ESF Course Proposal
Committee on Curriculum - ESF Faculty Governance
Office of Instruction & Graduate Studies

This course proposal form should be completed when introducing a new course or a revision of an existing course. The proposal will be reviewed by the Committee on Curriculum, or, in the case of minor revisions, will be approved administratively by the Associate Provost for Instruction.

This Course Proposal must be completed according to the guidelines provided in Course Proposal Form - Instructions and Guidance. Please see the last page of Course Proposal Form - Instructions and Guidance, for instructions on how this Course Proposal should be submitted to the Committee on Curriculum for review.

Date: 02/19/2020

1. Course Information:

1.1 Course Prefix and Number: EFB 360
   Course Title: Epidemiology
   (If a new or renumbered course, please check with the Registrar regarding the use or reuse of the course number)

1.2 ☐ This is a New Course.
   OR
   ☑ This is a Major Course Revision
   OR
   ☐ This is a Minor Course Revision

   If this is a Course Revision, please see Course Proposal Form - Instructions and Guidance to determine if your revision is major or minor. Indicate below the reason(s) for the revision.

   (Please check all that apply)
   ☐ Course Number/Division ☑ Learning Outcomes ☐ Institutional Resources
   ☐ Title ☑ Concepts, Content ☑ Semester Offered
   ☐ Credit hours ☐ Catalog Description ☐ Course Inactivation
   ☐ Pre- or Co-requisite(s) ☑ Instructional Methods ☐ Course Reactivation
   ☐ Format ☐ General Education

1.3 General Education knowledge and skills area (if applicable): If none, check here ☐
   ☐ American History ☐ Humanities ☐ Other World Civilizations
   ☐ The Arts ☐ Mathematics ☐ Social Sciences
   ☐ Basic Communication ☐ Natural Sciences ☐ Western Civilization
2. Proposer Need Statement:

2.1 Describe why this course (or course revision) is needed to meet current or proposed goals and outcomes of the program or College, and, if a revision, provide an explanation of and justification for the revision. This course is being switched to fall semester to better align with the Environmental Health sequence.

2.2 List the pre-requisite or co-requisite courses (taught within the home department or taught by another department) and explain their relationship to the proposed course. One year of Introductory Biology and Intro to Probability and Statistics. Students need to have a basic understanding of biological and cellular principles to facilitate discussion of various human diseases. The foundation of this course is quantitative in nature and students need to be familiar with statistical theory to understand measuring disease in populations.

2.3 Explain the impact of this course in meeting the goals and outcomes of other Departments/programs (if any). This is a required course for the Environmental Health Major. It also serves as a directed elective in the Biotechnology and Environmental Biology curricula.

2.4 If the proposed course is designed to fulfill SUNY General Education Requirements, the Associate Provost for Instruction must review this proposal to ensure that General Education Requirements will be met for the specified knowledge area (See Instructions and Guidance). Please provide an explanation of how this course fulfills SUNY General Education Requirements.

N/A

2.5 What are the staffing requirements (instructor, TA, Lab tech, etc.) for this course? If a new course, are there new staffing needs or are there adequate staff members already in place? If a revised course, are there additional staffing needs? The course will require at least a half TA when enrollment exceeds 40 students; TA assignment will be based on departmental allocation.

2.6 What Department (or extra-Department) resources are or will be made available to support the course or course revision? Copy credit to cover exams and class handouts

2.7 Anticipated Enrollment (enter where applicable)

<table>
<thead>
<tr>
<th>Semester</th>
<th>Number</th>
</tr>
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<tbody>
<tr>
<td>Fall Semester</td>
<td>40</td>
</tr>
<tr>
<td>Summer Semester</td>
<td></td>
</tr>
<tr>
<td>Spring Semester</td>
<td></td>
</tr>
</tbody>
</table>

2.8 Anticipated frequency of class meetings. 2 times a week
3. DETAILED COURSE DESCRIPTION

3.1 COURSE IDENTIFICATION AND FORMAT:

3.1.1 Course Prefix and Number: EFB
3.1.2 Course Name: 360
3.1.3 Credit Hours: 3
3.1.4 Semester (check all that apply): Fall ☑ Spring ☐ Summer ☐
3.1.5 Format (check as appropriate): Lecture ☑ Online ☐ Lab ☐ Field ☐
Other ☐ (explain)
3.1.6 Contact hours per week: 3
3.1.7 Prerequisite(s) – if none, please enter “None” (Be specific, as Upper Division courses and Graduate courses will likely have some pre-requisite knowledge) One year of Introductory Biology and Introduction to Probability and Statistics

