**PURDUE UNIVERSITY**

REQUEST FOR ADDITION, EXPIRATION, OR REVISION OF A GRADUATE COURSE
(50000-60000 LEVEL)

**DEPARTMENT**: Biology  
**EFFECTIVE SESSION**: Fall 2012

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

<table>
<thead>
<tr>
<th>Proposed</th>
<th>Existing</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. New course with supporting documents (complete proposal form)</td>
<td>7. Changes in course attributes</td>
</tr>
<tr>
<td>2. Add existing course offered at another campus</td>
<td>8. Change in instructional hours</td>
</tr>
<tr>
<td>3. Expiration of a course</td>
<td>9. Change in course description</td>
</tr>
<tr>
<td>4. Change in course number</td>
<td>10. Change in course requisites</td>
</tr>
<tr>
<td>5. Change in course title</td>
<td>11. Change in semesters offered</td>
</tr>
<tr>
<td>6. Change in course credit/typical</td>
<td>12. Transfer from one department to another</td>
</tr>
</tbody>
</table>

**PROPOSED:**
- Subject Abbreviation: BIOL
- Course Number: 51910
- Long Title: Biomedicine
- Short Title: Biomedicine

**EXISTING:**
- Subject Abbreviation: 
- Course Number: 
- Long Title: Biomedicine
- Short Title: Biomedicine

**ABBREVIATED TITLE WILL BE ENTERED BY THE OFFICE OF THE REGISTRAR IF OMITTED. (30 CHARACTERS ONLY)**

**CREDIT TYPE**
- Fixed Credit: 3 Cr. Hrs.
- Variable Credit Range: (Check One)
  - Minimum Cr. Hrs. (To) Or
  - Maximum Cr. Hrs. (Check One)
  - Equivalence Credit: Yes, No
  - Thesis Credit: Yes, No

**COURSE ATTRIBUTES**: Check All That Apply
- 1. Pass/Not Pass Only
- 2. Satisfactory/Unsatisfactory Only
- 3. Repeatable
- 4. Credit by Examination
- 5. Special Fees
- 6. Registration Approval Type (Department, Instructor)
- 7. Variable Title
- 8. Honors
- 9. Full Time Privilege
- 10. Off Campus Experience

**COURSE DESCRIPTION (INCLUDE REQUISITES/RESTRICTIONS):**
BIOL 51910 Biomedicine Cr. 3. P: BIOL 21000 and CHM 25500 or CHM 26100 or permission of instructor.
To develop an understanding of the applications of the principles of natural sciences, especially biology and physiology, to modern medicine through evaluation of preclinical research.

**OFFICE OF THE REGISTRAR**

[Signatures and dates filled in for approval process]
Supporting Document for a New Graduate Course

To: Purdue University Graduate Council

From: Faculty Member: Ahmed Mustafa
Department: Biology
Campus: IPFW
Date: 10/27/11

Subject: Proposal for New Graduate Course-Documentation Required by the Graduate Council to Accompany Registrar’s Form 40G

Contact for information if questions arise:
Name: Ahmed Mustafa
Phone Number: 260-481-6238
E-mail: mustafa@ipfw.edu
Campus Address: 2101 E Coliseum Blvd, Fort Wayne, IN 46805

Course Subject Abbreviation and Number: BIOL 51810
Course Title: Biomedicine

A. Justification for the Course:

- Provide a complete and detailed explanation of the need for the course (e.g., in the preparation of students, in providing new knowledge/training in one or more topics, in meeting degree requirements, etc.), how the course contributes to existing fields of study and/or areas of specialization, and how the course relates to other graduate courses offered by the department, other departments, or interdisciplinary programs.

- Justify the level of the proposed graduate course (50000- or 60000-level) including statements on, but not limited to: (1) the target audience, including the anticipated number of undergraduate and graduate students who will enroll in the course; and (2) the rigor of the course.

B. Learning Outcomes and Method of Evaluation or Assessment:

- Describe the course objectives and student learning outcomes that address the objectives (i.e., knowledge, communication, critical thinking, ethical research, etc.).

- Describe the methods of evaluation or assessment of student learning outcomes. (Include evidence for both direct and indirect methods.)

- Grading criteria (select from dropdown box); include a statement describing the criteria that will be used to assess students and how the final grade will be determined.

