UNIVERSITY OF HAWAI‘I AT MĀNOA
UHM-1 FORM (ADD A COURSE)

See Guidelines for instructions and deadlines. For undergraduate courses, submit an original and 5 copies; graduate courses, submit an original and 6 copies. If cross-listed, include extra copies for cross-listed department(s) & college(s). List one course per form. Attach additional sheets as needed.

<table>
<thead>
<tr>
<th>1. Course Subject</th>
<th>2. Course Number</th>
<th>3. Effective Term (semester &amp; year)</th>
<th>4. Frequency (check all that apply)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEPS</td>
<td>601</td>
<td>Fall 2015</td>
<td>Fall semester □ Alternate years</td>
</tr>
</tbody>
</table>

5. Offering Status (check one)
- Regular
- Experimental
- Single-term

6. Full Course Title (Alpha courses: attach separate sheet & specify title for each alpha)
Agrosecurity and Food Safety

6b. BANNER Course Title (30 characters max, including spaces/punctuation. Alpha courses: attach separate sheet & specify title for each alpha)
Agrosecurity & Food Safety

7. Grade Option (check all that apply)
- Letter Grade
- Satisfactory/Unsatisfactory
- Credit/No Credit (500, 700, 709F, 800, 800C only)
- Audit
- Honors (Medicine only)

8. Gen Ed Core or Hawaiian/Second Language Requirement Designation (check one)
- Do not consider for Core or Hawaiian/Second Language designation.
- Request approval of Diversification (DA, DH, DL, DB, DP, DY, DS), Foundations (FW, FS, FG), or Hawaiian/Second Language (HSL) designation.
   (For Foundations, also submit a proposal to General Education Office.)

9. Contact Hours (meeting hours per week – if variable, specify range)
- Lecture (LEC)
- Laboratory (LAB)
- Discussion (DIS)

10. # of credits (if variable, give range)
- Seminar (SEM)
- Lecture/Discussion combined (LED)
- Lecture/Laboratory combined (LEL)

11. Repeat Limit (Do NOT write "None")
- Thesis/Dissertation (THE)
- Hybrid Technology Intensive (HTI)
- Directed Reading or Research (DRR)

12. Credit Limit (Do NOT write "None")
- Field Experience/Internship/Practicum (PRA)

13. Type (check all that apply)
- Lecture/Laboratory (LAB)

14. Co-requisite Course(s)
none

15a. Major Restriction (as it should appear in Catalog)
none

15b. Banner codes of acceptable majors
n/a

16. Class Standing Restriction
none

17a. Prerequisite Course(s) (Use "and", "ors" and punctuation to indicate relationships between prerequisites. "Or consent" is implied for ALL prerequisites. "Consent" requirements can be implemented through your course schedules each semester.)
none

17b. Minimum required grade for prerequisites
n/a

17c. Blanket requirements listed in Catalog (if none, write "none")
none

18. Catalog Description (Limit 35 words; 85 words for alpha courses)
Concepts of agrosecurity and food safety (including plant and animal biosecurity), global impacts of introduced pests and diseases, and current mechanisms for interception of pests and mitigation of disease.

19. Justification Attach separate sheets and indicate the rationale for the request, expected course enrollment, program learning objectives and institutional learning objectives that the new course will cover, and a course syllabus specifying student learning objectives for the course. Syllabi are not required for “-99” courses.

20. Cross-listed or Honors Course(s)

<table>
<thead>
<tr>
<th>Course Subject &amp; Number</th>
<th>Chair/Director</th>
<th>Signature</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course Subject &amp; Number</td>
<td>Chair/Director</td>
<td>Signature</td>
<td>Date</td>
</tr>
</tbody>
</table>

21. Requested By
I certify that the student learning objectives for the course are consistent with the learning objectives of each program under which the course is listed.

PEPS
Mark Wright
Department/Unit
Chair/Director

Approved By

<table>
<thead>
<tr>
<th>1st College or School</th>
<th>Dean</th>
<th>Signature</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>2nd College or School</td>
<td>Dean</td>
<td>Signature</td>
<td>Date</td>
</tr>
</tbody>
</table>

General Education (Undergraduate courses numbered 100-499)

Director
Signature
Date

Graduate Division (600 level and above)

Dean
Signature
Date

Mānoa Chancellor's Office

Vice Chancellor for Academic Affairs
Signature
Date

Rev: 7/2013
PEPS 601: Agrosecurity and Food Safety
Lectures: T, R 10:00-10:50am
Instructor: Michael Melzer (melzer@hawaii.edu; 956-7887)
St. John Laboratory, Room 205
956-7887
melzer@hawaii.edu
Office hours: By appointment
Pre-requisites: Instructor consent
Credits: 2

Course Description:
This is a 2-credit course that covers the main concepts of agrosecurity and food safety, as well as the global impacts of introduced pests and diseases, and the current mechanisms for interception and mitigation. Subject matter experts from academia and state and federal agencies will provide real world experience in these topics. Students will choose a study topic of interest and independently develop a short presentation and report to be given at the end of the semester.