3.2 SCOPE:

3.2.1 Level of Instruction (check one, or two if a shared resource course):
   Lower Division ☐ Upper Division ☑
   Beginning Graduate ☐ Advanced Graduate ☐

3.2.2 Relation to curriculum or to other ESF or Syracuse University courses:
   a. Is this a required course? No ☐ Yes ☑.
      If Yes, please list the program(s) for which it is a requirement: Environmental Health
   b. Is this an elective course within your department? No ☐ Yes ☑.
   c. Is enrollment in this course restricted? No ☑ Yes ☐
      If Yes, please explain:
   d. Are other ESF or SU courses similar or identical to this course? No ☐ Yes ☑.
      If Yes, please identify the courses: HTW 401 Epidemiology
   e. Is this course a shared resource offering (i.e. is there a graduate or undergraduate concurrent offering)? No ☑ Yes ☐.
      If Yes, what is the course number of the concurrent offering?

3.3 STUDENT LEARNING OUTCOMES:

Identify the student learning outcomes associated with this course.

Upon completion of this course students will be able to:

1. Explain and apply measures of disease occurrence and risk, such as incidence, prevalence and frequency.

2. Describe how epidemiology is used for protection, prevention and promotion in population health.

3. Explain the difference between observational and experimental studies, and descriptive and analytical studies; recognize a cross-sectional survey and the 'ecological fallacy' phenomena.
4. Define true and false positives and negatives, calculate sensitivity and specificity, and describe validity and reliability in the context of intervention and prevalence estimators.

5. Calculate and describe odds ratios and risk, and the relation between exposures and outcomes; explain how bias and confounders affect interpretation of associations and causality.

6. Discuss the design, implementation, ethics and interpretation of clinical trials, and the value of case-controls, cohort studies and meta-analyses as evidence for policy-making.

7. Give examples of epidemiological intervention and landmarks in history.

8. Discuss health planning, decision-making and evaluation.

3.4 MAJOR CONCEPTS, PROCESSES or TOOLS:

Identify the course content and themes (e.g. Table of Contents) consistent with the learning domains and outcomes.

Definitions, applications and history of epidemiology

Epidemiological approach to disease study

Epidemiological concepts of disease transmission

Measures of morbidity and mortality

Disease surveillance and screening

Outbreak investigation

Epidemiological study designs

Epidemiologic and statistical measures of effect

Evaluating epidemiological associations

Case studies throughout the semester

3.5 INSTRUCTIONAL METHODS:

Identify the methods used to meet the course outcomes, as well as the principal instructional methods. Classroom lecture supported by textbook reading assignments and exercises to practice quantitative techniques. Case studies are used to provide students "real-life" application of theories and tools learned in lecture. Students are evaluated through exams, quizzes, in class exercises, homework and written case study reflections.

3.6 CATALOG DESCRIPTION
Provide the course description using the precise format to be included in the ESF catalog (i.e. course number and title; format; brief description; semester(s) offered; and pre-/co-requisites). Please do not exceed 1000 characters. EFB 360 Epidemiology (3) Three hours of lecture/discussion per week. Introduction to the study of disease in populations and factors influencing disease occurrence. Case studies explore population measures of disease, clinical measures and causation. Emphasizes quantitative approaches, study design, ethics, intervention and implementation. Fall.

Student enrolled in this course should have successfully completed one year of Introductory Biology and one semester of Introductory Statistics.

3.7 COURSE HISTORY:

Provide the dates of prior approval of this course, and its revision history. May 11th 2011

3.7.1 Relationship to current ESF courses

This course is replacing a current ESF course  □ YES  □ NO

If NO, then proceed to section 4 below.

If YES, then provide below the number and name of the course to be deactivated and removed from the catalog once this course proposal has been approved:

Course Number (of the course to be replaced)
Course Name (of the course to be replaced)

If the course to be replaced is used by departments other than the department sponsoring this proposal, please indicate below which departments are affected and the date they were notified about the course replacement.

Department: Date of Notification:
Department: Date of Notification:
Department: Date of Notification:
Department: Date of Notification:
4. Institutional Impacts:

This section pertains to forecasting institutional resource needs to support the course or course revision. Provide clear statements regarding the needs and current availability (or absence) of resources. Note that, if this is a course revision, only the impacts of the revision should be included.