Criteria | Exams and Quizzes
--- | ---
• Identify the method(s) of instruction (select from dropdown box) and describe how the methods promote the likely success of the desired student learning outcomes.

Method of Instruction: Lecture

C. Prerequisite(s):

• List prerequisite courses by subject abbreviation, number, and title.

• List other prerequisites and/or experiences/background required. If no prerequisites are indicated, provide an explanation for their absence.

D. Course Instructor(s):

• Provide the name, rank, and department/program affiliation of the instructor(s).

• Is the instructor currently a member of the Graduate Faculty? X Yes — No (If the answer is no, indicate when it is expected that a request will be submitted.)

E. Course Outline:

• Provide an outline of topics to be covered and indicate the relative amount of time or emphasis devoted to each topic. If laboratory or field experiences are used to supplement a lecture course, explain the value of the experience(s) to enhance the quality of the course and student learning. For special topics courses, include a sample outline of a course that would be offered under the proposed course.

F. Reading List (including course text):

• A primary reading list or bibliography should be limited to material the students will be required to read in order to successfully complete the course. It should not be a compilation of general reference material.

• A secondary reading list or bibliography should include material students may use as background information.

G. Library Resources

• Describe the library resources that are currently available or the resources needed to support this proposed course.

H. Example of a Course Syllabus (While not a necessary component of this supporting document, an example of a course syllabus is available, for information, by clicking on the link below, which goes to the Graduate School's Policies and Procedures Manual for Administering Graduate Student Programs. See Appendix K.)


(Revised and Approved by the Graduate Council 2/08)
A Course Proposal Prepared For

BIOL 51810 BIOMEDICINE

Course Name: Biomedicine
3 credits; ‘A’ elective

Course Number: BIOL 51810

Course Level: Dual level graduate course

Course Description

Course Objective: To develop an understanding of the applications of the principles of natural sciences, especially biology and physiology, to modern medicine through evaluation of pre-clinical research.

Justification and Learning Outcome:

This course will involve the study of pathophysiological processes of diseases with different methods of treatments. Approaches will range from understanding molecular interactions to the study of the consequences at the in-vivo level. Novel strategies for diagnosis and therapy will be discussed.

This course is intended to provide upper level undergraduate and graduate students with a strong foundation in biomedicine that can be used in preparation for medical or graduate school curricula. This course will focus on commonalities and synergies between different areas of study and hence, students should have diverse background and interest in physiology, cellular, molecular and microbiology, and biochemistry.

In addition to lectures, students will receive experience in critical reading through assigned articles from primary literature and take home assignments that will be associated with in-class discussion. Leadership in presenting papers, discussion of papers, and general discussion will constitute students’ participation grade.
Assessment: Assessment will be based on the following activities-

<table>
<thead>
<tr>
<th>Activity</th>
<th>Points</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 Exams</td>
<td>200</td>
<td>50.00%</td>
</tr>
<tr>
<td>Take home assignments</td>
<td>100</td>
<td>25.00%</td>
</tr>
<tr>
<td>Oral presentations</td>
<td>50</td>
<td>12.50%</td>
</tr>
<tr>
<td>Discussions</td>
<td>50</td>
<td>12.50%</td>
</tr>
<tr>
<td>Total</td>
<td>400</td>
<td>100.00%</td>
</tr>
</tbody>
</table>

Grading scale:

90-100%        A
80-90%         B
70-80%         C
60-70%         D
<60%           F

Pre-requisite: BIOL21900 Principles of Functional Biology and CHM 25500 (or CHM 26100) Organic Chemistry or permission from the instructor

Instructor: Ahmed Mustafa
Associate Professor
Department of Biology
Indiana University Purdue University Fort Wayne
Fort Wayne, IN 46805

Course Outline:
Introduction
Basic principles of biomedical therapy
Peripheral nervous system diseases and their treatments
Central nervous system diseases and their treatments
  Neurodegenerative disorders
  Neurologic disorders
  Pain management
  Psychological disorders
Kidney diseases and their consequences
Cardiovascular diseases and their treatments
Endocrinological disorders and their treatments
Immunological implications
Infectious diseases
  Bacterial infections
  Viral infections
  Parasitic infections
Cancer biology
Other diseases and their treatments
Frequency: Fall semester; every other year  
(Starting from Fall 2012)

Reading Lists:  
1. Text book- To be selected later  
2. Primary literature- To be selected later  
3. Others (please see below):

IPFW Library (Optional):
Following three resources are available from the Databases and Indexes List on the library's web page.
1. Micromedex: Free version for educational purposes only, but this version has everything, and a lot of hospitals also have this available. So, if you learn to use it here, you can take that with you in practice.
2. ClinicalResource@Ovid: This is really a clinical decision making tool made for physicians, but it has drug references built into it and cross references materials in books, Medline, and CINAHL, to name a few.