Objectives:
Students are expected to:
- Learn and understand the concepts of agrosecurity and food safety
- Understand how agrosecurity and food safety affects local and global food security
- Identify the threats to food production and manufacture
- Critically evaluate scientific and non-scientific literature
- Demonstrate their knowledge in class discussions and presentations

Course Materials:
Most articles, weblinks, and other reading materials will be provided electronically. Students will be expected to print these materials or bring a laptop/tablet to access these materials during class. Other reading or study materials will be available as hardcopies. No textbook is required.

Grading:

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Score</th>
<th>Score to letter grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class participation</td>
<td>10</td>
<td>90-100</td>
</tr>
<tr>
<td>Exam 1</td>
<td>20</td>
<td>80-89</td>
</tr>
<tr>
<td>Exam 2</td>
<td>20</td>
<td>70-79</td>
</tr>
<tr>
<td>Presentation and report</td>
<td>20</td>
<td>60-69</td>
</tr>
<tr>
<td>Final Exam</td>
<td>30</td>
<td>&gt;60</td>
</tr>
<tr>
<td>Total Score</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

- Students will be expected to attend class and participate in class discussions to earn full class participation scores
- Students will choose a study topic of interest relating to agrosecurity or food safety at the beginning of the semester to develop a short (~5 pages) written report and 15 minute presentation to be delivered at the end of the semester
- Exams will be completed and class and will be short answer and essay type questions. Exam 1 will cover weeks 1-5, Exam 2 will cover weeks 7-11, and the final exam will focus on weeks 12-15, but also incorporate materials covered earlier in the semester.
<table>
<thead>
<tr>
<th>Wk</th>
<th>Day</th>
<th>Topic</th>
<th>Assigned Readings</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>8-25</td>
<td>Introduction, terminology, course overview</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>9-1</td>
<td>Livestock pests, diseases, and toxins</td>
<td>Elbers and Knutson, 2013. Agroterrorism targeting livestock. 10.1089/bsp.2012.0068</td>
</tr>
<tr>
<td>3</td>
<td>9-8</td>
<td>Risk analysis</td>
<td>Burgman et al., 2014. The role of pest risk analysis in plant biosecurity.</td>
</tr>
<tr>
<td></td>
<td>9-10</td>
<td>Select Agents and agroterrorism</td>
<td><a href="http://www.aphis.usda.gov/programs/ag_selectagent/">http://www.aphis.usda.gov/programs/ag_selectagent/</a></td>
</tr>
<tr>
<td></td>
<td>9-17</td>
<td>Pre-border, border, and post-border preparedness</td>
<td>Sequeira and Griffin, Whatman et al., and Sharma et al. 2014. The biosecurity continuum and trade.</td>
</tr>
<tr>
<td>5</td>
<td>9-22</td>
<td>Surveillance for pests and diseases</td>
<td>Kalaris et al. 2014. The role of surveillance methods and technologies in plant biosecurity</td>
</tr>
<tr>
<td></td>
<td>9-24</td>
<td>Response and management</td>
<td>Bloem et al., 2014. Insect eradication and containment of invasive alien species</td>
</tr>
<tr>
<td>6</td>
<td>9-29</td>
<td>Study period</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10-1</td>
<td>Exam #1</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>10-6</td>
<td>Food-borne illness outbreaks: past and present</td>
<td>DeWaal et al., 2010. All Over the Map: a 10-Year Review of State Outbreak Reporting</td>
</tr>
<tr>
<td></td>
<td>10-8</td>
<td>Food-borne pathogens I</td>
<td>Newell et al., 2010. Food-borne diseases - The challenges of 20 years ago still persist while new ones continue to emerge</td>
</tr>
<tr>
<td>8</td>
<td>10-13</td>
<td>Food-borne pathogens II</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10-15</td>
<td>Chemical risks in food</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>10-20</td>
<td>Food Safety Modernization Act</td>
<td><a href="http://www.fda.gov/Food/GuidanceRegulation/FSMA/default.htm">http://www.fda.gov/Food/GuidanceRegulation/FSMA/default.htm</a></td>
</tr>
<tr>
<td>10</td>
<td>10-27</td>
<td>Transport and Storage</td>
<td>TBA</td>
</tr>
<tr>
<td></td>
<td>10-29</td>
<td>Good Manufacturing Practices</td>
<td><a href="http://www.fda.gov/Food/GuidanceRegulation/CGMP/ucm207458.htm#Executive">http://www.fda.gov/Food/GuidanceRegulation/CGMP/ucm207458.htm#Executive</a></td>
</tr>
<tr>
<td>11</td>
<td>11-3</td>
<td>Response and mitigation of outbreaks</td>
<td>Souza-Monteiro and Hooker, 2013. Food safety and traceability</td>
</tr>
<tr>
<td></td>
<td>11-5</td>
<td>Study period</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>11-10</td>
<td>Exam #2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>11-12</td>
<td>Diagnostics and biotechnology</td>
<td>Levy et al., 2014. Molecular diagnostic techniques and biotechnology in plant biosecurity</td>
</tr>
<tr>
<td>13</td>
<td>11-17</td>
<td>Climate change</td>
<td>Luck et al., 2014. Climate change in plant biosecurity: implications for policy</td>
</tr>
<tr>
<td></td>
<td>11-19</td>
<td>Weeds</td>
<td>Sheppard et al., 2014. The importance of weeds in plant biosecurity</td>
</tr>
<tr>
<td>14</td>
<td>11-24</td>
<td>Natural disasters</td>
<td>TBA</td>
</tr>
<tr>
<td>15</td>
<td>11-26</td>
<td>Holiday (Thanksgiving)</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>12-1</td>
<td>Student presentations</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12-3</td>
<td>Student presentations</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>12-15</td>
<td>Final Exam</td>
<td></td>
</tr>
</tbody>
</table>
Justification