<table>
<thead>
<tr>
<th>Staffing needs:</th>
<th>One faculty instructor and 0.5 TA.</th>
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</thead>
<tbody>
<tr>
<td>Classroom resources (e.g. physical facilities in a laboratory, lecture hall, flexible space, academic computing):</td>
<td>Lecture hall able to seat 40+ students</td>
</tr>
<tr>
<td>Computing Resources (software licensing, hardware, access):</td>
<td>Network/internet access, Adobe Acrobat Reader, Flash media player, Blackboard software, PowerPoint software or equivalent</td>
</tr>
<tr>
<td>Library Resources (subscriptions, services):</td>
<td>Access to existing print and digital Moon library holdings. Specific texts to be purchased or put on reserve will be listed by the instructor and provided to the library staff. Student internet access. Study areas.</td>
</tr>
<tr>
<td>Transportation Requirements (budget, fees, fleet vehicles):</td>
<td>n/a</td>
</tr>
<tr>
<td>Forest Properties or Field Practicum Facilities:</td>
<td>n/a</td>
</tr>
</tbody>
</table>
5. Health and Safety Considerations:

Will any of the conditions or situations outlined below be present in association with the course? Yes / No

5.1. Will substances with any of the following properties be used during instruction: flammability, toxicity, corrosivity, reactivity, registered pesticide, legally controlled, or other characteristics with the potential to cause harm or injury? □ / ☒

5.2. Will any physical hazards be present during instruction? (e.g., machines that need safety guards; razor blades or syringes; compressed gases, etc.). □ / ☒

5.3. Will any biological hazards be present during instruction? (e.g., handling animals (rabies or hantavirus); cultures or stocks of infectious agents (fungal spores, viruses, bacteria, etc.). □ / ☒

5.4. Will any radiation hazards be present during instruction? (e.g., radioisotopes, X-rays, ultraviolet rays, lasers, etc.). □ / ☒

5.5. Will any electrical equipment that, due to its design, location, or method of use, pose any threat to safety during instruction? (Give considerable thought to electrical use outdoors, or any potentially wet location.). □ / ☒

5.6. Will there be any personal safety issues related to the class? (e.g., due to time of day or location, at the end of any organized class exercise, will students be in danger of physical assault, etc.). □ / ☒

5.7. Will any students be driving official state or research sponsored land or water vehicles during any class or instructional exercise? □ / ☒

5.8. Will any type of personal protective equipment be necessary during class exercises? (e.g., hard-hats, eye/face protection, hearing protection, hand/foot protection, lab coat, visibility clothing, etc.) □ / ☒

If the answer was “Yes” to any of the HEALTH AND SAFETY questions, please explain:

For lab and field courses to which all answers are "no", you should explain that here, also. Normally, we would expect some safety precautions for such courses.
6. Coordination and Consultation

Emails/letters, as noted below and attached to this proposal, or signatures below, indicate that the affected departments, programs or units have been notified of this proposal and have had an opportunity to assess the impact of the proposal on their respective units.

Affected Academic Department(s) or Program(s) – other than the sponsoring department:

Department/Program 1
Name of Chair/Program Director
Date ____________________________ Or letter attached □

Chair Signature

Department/Program 2
Name of Chair/Program Director
Date ____________________________ Or letter attached □

Chair Signature

Department/Program 3
Name of Chair/Program Director
Date ____________________________ Or letter attached □

Chair Signature

[if more than three Departments/Programs, please continue on a separate page]

Other Units:

Associate Provost for Instruction & Dean of the Graduate School (for Gen Ed courses only)
Date ____________________________ Or letter attached □

Registrar
Date ____________________________ Or letter attached □

Library Director
Date ____________________________ Or letter attached □

Computing and Network Services
Date ____________________________ Or letter attached □

Physical Plant
Date ____________________________ Or letter attached □

Forest Properties
Date ____________________________ Or letter attached □

Environmental Health and Safety
Date ____________________________ Or letter attached □
7. Proposer Information and Sponsoring Department Chair Affirmation:

Contact Person:

Name: Brian Leydet
Department: EFB
Email: bfleydet@esf.edu
Phone: x6942

This proposal has been reviewed and approved by the sponsoring Department. Affected departments have been notified and given the opportunity to provide feedback. Department resources are or will be made available to support the course, or a plan is in place to meet the resource needs as identified in the Institutional Impacts section of this proposal (see Section 4, above).

Name: ___________________________ Signature: ___________________________
Department Chair (or designated curriculum representative) Department Chair (or designated curriculum representative)

Date: ___________________________
Or letter attached □

8. Approvals:

Curriculum Committee Date

Faculty Governance Date

Provost Date