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

- [ ] New course with supporting documents (complete proposal form)
- [ ] Add existing course offered at another campus
- [ ] Expiration of a course
- [ ] Change in course number
- [ ] Change in course title
- [ ] Change in course credit/term

## PROPOSED:

<table>
<thead>
<tr>
<th>Subject Abbreviation</th>
<th>BIOL</th>
</tr>
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<tbody>
<tr>
<td>Course Number</td>
<td>57710</td>
</tr>
<tr>
<td>Long Title</td>
<td>Emerging Infectious Diseases</td>
</tr>
<tr>
<td>Short Title</td>
<td>Emerging Infectious Diseases</td>
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## EXISTING:

<table>
<thead>
<tr>
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<tr>
<td>Course Number</td>
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</tbody>
</table>

## TERMS OFFERED:

- [ ] Fall
- [✓] Spring
- [ ] Summer

## CAMPUS(ES) INVOLVED:

- [ ] Calumet
- [ ] Fort Wayne
- [ ] IUPUI
- [ ] North Central
- [ ] West Lafayette

## CREDIT TYPE:

<table>
<thead>
<tr>
<th>Type</th>
<th>Min %</th>
<th>Max %</th>
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<tbody>
<tr>
<td>Lecture</td>
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<tr>
<td>Recitation</td>
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<td>Presentation</td>
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<td>Laboratory</td>
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<td>Lab Prep</td>
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<td>Ind Study</td>
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<td>Pract/Therapy</td>
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## COURSE ATTRIBUTES:

- [ ] Pass/Not Pass Only
- [ ] Satisfactory/Unsatisfactory Only
- [ ] Repeatable
- [ ] Variable Title
- [ ] Honors
- [ ] Full Time Privilege
- [ ] Off-Campus Experience

## COURSE DESCRIPTION:

**Rationale:**

BIOL 21800 or consent of instructor. This course will introduce the molecular biology and epidemiology of several emerging infectious diseases affecting humans caused by viruses, bacteria, fungi, and protozoa using recent, peer-reviewed scientific reviews as course material. Students completing this course will obtain a deeper understanding of the microbial agents that are currently causing several important diseases worldwide. The topics covered will focus on how the pathogens enter and spread within the human body and between persons, the host response to infection, clinical symptoms, diagnosis, and treatment prevention.

**Course Learning Outcomes:**

Students who complete the course will 1) learn the current knowledge about emerging infectious diseases; 2) obtain an integrated understanding of infectious diseases from different scientific perspectives; 3) develop the ability to critically evaluate and understand current scientific literature on infectious diseases; and 4) deliver oral and written reports based on recent research articles relevant to important infectious diseases.

## OFFICE OF THE REGISTRAR

(Grad Form 40G Excel format - Does not include the Graduate Council's required supporting document. See pdf version of Form 40G)
Supporting Document to the Form 40G
for a New Graduate Course

To: Purdue University Graduate Council

From: Faculty Member: Jaiyanth Daniel

Department: Biology
Campus: Fort Wayne

Date: June 11, 2015

Subject: Proposal for New Graduate Course

Contact for information if questions arise:
Name: Jaiyanth Daniel
Phone: 260-481-5703
Email: danielj@ipfw.edu
Address: SB334

Course Subject Abbreviation and Number: BIOL 57710

Course Title: Emerging Infectious Diseases

Course Description:

This course will introduce the molecular biology and epidemiology of several emerging infectious diseases affecting humans caused by viruses, bacteria, fungi and protozoa using recent, peer-reviewed scientific reviews as course material. Students completing this course will obtain a deeper understanding of the microbial agents that are currently causing several important diseases worldwide. The topics covered will focus on how the pathogens enter and spread within the human body and between persons, the host response to infection, clinical symptoms, diagnosis, treatment and prevention.

Semesters Offered:
Spring semester

A. Justification for the Course:

• The objective of this course is to provide a comprehensive introduction to the current state of knowledge concerning emerging infectious diseases affecting the human body. The course will challenge students to integrate knowledge obtained
from lower-level courses in biology to gain an understanding of pathogens and the
diseases they cause from microbiological, molecular biological, immunological,
epidemiological and clinical perspectives. Such an integration of knowledge is
critical to biology majors at the undergraduate and graduate levels intending to
pursue further studies in molecular biology or medicine. Graduate students
seeking advanced knowledge in molecular biology and undergraduate biology
majors, especially those in the Genetics, Cellular and Molecular Biology
concentrations will benefit from the advanced topics covered in this course.