The following resources are freely available online:
1. LactMed: Available from the National Library of Medicine; Freely available online. http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?LACT" A peer-reviewed and fully referenced database of drugs to which breastfeeding mothers may be exposed. Among the data included are maternal and infant levels of drugs, possible effects on breastfed infants and on lactation, and alternate drugs to consider."
2. MedlinePlus.gov: Patient level drug info with links that have been reviewed.
3. DailyMed: DailyMed provides high quality information about marketed drugs. This information includes FDA approved labels (package inserts). This Web site provides health information providers and the public with a standard, comprehensive, up-to-date, look-up and download resource of medication content and labeling as found in medication package inserts. http://dailymed.nlm.nih.gov/dailymed/about.cfm currently contains info on 1283 prescription drugs. You can download drug labels here as well onto a PDA or whatever.
Sample Syllabus:

BIOL 51810 Biomedicine

Instructor:

Ahmed Mustafa
B.Sc. Honors, M.Sc., Ph.D., Dip. In University Teaching
Associate Professor, Department of Biology
Indiana University-Purdue University Fort Wayne
Email: mustafaa@ipfw.edu
Web-Site: http://users.ipfw.edu/mustafaa
Office Hours: Mondays 9-11 am (SB 392)

Honor Code:

Please remember that all IPFW students are bound by an HONOR CODE that states specifically that there shall be no cheating in class. This code extends to students giving test questions to other students, whether these students are in your class or another class of the course. Please make sure that any notes or questions that you have access to through the eLearning sites are not to be distributed to students in other sections of the class.

Class Schedule:
Thursday: 6-8. PM

Course Objectives:

To develop an understanding of the applications of the principles of natural sciences, especially biology and physiology, to modern medicine through evaluation of pre-clinical research.

Course Resources:

Books: To be announced
Articles: To be announced

IPFW Library (Optional):
Following three resources are available from the Databases and Indexes List on the library's web page.

4. Micromedex: Free version for educational purposes only, but this version has everything, and a lot of hospitals also have this available. So, if you learn to use it here, you can take that with you in practice.

5. ClinicalResource@Ovid: This is really a clinical decision making tool made for physicians, but it has drug references built into it and cross references materials in books, Medline, and CINAHL, to name a few.

The following resources are freely available online:

4. LactMed: Available from the National Library of Medicine; Freely available online. http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?LACT "A peer-reviewed and fully referenced database of drugs to which breastfeeding mothers may be exposed. Among the data included are maternal and infant levels of drugs, possible effects on breastfed infants and on lactation, and alternate drugs to consider."

5. MedlinePlus.gov: Patient level drug info with links that have been reviewed.

6. DailyMed: DailyMed provides high quality information about marketed drugs. This information includes FDA approved labels (package inserts). This Web site provides health information providers and the public with a standard, comprehensive, up-to-date, look-up and download resource of medication content and labeling as found in medication package inserts. http://dailymed.nlm.nih.gov/dailymed/about.cfm currently contains info on 1283 prescription drugs. You can download drug labels here as well onto a PDA or whatever.

Email:
You may email to the instructor (mustafaa@ipfw.edu), if you have any question or concern. The instructor will try to response back to you within as soon as possible. In case of emergency, you may call the instructor at his office at 260-481 6328.

Course/Grading Policy:

Exams: There will be 4 exams. Every student will be participating in all these activities (no exception; you will get an "F" if you miss any of these activities). Each exam will cover the materials presented since the previous exam (please note: power point lecture notes and other supplementary materials are guidelines only; you should study the required text thoroughly). The final exam (Exam 4) will not be comprehensive. The exams will consist of multiple choice questions, true-false questions, and matching questions.

Other activities: Beside exams, there will be few take home assignments, oral presentations, and in-class discussions. You will be participating in all those activities.

