AGRICULTURAL FACULTY MEETING

Thursday, April 7, 2016
3:30 p.m.
Deans of Agriculture Auditorium, Pfendler Hall

1. Call to Order - Dean Jay Akridge

2. Approval of Agenda

3. Memorial Resolutions

4. Consent Agenda – Action Items
   Approval of Minutes of December 9, 2015 Agricultural Faculty Meeting
   Document XI – Agricultural and Biological Engineering
   Document XII – Agriculture
   Document XIII – Agronomy
   Document XIV – Botany and Plant Pathology
   Document XV – Entomology
   Document XVI – Food Science
   Document XVII – Forestry and Natural Resources
   Document XVIII – Horticulture and Landscape Architecture
   Document XIX – Natural Resources and Environment Sciences
   Document XX – Youth Development and Agricultural Education
   Document XXI – Curriculum and Student Relations Committee
   Approval of 2016 May and August Degree Candidates

5. Update on undergraduate education in the College of Agriculture – J. Marcos Fernandez

6. Report Items

   Standing Committee Reports:
   Agenda and Policy – Kolapo Ajuwon
   Area Promotions – Jay Akridge
   Curriculum and Student Relations – J. Scott Radcliffe
   Grade Appeals – J. Marcos Fernandez

   University Senate Report – Paul Ebner

   Dean’s Comments – Jay Akridge

7. Other Business
A. COURSES TO BE DELETED

ASM 32200 – Technology for Precision Agriculture

Justification: ASM 32200 has not been taught for several years and has been replaced in the curriculum by ASM 42200

B. COURSES TO BE ADDED

None

C. COURSES TO BE CHANGED

None

D. CURRICULAR CHANGES

Change in Agricultural Systems Management Minor

JUSTIFICATION

ASM 21500 is no longer taught and should be removed from the course list; similarly, ASM 42200 was added and should be included in the course list. Special problems and upper level special topics courses were added to provide flexibility to students to use these occasional and special offerings toward the minor requirements. Some AGRY and AGEC courses were previously included as they align with the principles of managing agricultural and technical systems; one Animal Science course was added with similar reasoning.

OLD

REQUIRED COURSES:

(3) **ASM 10400** (Introduction to Agricultural Systems)
(3) **ASM 10500** (Agricultural Systems Computations and Communication)

Selectives: Twelve credits from the following courses must be completed. Only three credits may be from courses other than Agricultural Systems Management (ASM). At least six credits must be 300+ level courses.

SELECTIVE LIST:

(3) **AGEC 31000** (Farm Organization)
(3) **AGEC 33000** (Management Methods for Agricultural Business)
(3) **AGRY 37500** (Crop Production Systems)
(3) **ASM 20100** (Construction and Maintenance)
(3) **ASM 21100** (Technical Graphic Communication)
(3) **ASM 21500** (Surveying)
(3) **ASM 22200** (Crop Production Equipment)
(3) **ASM 24500** (Materials Handling and Processing)
(3) **ASM 33300** (Facilities Planning and Management)
(3) **ASM 33600** (Environmental Systems Management)
(3) **ASM 34500** (Power Units and Power Trains)
(3) **ASM 42000** (Electric Power and Controls)
(3) **ASM 51000** (Agrosecurity-Emergency Management for Agricultural Production Operations)
(3) **ASM 53000** (Power and Machinery Management)
(3) **ASM 54000** (Geographic Information System Application)
(3) **ASM 55000** (Grain Drying and Storage)

**NEW**

**REQUIRED COURSES:**

(3) **ASM 10400** (Introduction to Agricultural Systems)
(3) **ASM 10500** (Agricultural Systems Computations and Communication)

Selectives: Twelve credits from the following courses must be completed. Only three credits may be from courses other than Agricultural Systems Management (ASM). At least six credits must be 300+ level courses.

**SELECTIVE LIST:**

(3) **AGEC 31000** (Farm Organization)
(3) **AGEC 33000** (Management Methods for Agricultural Business)
(3) **AGRY 37500** (Crop Production Systems)
(3) **ANSC 22100** (Principles of Animal Nutrition)
(3) **ASM 20100** (Construction and Maintenance)
(3) **ASM 21100** (Technical Graphic Communication)
(3) **ASM 21500** (Surveying)
(3) **ASM 22200** (Crop Production Equipment)
(3) **ASM 24500** (Materials Handling and Processing)
(3) **ASM 33300** (Facilities Planning and Management)
(3) **ASM 33600** (Environmental Systems Management)
(3) **ASM 34500** (Power Units and Power Trains)
(3) **ASM 42000** (Electric Power and Controls)
(3) **ASM 42200** (Advanced Machine Technology for Agricultural Crop Production)
(1-6) **ASM 49000** (Special Problems)
(3) **ASM 51000** (Agrosecurity-Emergency Management for Agricultural Production Operations)
(3) **ASM 53000** (Power and Machinery Management)
(3) **ASM 54000** (Geographic Information System Application)
(3) **ASM 55000** (Grain Drying and Storage)
(1-6) **ASM 59000** (Special Problems)
(1-4) **ASM 59100** (Special Topics)