- The course is targeted at graduate students pursuing studies in immunology,
molecular biology, zoonotic diseases or related fields. Ten biology graduate
students and five biology undergraduate seniors took the course when it was
introduced as a Special Topics (BIOL 59500) 3-credit lecture in spring 2015.
Anticipated enrollment is 7-10 graduate students and 5-8 undergraduate seniors.
The reason for proposing the course at the 500-level is to make it suitable for
graduate students to receive credit towards their degree for this course. Graduate-
level rigor of the course will be maintained through assignments requiring
scientific writing and oral presentation of current research papers relevant to
topics taught in class. Exams will include short-answer and essay-type questions
requiring synthesis of information taught in lecture class.

- Anticipated enrollment
  o Undergraduate  5-8/spring semester
  o Graduate        7-10/spring semester

B. Learning Outcomes and Method of Evaluation or Assessment:

- Objectives and Student Learning Outcomes

  o Students will gain understanding of human pathogens from a
    microbiological and molecular biological perspective, learn the
    epidemiology of the diseases, know the symptoms of the diseases and
    clinical diagnostic procedures currently used for each disease. They will
    also learn about available drugs and vaccines to treat the diseases and
    effective control strategies for each disease. Since the required reading
    materials will be recent scientific review articles on each disease provided
    by the instructor, students completing this course be exposed to the
    language of scientific discourse and will gain current, in-depth knowledge.
    They will also develop their critical-thinking skills by reading and
discussing primary research papers from peer-reviewed literature. They
    will develop their scientific writing skills by preparing a written report that
    requires them to synthesize and contextualize the findings in an assigned
    research article. Students will also develop their oral presentation skills by
delivering a short slide presentation summarizing an assigned research
paper.

Exams containing essay-type and short-answer questions, in addition to
multiple-choice type questions, will be used to assess student learning of
material taught in lecture classes. Essay questions will evaluate the student’s ability to synthesize multiple sources of information and develop a comprehensive response. The writing assignment will assess the student’s ability to read and critically evaluate the major findings in an assigned research article and use appropriate citations to place the research paper in context. The oral presentation will evaluate the ability of the student to articulate the written report in a coherent manner to classmates.

- Methods of Evaluation

<table>
<thead>
<tr>
<th>Learning Objective</th>
<th>Methods of Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Understanding of lecture material</td>
<td>Exams: Objective-type questions</td>
</tr>
<tr>
<td>Understanding of lecture material</td>
<td>Exams: Short-answer questions</td>
</tr>
<tr>
<td>Understanding of lecture material</td>
<td>Exams: Essay-type questions</td>
</tr>
<tr>
<td>Ability to acquire current knowledge by critical evaluation of scientific literature</td>
<td>Oral presentation on assigned scientific research article</td>
</tr>
<tr>
<td>Ability to acquire current knowledge by critical evaluation of scientific literature</td>
<td>Written report on assigned scientific research article</td>
</tr>
</tbody>
</table>

- Grading Criteria

Student performance in exams, written report and oral presentation will be the criteria for grading. Final grade will be determined as follows: > 90% is A; 80-89% is B; 70-79% is C; 60-69% is D; < 60% is F.

<table>
<thead>
<tr>
<th>Grading Criteria (replace with check for all that apply)</th>
<th>Weight Toward Final Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exams and Quizzes</td>
<td>300 points</td>
</tr>
<tr>
<td>Written Paper and Oral Presentation</td>
<td>70 points</td>
</tr>
<tr>
<td>Attendance and Class Participation</td>
<td>30 points</td>
</tr>
<tr>
<td>Total</td>
<td><strong>400 points</strong></td>
</tr>
</tbody>
</table>

- Methods of Instruction

Identify the method(s) of instruction and describe how the methods promote the likely success of the desired student learning outcomes. Add and delete rows as needed.
<table>
<thead>
<tr>
<th>Hours per Week</th>
<th>Method of Instruction (replace with check for all that apply)</th>
<th>Contribution to Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Lecture</td>
<td>Knowledge of the molecular biology and epidemiology of emerging infectious diseases</td>
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</table>