Extra credit: There will be several unannounced in-class quizzes for up to 20 points. Whatever points you get from these quizzes will be added to your final grade as extra credits.

Make-up exams: Make-up exams are not allowed. However, you will be allowed to take one make-up exam only throughout the semester if there is an emergency and proper documentation is produced to the instructor.
Assessment: Assessment will be based on the following activities:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Points</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 Exams</td>
<td>200</td>
<td>50%</td>
</tr>
<tr>
<td>Take home assignments</td>
<td>100</td>
<td>25%</td>
</tr>
<tr>
<td>Oral presentations</td>
<td>50</td>
<td>25%</td>
</tr>
<tr>
<td>Discussions</td>
<td>50</td>
<td>25%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>400</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Grading scale:

90-100% A  
80-90% B  
70-80% C  
60-70% D  
<60% F  

The grading scales will not be curved and no other extra credit will be added at the end of the semester. Check your Grades on eLearning.

Deadlines: Pay close attention to the deadlines for withdrawal, dropping or adding a class, that are listed in your schedule of courses. The instructor cannot circumvent any deadline set by the University—meeting these deadlines is your responsibility.

Incomplete: You cannot take an Incomplete for a course in order to avoid a bad grade. Don’t even ask. Incompletes are only rarely given and only under very specific and documented emergency circumstances. In order to get an Incomplete, you also must have already completed 80% of the semester’s work with a passing grade.

Students with disabilities: If you have a disability and need assistance, special arrangements can be made to accommodate most needs. Contact the Director of Services for Students with Disabilities (Walb, room 113, telephone number 481-6658), as soon as possible to work out the details. Once the Director has provided you with a letter attesting to your needs for modification, bring the letter to me. For more information, please visit the web site for SSD at http://www.ipfw.edu/ssp

Plagiarism/Cheating: Plagiarism or cheating will be strictly monitored and will result in a grade of “O” for the exam.
Course/Exam Schedule:
(This schedule is tentative. The schedule may be changed as the class progresses)

Weeks 1- 4
Section 1:
Introduction; Basic principles of biomedical therapy (Pharmacokinetics, Pharmacodynamics, Drug interactions, Adverse drug reactions, Individual therapy); Peripheral nervous system diseases and their treatments (Receptors, Drug-receptors bindings, Functions of agonists and antagonists, Control of pathophysiological disorders).

Weeks 5- 8
Section 2:
Central nervous system diseases and their treatments, Neurodegenerative disorders (Parkinson’s disease, Alzheimer’s disease, Multiple Sclerosis); Neurologic disorders (Epilepsy, Muscle spasm and Spasticity); Pain management; Psychological disorders (Schizophrenia, Depression, Bipolar disorders, Anxiety and Panic disorders).

Weeks 9-12
Section 3:
Kidney diseases and their consequences (Fluid and electrolyte balance, Diuretics); Cardiovascular diseases and their treatments (Renin-angiotensin system, Hypertension, Cardiac dysrhythmia, Coronary heart disease); Endocrinological disorders and their treatments (Diabetes, Thyroid diseases, Male hormones, Female hormones).

Weeks 12- 16
Section 4:
Immunological implications (Allergy, Inflammation, Immunization, Immune suppression, Arthritis and Osteoporosis); Infectious diseases (Bacterial infections, Viral infections; Parasitic infections); Cancer Biology and Basic principles of current treatments; Other diseases and their treatments: Bone and joint disorders (Arthritis and gout), Respiratory tract disorders (Asthma, Allergic rhinitis), Gastrointestinal disorders (Peptic ulcer).

IPFW Support Systems:

The WRITING CENTER: Save time and write better papers or presentations for any class through free one-to-one or small group consultations in The Writing Center, Kettler G19 (next door to the SPOT). Bring assignments, questions, ideas, and a draft (if you have one). Consultants can help you get started, write more clearly, revise, edit, and cite sources responsibly. Come as you begin and as you revise. Drop-ins are welcome if time is available, but appointments, made online through Tutor Track, receive preference. For TutorTrac, online consulting, and resources to make your writing process easier, go to www.ipfw.edu/casa/writing. Questions? Call 481-5740. Writing Center hours: M-Th 10 a.m. to 6 p.m.; F 10 a.m. to 2 p.m.; Su 1 to 5 p.m.