No more than 6 credits of special problems (ASM 49000 and/or 59000) may apply to the minor and application of the special problems to the minor must be stated on the course contract form.
Agricultural Faculty  
Document No.XII, 2015-16  
April 7, 2016

Agriculture  
Proposed Course and Curricular Changes

A. COURSES TO BE DELETED

None

B. COURSES TO BE ADDED

Prefix and Course Number: AGR 10700

Title: Pathway to Purdue

Course Description: This course is a required, one (1) credit introductory course for students participating in the Pathway to Purdue program. Students will learn about the Pathway to Purdue program, study skills and techniques, transfer policies and requirements, as well as hear from a variety of guest speakers who will discuss relevant topics.

Prefix and Course Number: AGR 12500

Title: Intro to Plant Science Programs

Course Description: An introduction to the academic programs offered in plant science. Topics include, but are not limited to, undergraduate plans of study, courses, experiential programs including undergraduate research opportunities, internships, student organizations, career opportunities, academic policies, scholarships, and student services. Course meets for the first 8 Tuesdays of the semester. Typically offered Fall.

C. COURSES TO BE CHANGED

None

D. CURRICULAR CHANGES

None
Supporting Document

Title: Pathway to Purdue

Semesters Offered: Fall

Lecture/Lab Hours: 1 hour

Credit(s): 1.0

Justification: Pathway to Purdue is a co-enrollment transfer program, between Purdue Agriculture and Ivy Tech Community College (Lafayette). The program is only open to students interested in Agriculture, and allows the students to pursue an A.S. in Agriculture (Ivy Tech) while simultaneously pursuing a B.S. in Agriculture (Purdue). The program began in 2010, and approximately 30 students enter the program each fall semester. Since the program began, 70 students have transferred to Purdue as full-time students, and 19 have completed a B.S. from Purdue Agriculture.

Beginning in 2011, we have been using AGR 29000 as the course number for Pathway to Purdue. It originated as an optional course for students in the program, and was tied to the Pathway to Purdue Learning Community (the Learning Community still exists). Beginning in 2013, AGR 29000 became a required course for all new, incoming Pathway to Purdue students. This course introduces students to key staff/personnel at both Ivy Tech and Purdue, provides an opportunity to learn about the program and the process of transferring to Purdue, and assists in helping the students to not only understand the rules and requirements of the program, but also to help them feel more connected to Purdue Agriculture. After having a temporary course number for 5 years, we propose to establish a permanent course number.

Outcomes: Will the course be nominated for inclusion on a University Foundational Core or COA Core course list? NO

Outcomes: Mapping of course outcomes to University Embedded or Departmental learning outcomes. This course helps satisfy the following outcomes: NO

Example of a Course Syllabus:
Course Instructor: Ms. Anneliese Kay  
Office Hours / Location: By Appointment, AGAD 121  
Class Days / Times: Wednesdays, 2:30-3:20pm  

Co-Instructor: Ms. Andrea Schwartz  

Course Description: This course is a required, one (1) credit introductory course for students participating in the Pathway to Purdue program. Students will learn about the Pathway to Purdue program, study skills and techniques, transfer policies and requirements, as well as hear from a variety of guest speakers who will discuss relevant topics.

Course Objectives:
1. Learn about the Pathway to Purdue program.  
2. Learn about transfer policies between Ivy Tech Community College and Purdue University.  
3. Learn study skills and techniques to be successful in college.  
4. Identify areas of interest in the field of Agriculture.

Class Attendance & Participation: This class meets every Wednesday for the duration of the Fall 2015 semester. You are expected to attend and be attentive in all class sessions. Except for student absence due to illness, bereavement, or participation in official university/programmatic curricular activities (see University policy below), there are no excused absences for AGR 29000.

