2011

After college approval, submit the original signed form to the Faculty Senate (UH 3320) for undergraduate-level courses; for graduate-level courses submit the original signed form to the Graduate School (UH3240). For undergraduate/graduate dual-level courses, submit the proposals to each office.

Faculty Senate Undergrad. Curriculum Comm.:	<input type="text"/>	Date	Month	/	Day	/	Year
Faculty Senate Core Curriculum Comm.:		Date	Month	/	Day	/	Year
Graduate Council:		Date	Month	11	/	Day	29 / Year 2011
Office of the Provost:	<input type="text"/>	Date	Month	/	Day	/	Year
Registrar's Office:	<input type="text"/>	Date	Month	/	Day	/	Year

Submit New Course Proposal

You will see a confirmation page after you press the "Submit" button. If you do not see the confirmation page, please call x 4320 or send an email to ProvostWebMaster.utoledo.edu. Thanks.

RECEIVED

NOV 01 2011

COLLEGE OF
GRADUATE STUDIES

Biomaterials in Medicine (Graduate level, 3 Credits)
College of Medicine/College of Pharmacy/College of Engineering
University of Toledo
Spring 2012

SYLLABUS

- Instructor:** A. Champa Jayasuriya, Ph.D.
Faculty Office: Dowling Hall - Suite 2447
Department of Orthopaedic Surgery
College of Medicine
- Days/Times:** Lectures: Monday/Wednesday 10:45 -12:00
- Class Location:** College of Medicine
- Office Hours:** By appointment
- Phone:** 419-383-6557
Fax: 419-383-3526
Email: a.jayasuriya@utoledo.edu
- Prerequisites:** Enrolled in a graduate or medical program in College of Medicine/College of Pharmacy/College of Engineering
- Students:** This course is designed for graduate students, MD or MD/PhD students.
- Readings:** Articles related to each lecture will be made available in a course-pack. Students need to read the articles prior to class.

Course Description:

Biomaterials use in a wide variety range of applications in medicine including drug delivery carriers and replacement of tissues. Several different types of biomaterials are used according to their properties and depending on the specific biomedical application. Some biomaterials can be used as permanent implants while others can be used as temporary. This course addresses the basic biological methods that test the biomaterials for biomedical applications. This course highly emphasizes current-state-of art knowledge of biomaterials in medicine including drug delivery devices, orthopaedic implants, cardiovascular implants, biomaterials use in soft tissues and dental biomaterials. In addition, this course introduces current research involving novel types of nano-biomaterials, bioFlex, and bio-MEMs for different types of medical devices.

Main Course Topics:

1. Introduction
2. Natural biomaterials
3. Synthetic polymers
4. Hydrogels
5. Bioactive ceramics
6. Polymer-ceramic composites
7. Metals
8. Nano-biomaterials
9. BioFlex/Biosensor
10. Biodegradation
11. Biocompatibility
12. Host Response
13. Current drug delivery systems
14. Biomaterial implants in orthopaedics
15. Soft Tissue replacement
16. Biomaterials for cardiovascular applications
17. Dental biomaterials
18. Failure of Implants
19. Regulatory issues

Learning Outcomes:

The graduate students will be able to learn about the different types of current biomaterials, their specific properties suitable for biomedical device fabrication and their use in biomedical applications including orthopaedic implants, drug delivery devices, cardiovascular implant applications.

The students will be able to:

1. understand the different types of biomaterials and their biological properties
2. select specific types of biomaterials to design specific biomedical application
3. develop critical thinking and analysis of biomaterial related devices

Student Assessment:

- Midterm Exam 40%
- Final Exam 50%
- Class participation 10%