Rationale for the request: Food security is an emerging topic of importance both locally and abroad. This course will provide students a broad basis of knowledge for two major components of food security: agrosecurity and food safety. There are currently no course offered at UH that focuses on threats to our food supply, from the farm to the table.

Expected enrollment: 16 graduate students. Undergraduate students by permission only.

Additional resources (if any) that will be required to teach the course: None

Academic units for which the course is or will be a major or degree requirement: None

Confirmation of consultation with other academic units: see attached correspondence

UHM-1 required documentation for CTAHR: 12 steps-February 6, 2014

1. What is the course addition/modification?
   Addition of PEPS 601

2. Why is this course being requested or modified?
   This course (PEPS 601) is one in a cluster of courses being requested/modified. The PEPS department, in particular, the Tropical Plant Pathology Graduate Program, is planning a major change to the course sequences at the graduate level to coincide more closely with current student needs. PEPS 601 will fulfill the need for a graduate level course that focuses on the threats to our food security. This course will provide students a broad basis of knowledge for two major components of food security: agrosecurity and food safety. This knowledge base is essential for students pursuing careers in farming or related agricultural industries.

3. How will the content be organized?
   The course organization is provided in the syllabus and course schedule.

4. What other courses at UHM closely parallel the proposed course and in what way will the latter make a distinct contribution?
   At present there is no single advanced course that specifically deals with food and agricultural security at UHM. FSHN 609, Advanced Food Safety, provides in-depth coverage of food safety for students who wish to pursue a career in this field. PEPS 601 will cover some of the major themes of food safety, and is instead intended for students interested in a broad view of agricultural systems and food production and security.

5. Where or how does the proposed course fit into the current and future curriculum?
   This course (PEPS 601) is one in a cluster of courses being requested/modified. This 600-level elective course is one of the few graduate courses taught annually. It introduces
graduate students to food safety and agrosecurity topics that are not yet covered in other courses of CTAHR.

6. Why is the number of credits and level justified? Explain the prerequisites and the absence thereof.
   This course is 2 credits, as there will be 100 minutes of contact per week in the form of two 50 minute lectures. There are no prerequisites listed for PEPS 601, as students entering the PEPS graduate program may be coming from diverse backgrounds, such as biology, botany and horticulture. The instructor will determine if their previous coursework is sufficient to take the course, or whether remedial courses are needed.

7. How will the course assist students to achieve the critical skills and competencies expected of CTAHR graduates?
   Written communications: Students will prepare a project report in scientific format on a topic relating to agrosecurity or food safety.

   Oral communications: Each student will prepare and present an oral communication summarizing their project relating to a topic in agrosecurity or food safety. This will provide an opportunity to practice public speaking in front of their classmates, as well as listen to and answer questions from their audience.