C. Prerequisite(s):

- BIOL 21800 Genetics and Molecular Biology or consent of instructor

D. Course Instructor(s):

<table>
<thead>
<tr>
<th>Name</th>
<th>Rank</th>
<th>Dept.</th>
<th>Graduate Faculty or expected date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jaiyanth Daniel</td>
<td>Assistant Professor</td>
<td>Biology</td>
<td>Yes</td>
</tr>
</tbody>
</table>

E. Course Outline:

The following topics will be given equal time and weightage in the course:
Introduction to Infection and Pathogenesis; Influenza; Middle East/Severe Acute Respiratory Syndrome; Monkeypox; Hemorrhagic Fevers -- Dengue, Nipah, Marburg, Lassa; Ebola Virus Disease; Hantavirus Pulmonary Syndrome; Hepatitis C; Rotaviral Gastroenteritis; Rabies; West Nile Encephalitis; Genital Herpes; AIDS; Multi Drug-Resistant Tuberculosis; Nosocomial Infections MRSA; Drug-resistant Neisseria gonorrhoeae; Nosocomial Infections -- Carbapenem-resistant enterobacteriaceae; Nosocomial Infections -- Clostridium difficile; Helicobacter pylori Gastroenteritis; Opportunistic fungal infections -- Meningitis -- Cryptococcus; Pneumocystis pneumonia; Candida albicans; Aspergillus fumigatus; Drug-resistant Malaria.

F. Reading List (including course text):

- Primary Reading List (Sample; See appendix for entire list)
  - Sonnberg S, Webby RJ, Webster RG (2013) Virus Research 178:
63-77. "Natural history of highly pathogenic avian influenza H5N1”.


See entire reading list in appendix.

G. Library Resources

- The access to scientific journals provided by the library is sufficient for the instructor to retrieve current review papers and research articles for students to read.

H. Course Syllabus
BIOL 57710 – EMERGING INFECTIOUS DISEASES
SPRING 2016
Credits: 3

Lectures: Tue/Thu 10:30 – 11:45 AM; Room: SB G20

Instructor: Dr. Jaiyangh Daniel
Office: SB 334
Phone: 481-5703
Email: danielh@ipfw.edu
Office Hours: Tue, Thu 3:00 – 4:00 PM

Course Description: This course will explore the molecular biology and epidemiology of several emerging infectious diseases caused by viruses, bacteria, fungi and protozoa using recent primary research literature as course material. The objectives will be to understand the nature of the causative agent, how it enters and spreads within the human body and between persons, host response to infection, typical clinical presentation, diagnosis, treatment and prevention.

Textbook: None

Course Material: Recent primary research literature, lecture slides and additional material provided by the instructor.

Additional Material: iClicker2 for classroom quiz participation.

Course Details:
Students should come prepared to class ready to fill in the notes and add important points throughout the lecture. Class participation is expected and will be assessed throughout the semester. This is an upper-level course meant for seniors and graduate students. Therefore, all students are expected to demonstrate/learn advanced skills in understanding and evaluating information related to molecular biology, immunology and genetics.

Blackboard:
Information pertaining to this class will be listed on the course Blackboard site. To access Blackboard go to https://ipfw.blackboard.com and log in with your IPFW username and password. From there you can access your list of available courses. You will want to check the site regularly for announcements, study guides, etc. Partial lecture notes will be posted on Blackboard. If you miss a class it is your responsibility to get the notes. Do not request full versions, they will not be distributed. To access course handouts you need to install the latest version of Adobe Reader. You can access the free download on the course Blackboard site (General Weblinks) or alternatively go to: http://get.adobe.com/reader/otherversions/. Please see me immediately if you cannot access the course Blackboard site.

Classroom Policies:
Attendance: Your participation in class will be assessed by your iClicker responses during lectures. Group discussion will be encouraged during specified times in class. The total points for iClicker answers for the whole semester are 40. If you maintain more than 95% attendance in lecture classes, you will be eligible for a 10 point bonus on your total points (after the final lecture). Your attendance will critically affect your performance in this course. If you miss a class, it is your responsibility to find out what was taught in the previous class.
Cell Phones: Cell phones should be turned off or on silent mode during class.
Emails: I encourage the use of email to contact me but please consider email etiquette. Use my email address at the top of this syllabus. Please write “BIOL 57710” in email subject line.