Special Needs: If you will require special accommodations in AGR 29000 because of diagnosed disabilities (http://www.purdue.edu/odos/drc/), you are expected to contact Ms. Kay in Room 121 of the Agricultural Administration Building before 5:00pm on September 1, 2015 so that appropriate arrangements can be made.

Course Adjustments Due to a Campus Emergency: In the event of a major campus emergency, course requirements, deadlines and grading percentages are subject to changes that may be necessitated by a revised semester calendar or other circumstances beyond the instructor’s control. Here are ways to get information about changes in this course:
- Email notifications will be sent to students’ @purdue.edu email address prior to class time;  
- Students may also contact Ms. Kay directly at kaya@purdue.edu or (765) 494-8205

Grading Scale:  
A: 90-100  
B: 80-89.9  
C: 70-79.9  
D: 60-69.9  
F: <69.9

Grading Factors: Point breakdown of each assignment. 100 total points possible in AGR 29000.

<table>
<thead>
<tr>
<th>Points</th>
<th>Assignment Description</th>
<th>Due Date</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>#1 Class Schedules</td>
<td>September 2, 2015</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>#2 Introducing: ME!</td>
<td>September 9, 2015</td>
<td>10</td>
</tr>
<tr>
<td>5</td>
<td>#3 Agriculture Clubs</td>
<td>September 9, 2015</td>
<td>10</td>
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<tr>
<td>10</td>
<td>#4 Pathways Plan to #FeedThe9 – Step 1</td>
<td>September 23, 2015</td>
<td>15</td>
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<td>15</td>
<td>#5 Pathways Plan to #FeedThe9 – Step 2</td>
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<td>#6 Pathways Plan to #FeedThe9 – Step 3</td>
<td>November 4, 2015</td>
<td>20</td>
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<td>#7 Pathways Plan to #FeedThe9 – Step 4</td>
<td>December 2, 2015</td>
<td>10</td>
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<td>5</td>
<td>#8 Pathways Plan to #FeedThe9 – Step 5</td>
<td>December 9, 2015</td>
<td>10</td>
</tr>
<tr>
<td>10</td>
<td>Attendance/Participation in Class &amp; LC Events</td>
<td>Ongoing throughout semester</td>
<td>10</td>
</tr>
</tbody>
</table>
## AGR 29000 – Pathway to Purdue
### Fall 2015 Class Schedule

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Guest</th>
<th>Assignment Due</th>
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<tbody>
<tr>
<td>August 24</td>
<td>Introductions/Syllabus</td>
<td>AFA</td>
<td>Ms. Jessica Harsh</td>
</tr>
<tr>
<td>September 2</td>
<td>Financial Aid Bursar</td>
<td>Ms. Amber Phillips &amp; Ms. Bridgit Bucher</td>
<td>Class Schedule</td>
</tr>
<tr>
<td>September 9</td>
<td>Project Introduction / Group Work</td>
<td>Ms. Michelle Fulk</td>
<td></td>
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<tr>
<td>September 16</td>
<td>A.S. in Agriculture</td>
<td>Ms. Andrea Schwartz</td>
<td></td>
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<tr>
<td>September 23</td>
<td>Career Fair Preparation</td>
<td>Ms. Sherre Meyer</td>
<td>Project Stage 1 Due</td>
</tr>
<tr>
<td>September 30</td>
<td>Student Panel</td>
<td>Current &amp; Former P2P Students</td>
<td></td>
</tr>
<tr>
<td>October 7</td>
<td>Project Work</td>
<td></td>
<td></td>
</tr>
<tr>
<td>October 14</td>
<td>B.S. in Agriculture</td>
<td>Mr. Tim Kerr</td>
<td>Project Stage 2 Due</td>
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<tr>
<td>October 21</td>
<td>Study Skills / GPA Calculation</td>
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<tr>
<td>October 28</td>
<td>Project Work / Halloween Party</td>
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<td>November 4</td>
<td>Transferring to Purdue</td>
<td>Ms. Peg Wier</td>
<td>Project Stage 3 Due</td>
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<td>November 11</td>
<td>Academic Advisors Panel</td>
<td>College of Agriculture Academic Advisors</td>
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<tr>
<td>November 18</td>
<td>TBA</td>
<td></td>
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<tr>
<td>November 25</td>
<td>NO CLASS – THANKSGIVING VACATION</td>
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<tr>
<td>December 2</td>
<td>Project Presentations</td>
<td>Dr. Jay Akridge</td>
<td>Project Stage 4 Due</td>
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<tr>
<td>December 9</td>
<td>Class Wrap-Up</td>
<td></td>
<td>Project Stage 5 Due</td>
</tr>
</tbody>
</table>

### Grades & Class Assignments:
Note that your class assignments must be submitted on time (or before the due date) for full credit consideration. All assignments are due IN CLASS on the date listed above. Late assignments will automatically receive a 10% deduction/day for each day that it is late. Assignments more than one (1) week past the due date will not be accepted, and will result in a zero grade.

