

PURDUE UNIVERSITY
REQUEST FOR ADDITION, DELETION,
OR REVISION OF A COURSE

to Grad School 4/29/02
X per Mary 2/04
SCHOOL DOCUMENT NO. 30-01
GRADUATE COUNCIL DOCUMENT NO. _____

DEPARTMENT Biomedical Engineering DATE SUBMITTED 2/28/02 DATE EFFECTIVE S-2003

INSTRUCTIONS: Please check the items below which describe the purpose of this request.

PURPOSE

- | | |
|---|---|
| <input type="checkbox"/> 1. Deletion of a course | <input type="checkbox"/> 8. Change in semesters offered |
| <input checked="" type="checkbox"/> 2. New course with supporting documents | <input type="checkbox"/> 9. Change in course credit/type |
| <input type="checkbox"/> 3. Add existing course offered at another campus | <input type="checkbox"/> 10. Change in course attributes |
| <input type="checkbox"/> 4. Change in course number at same level | <input type="checkbox"/> 11. Change in instructional hours |
| <input type="checkbox"/> 5. Downgrading of course level | <input type="checkbox"/> 12. Change in prerequisites |
| <input type="checkbox"/> 6. Upgrading of course level | <input type="checkbox"/> 13. Change in description of course content |
| <input type="checkbox"/> 7. Change in course title | <input type="checkbox"/> 14. Transfer of course from one dept. to another |

EXISTING:

PROPOSED:

Subject Abbreviation BME Course Number 695
 Proposed Title Confocal Microscopy
 Variable Title Yes No

Subject Abbreviation BME Course Number 656

SEMESTERS OFFERED

Check All That Apply.
 Summer Fall Ag Winter Spring

Abbreviated Title Confocal Microscopy
 Abbreviated title will be entered by the Office of the Registrar if omitted. (22 CHARACTERS ONLY)

CROSS LISTED COURSES

BMS 656

CREDIT TYPE

1. Fixed Credit: Cr. Hrs. 2
 2. Variable Credit Range:
 Minimum Cr. Hrs _____
 (Check One) To Or
 Maximum Cr. Hrs. _____
 3. Equivalent Credit: Yes No
 4. Thesis Credit: Yes No

COURSE ATTRIBUTES: Check All That Apply.

1. Pass/Not Pass Only
 2. Repeatable for Credit
 3. Available for Credit by Examination
 4. Designator Required
 5. Special Fees
 6. Approval Required for Enrollment
 Department
 Instructor

Instructional Type	Class Hours	FTE	Instructional Type	Class Hours	FTE	Instructional Type	Class Hours	FTE	CAMPUS(ES) INVOLVED
Primary			Auto-tutorial			Thesis			Calumet <input type="checkbox"/>
Secondary			Ind. Study			Observation			Fort Wayne <input type="checkbox"/>
Laboratory			Clinic			Mats Based			Indianapolis <input type="checkbox"/>
Lab. Prep.			Experiential						North Central <input type="checkbox"/>
									West Lafayette <input checked="" type="checkbox"/>
									Off Campus <input type="checkbox"/>

COURSE DESCRIPTION (PREREQUISITES INCLUDED):

Theory and application of cellular and molecular imaging technologies including confocal and multi-photon microscopy. Optics, electronics, data collection, and visualization techniques. Collection and analysis of 2D and 3D image sets from various biological specimens.

Calumet Undergrad Curriculum Committee	Date	Calumet Department Head	Date	Calumet School Dean	Date
Fort Wayne Department Head	Date	Fort Wayne School Dean	Date	Fort Wayne Chancellor <i>C.D. Sutton</i>	Date
Indianapolis Department Head	Date	Indianapolis School Dean	Date	Apr. for Faculty #962 C.D. Sutton, Chair	4/26/02
North Central Department Head	Date	North Central Vice Chancellor	Date	Undergrad Curriculum Committee	Date
West Lafayette Department Head <i>Greg R. Washburn</i>	4/8/02	West Lafayette School Dean <i>J.S. Higgins</i>	29 April 02	Date Approved by Graduate Council	
Graduate Area Committee Convener	Date	Graduate Dean	Date	Graduate Council Secretary	Date
				West Lafayette Registrar	Date

To: Faculty of the Schools of Engineering
From: Department of Biomedical Engineering
Subject: New Graduate Level Course

The Department of Biomedical Engineering has approved the following new course. Approval of the Faculty of the Schools of Engineering is requested.

BME 656 / BMS 634 Confocal Microscopy: Techniques and Application Module

A. Course Description

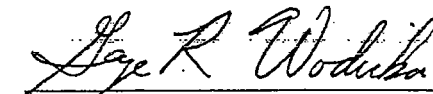
Sem. 2, Class 3, Lab 8, cr. 2 (5 wks)
Prerequisite: Permission of the Instructor Required

Theory and application of cellular and molecular imaging technologies including confocal and multi-photon microscopy. Optics, electronics, data collection, and visualization techniques. Collection and analysis of 2D and 3D image sets from various biological specimens.

B. Reason

This course has been offered three times on an experimental basis and has received a high level of student interest. In this course, students are introduced to the fundamental biophysical and optical basis of state-of-the-art imaging technologies including confocal microscopy. The course provides students with hands-on experience and practical knowledge regarding the application of such imaging technology for the study of physiological systems and processes.

APPROVED FOR THE FACULTY
OF THE SCHOOLS OF ENGINEERING
BY THE COMMITTEE ON
FACULTY RELATIONS


George R. Wodicka
Head and Professor
Department of Biomedical Engineering

CFR Minutes #962

Date 4/26/02

Chairman CFR C. D. Sutton

Supporting Documentation:

Instructor: J.Paul Robinson

Technical Assistant: Jennie Sturgis

Course Objectives:

This module will bring the latest cellular and molecular imaging technologies to the student's attention by allowing them to actually participate in using a confocal microscope. Confocal microscopy is a technology whereby a laser optically sections material and a data set is produced such that the material can be visualized in 3 dimensions. The lecture will give the students a good background in optics, electronics, data collection as well as visualization techniques. In addition, the students will have the opportunity to utilize fluorescence- and confocal- based instrumentation for the collection and analysis of 2D and 3D images of various materials.

Course Content:

Week 1: Light and fluorescence microscopy

Week 2: Fluorescence and transmitted light images with the confocal

Week 3: 3D image collection and processing

Week 4: Reflection imaging and multi-wavelength acquisition

Week 5: Time-lapse and live cell imaging