Assessments:
Exams: There will be multiple-choice and short answer questions, all of which will cover the material from lecture and corresponding reading materials. **There will be one essay-type question (for 10 points) per exam requiring a more detailed answer.** Any material from lecture and assigned scientific literature could appear on the exams, even if it is not included in your pre-printed notes- what this means is that the exam material is not restricted to the written lecture notes but will also encompass the verbal lecture that accompanies each set of notes.
Assignments: There will be two assignments requiring presentation of a research paper that will enhance your understanding of the subject material.

GRADING:
- Exams (4 exams, 75 points each) : 300 points
- Assignments (2 assignments – Term Paper on a research article; oral presentation of a research article - 35 points each) : 70 points
- iClicker2 Participation in Lecture Class : 30 points
- BONUS POINTS for at least 95% attendance : (10 points)

Total = 400 points

Grades
A : 90-100%
B+ : 87-89%
B : 84-86%
B- : 80-83%
C+ : 77-79%
C : 74-76%
C- : 70-73%
D+ : 67-69%
D : 64-66%
D- : 60-63%
F : 0-59%

- **All exams are the property of the instructor and must be returned after review.** You may request to look over your exam during my office hours or by appointment.

- **Make-Up Exams:** Exams will not be given before the scheduled exam date. You must make every effort to be in attendance for all exams. Make-up exams may be given at the discretion of the instructor for extreme circumstances and students must notify the instructor prior to the exam via email or phone. **There will be no make-up exam for the Final Exam.** Make-up exams will cover the same material (not necessarily the same questions) as the original exam but will be designed differently and will include more short-answer and fill-in-the-blank questions than the original exam. **Make-ups must be scheduled within 1 week of the original exam and students must be on time for the scheduled make-up exam, otherwise no credit will be given.** If the university cancels class on the day of an exam the exam will take place on the next regularly scheduled class period.

Testing Policy:
- **No material other than pencils and erasers are permitted out on your desk during testing.** All book bags and purses must be stored under the desk.
- No cell phones or other electronic devices are permitted for any reason during testing!
• No student will be permitted to start the exam late, after the first student finished has left the room. Therefore it is imperative that you be on time for exams.
• No student will be allowed to leave the room and return during an exam.
• You may come to the front of the room to speak with me if you have any questions- do not ask the teaching assistants they will not be able to assist you for the lecture exams.
• Bring a #2 pencil and your ID# to all exams.

Testing and Scantron Instructions:
The following sections will need to be filled out on the scantron forms:
• First and last name
• 4-Digit ID number written AND bubbled in.

Academic Dishonesty:
Cheating, including but not limited to copying another student’s work, will not be tolerated. Any offense will result in failing the entire course and will be reported to the student’s major department chair and dean of their school per the Student Handbook.

Withdrawal Deadline:
The last day to withdraw from the course is specified on the IPFW Academic Calendar. If you are doing poorly you may drop the course and receive a grade of “W”.

Tools for Success-
Resources, Study Guides, and Review Sessions:
Notes: Come prepared to class and review your notes AFTER EVERY CLASS! Additional assistance will be given during office hours, by appointment, or through email.

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 Union, 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 website for SSD at http://new.ipfw.edu/disabilities/

Study Guides: Study guides will be posted on the course Blackboard site prior to the exams.

Technical Support: You may call the IPFW helpdesk at 481-6030 or go to the Blackboard help website at http://help.blackboard.com/student/index.htm if you need any assistance accessing the Blackboard course site or if you experience technical problems.