   Analytical/Problem solving skills: Students will need to critically review scientific and policy literature. Students will also be exposed to complex problems where suitable solutions may not be apparent or exist.

   Personal characteristics: The characteristics of independent work and scientific integrity will be fostered through the various activities in the course. The students will also need to be punctual to achieve class participation scores.

   Human relations skills: During class discussions and the oral presentations, students will be expected to respect the opinions of others and act in a professional and collegial manner.

   Business management skills: not applicable

   “Real world experience”: not applicable

   Leadership skills: not applicable

   Computer skills: Students will use a word processing program such as Word for written assignments, and a slideshow program such as PowerPoint for their oral presentation.

   Global perspective: Agrosecurity and food safety is a global issue, a perspective that will be represented in the curriculum.

8. How will students be evaluated?
Students will be evaluated on class participation (10 points), an independent study topic (20 points), and three exams (totaling 70 points). Please see the syllabus for more details.

9. What are the minimum qualifications for teaching this course? Is a qualified instructor now available?
The instructor should have a Ph.D. in entomology, food safety, plant pathology, veterinary/livestock pathology, or a related agricultural science. A qualified instructor, Dr. Michael Melzer, has been recently hired as an Assistant Researcher in Agrosecurity. Due to the breadth of the subject matter, this course will also feature instruction from subject matter experts in academia and state or federal government agencies.

10. How will the course be financed, assuming no further cutbacks?
As a lecture-based course, there is no need for laboratory-based equipment or supplies. A current faculty member will instruct this course, obviating the need to hire a lecturer.

11. Has the course been offered before? Is there a demand for it?
The course has not been offered before. The PEPS department, in particular, the Tropical Plant Pathology Graduate Program, is planning a major change to the course sequences at the graduate level to coincide more closely with current student needs. This course will have an immediate positive impact on our graduate students by allowing MS students to graduate in a single year. Food security, which includes agrosecurity and food safety, is an emerging topic in agricultural production systems as well as the general public. With this emergence, we expect a strong demand for this course.

12. Is the course cross-listed with another department?
No

UHM-1 required documentation for Graduate Division

1. UHM-1 (Add) or UHM-2 (Modify or Delete)

2. What are the expected learning outcomes?
   Students are expected to:
   o Learn and understand the concepts of agrosecurity and food safety
   o Understand how agrosecurity and food safety affects local and global food security
   o Identify the threats to food production and manufacture
   o Critically evaluate scientific and non-scientific literature
   o Demonstrate their knowledge in class discussions and presentations

   a. What are students expected to know before starting the class?
   Students are expected to have a general understanding of agricultural systems and food production. An understanding of biology and microbiology is also desired.

   b. How are the students expected to learn the materials?
Students will learn the materials during course lectures, independent reading of assigned literature, and class discussion of the literature.

c. How will the students be evaluated
Students will be evaluated by class participation (10%) attendance and participation in class discussion), an independent research project for which they need to submit a written report and conduct an oral presentation (20%), and by three exams taken during the semester (70%).

d. How will the success of the course in achieving the learning outcomes be assessed?
The success of the course will be assessed by the ability of the students to learn the course materials (as evidenced by student scores). Student evaluation of the course will also provide important feedback on its success.

3. Where does the course fit in the present graduate program?
This course (PEPS 601) is one in a cluster of courses being requested/modified. The PEPS department, in particular, the Tropical Plant Pathology Graduate Program, is planning a change in the course sequences at the graduate level to coincide more closely with current student needs. PEPS 601 will fulfill the need for a graduate level course that focuses on the threats to our food security. This course will provide students a broad basis of knowledge for two major components of food security: agrosecurity and food safety. This knowledge base is essential for students pursuing careers in farming or related agricultural industries.

a. What are the general qualifications for teaching this course?
The instructor should have a Ph.D. in entomology, food safety, plant pathology, veterinary/livestock pathology, or a related agricultural science.

b. Which old course will be deleted if a new course is approved?
No old course will be deleted if this course is approved.

c. Justify the number of credits and the level of the course?
This course is 2 credits, as there will be 100 minutes of contact per week in the form of two 50 minute lectures. This is a 600-level course designed for graduate students, however, undergraduate students may also be admitted upon instructor approval.

4. For new courses, list the programs that are either potentially or directly affected.
   Plant and Environmental Protection Sciences (CTAHR)
   Human Nutrition, Food, and Animal Sciences (CTAHR)

5. Syllabus with all the appropriate components: course objectives, texts, schedule of subjects, grading methods, and assignments.
   Please see attached.