LECTURE SCHEDULE
Lecture #
1 Introduction
2 Influenza – Influenza Virus
3 Middle East/ Severe Acute Respiratory Syndrome - Coronavirus
4 Monkeypox – Monkeypox virus
5 Hemorrhagic Fevers – Dengue Virus; Nipah Virus
6 Hemorrhagic Fevers – Marburg Virus; Lassa fever
7 Ebola Virus Disease; Hantavirus Pulmonary Syndrome
8 EXAM - 1
9 STUDENT PAPER PRESENTATIONS - I
10 Hepatitis – Hepatitis Virus C
11 Gastroenteritis - Rotavirus
12 Encephalitis - Rabies Virus
EXAM – 2
STUDENT PAPER PRESENTATIONS - II
18 Multi Drug-Resistant Tuberculosis – Mycobacterium tuberculosis
19 Nosocomial Infections MRSA - Staphylococcus aureus; Drug-resistant Neisseria gonorrhoeae
20 Nosocomial Infections – Carbapenem-resistant enterobacteriaceae;
21 Nosocomial Infections - Clostridium difficile;
22 Hemorrhagic Colitis – Escherichia coli O157:H7
23 Gastroenteritis – Helicobacter pylori
TERM PAPER DUE

EXAM – 3
STUDENT PAPER PRESENTATIONS - III
26 Opportunistic fungal infections – Meningitis – Cryptococcus;
27 Pneumocystis pneumonia – Pneumocystis jirovecii;
28 Opportunistic fungal infections – Candida albicans; Aspergillus fumigatus
29 Drug-Resistant Malaria – Plasmodium; Instructor Evaluation

STUDENT PAPER PRESENTATIONS - IV
FINAL EXAM 10:30 – 12:30
IPFW is committed to your academic and personal success. In addition to working with your academic advisor, take advantage of the many support systems the University offers to help you succeed.

**Academic Services**

**Centers for Academic Success and Achievement (CASA)** offer peer-based learning assistance for many classes. Services include tutoring (walk-in and by appointment), Supplemental Instruction, the Writing Center, and math testing. Visit tutor@ipfw.edu to schedule your appointment.

| Kettler Hall 025 | 260-481-5149 | www.ipfw.edu/casa |

**Mastodon Advising Center (MAC)** fosters personal development and informed decision making for many students by encouraging students to explore, evaluate, and identify their academic and career goals. MAC advises students who are exploring and deciding on a major, conditional students, and guest students. Check your myIPFW account for the name of your advisor.

| Kettler Hall 109 | 260-481-6595 | www.ipfw.edu/mac |

**Walter E. Helmke Library** offers students support for research through print, databases, online collections. Librarians are available for consultation appointments.

| Helmke Library | 260-481-6505 | www.library.ipfw.edu/http://guides.library.ipfw.edu/askalibrarian |

**The Learning Commons** is a space for study, collaboration, and exploration. The Learning Commons desk checks out laptops, mobile devices, and projectors for students to us on group or individual projects.

| Helmke Library 2nd Floor | 260-481-6101 | www.ipfw.edu/learning-commons/ |

**Support Services**

**Career Services** can help students choose a major, explore careers, and gain work experience through internships and co-ops; plus, there are career assessments to assist students selecting career paths and majors.

| Kettler Hall 109 | 260-481-0589 | www.ipfw.edu/career |

**Office of the Dean of Students** offers support services through the CARE (Communicate, Assess, Refer, Educate) model to improve the quality of student experience. Services include, but are not limited to, conflict resolution, intervention, education, and facilitation.

| Walb Union 111 | 260-481-6601 | www.ipfw.edu/dean |

**Office of Diversity and Multicultural Affairs (ODMA)** offers workshops designed for student success and administers the Academic Student Achievement Program (ASAP).

| Walb Union 118 | 260-481-6608 | www.ipfw.edu/odma |

**Services for Students with Disabilities (SSD)** determines and helps provide accommodations and services to students with disabilities. This support also includes temporary disabilities.

| Walb Union 113 | 260-481-6657 | www.ipfw.edu/ssd |

**Student Assistance Program (SAP)** Offers free and confidential short-term group, individual, and couples counseling to all currently enrolled IPFW students.

| Walb Union 111 | 1-800-721-8809 | www.ipfw.edu/dean/student-wellness |

**Center for Healthy Living** works with local physicians to meet your healthcare needs and to complement the services of a student's primary healthcare provider.

| Walb Union 234 | 260-481-5748 | www.ipfw.edu/clinic |

Resources for students at IPFW 1/2015
BIOL 57710: EMERGING INFECTIOUS DISEASES

READING LIST