Except in the case of student absences for illness, bereavement, or participating in official university/programmatic curricular activities (see official University policy below) there are no excused late assignment submissions in AGR 29000. In cases of excused absence, it is the student’s responsibility to contact the instructor and come to an agreement on suitable and fair class make-up and assignment due date.

**#1 Class Schedule (5 points): Due September 2**
For this assignment, you will need to complete the class schedule grid provided in class. Be sure to
include both your Ivy Tech and Purdue class schedule on the grid. All classes must be listed correctly to earn full credit.

#2 Introducing: ME! (5 points) Due September 9
For this assignment, use your creativity to present an introduction of yourself. PowerPoint, Prezi, etc., may be used, but not required. You may follow the example provided in class, if desired. All students will present (1-2 minutes, max.) their Introducing: ME! assignment in class on Sept. 9.

#3 Agriculture Clubs (5 points): Due September 9
For this assignment, you will need to attend the Ice Cream Social on Wednesday, September 2 from 5:30-7:00pm. Find one club that you are interested in joining and complete the handout provided to you in class. Note: If your class schedule prohibits you from attending, you may still complete the assignment via the College of Agriculture website.

#4 Pathways Plan to #FeedThe9 – Step 1 (10 points): Due September 23
Students will be divided into teams on Sept. 9. Teams will need to provide their two potential research topics and team plan on September 23.

#5 Pathways Plan to #FeedThe9 (15 points) – Step 2: Due October 14
Teams will be expected to work together, both in and out of class, to research their assigned research topic. Targeted focus areas are due at the beginning of class.

#6 Pathways Plan to #FeedThe9 (25 points) – Step 3: Due November 4
Team papers are due at the beginning of class.

#7 Pathways Plan to #FeedThe9 (20 points) – Step 4: Due December 2
Team presentations will take place during class. Each time is limited to 5-7 minutes for their presentation.

#8 Pathways Plan to #FeedThe9 (5 points) – Step 5: Due December 9
Team Reviews are due in class. Review of project.

Attendance/Participation in LC (Learning Community) Events (10 points): Ongoing
All students are expected to be present, and participate, in as many Learning Community events as possible throughout the semester. Participation in all class sessions and at least one (1) out-of-class Learning Community event is required to earn full points.

Reading Assignments: There is no textbook for AGR 29000. Any reading assignments will be provided in class.

Class Notes: It is strongly recommended that you take notes of class presentations. Many of the topics discussed will be useful to you as you progress in the Pathway to Purdue program, and it is important to take note of these discussions.

General AGR 29000 Course Policies:
(1) Be attentive and engaged in in-class discussions and presentations.
(2) Be respectful of the speakers and of one another’s comments, questions, opinions, and remarks.
(3) Please inform Ms. Kay if you need to arrive late or leave early.
(4) With the exception of an emergency, cell phones should be turned off during class.
(5) Please allow 24 hour response time for any/all emails sent to Ms. Kay.

**SELECT PURDUE UNIVERSITY OFFICIAL POLICIES & GUIDELINES:**

**Student Conduct and the Purdue University Bill of Student Rights (WL Campus)** -- “At an institution of higher learning, the pursuit of knowledge and the attainment of mature attitudes will be greatly facilitated by freedom of expression and decision making as enumerated in the following Bill of Rights. In exercising these rights, however, students must bear the responsibility to act in accordance with local, state, and national laws, and University rules. No right specified by this bill is meant to be construed as enabling students to infringe upon the individual rights of another member of the academic community. We, the students, thereby endorse the Purdue Honor Code and the following Bill of Rights, expecting in all instances to accept these documents with maturity and a level of responsibility that enables the University to retain its academic excellence and to foster an atmosphere conducive to thoughtful and productive individual and collaborative inquiry.”

**Student Bill of Rights:** [http://www.purdue.edu/studentregulations/student_conduct/studentrights.html](http://www.purdue.edu/studentregulations/student_conduct/studentrights.html)

**Academic Integrity & Dishonesty** -- Strictly following and interpreting existing University Policy: Purdue prohibits “dishonesty in connection with any University activity. Cheating, plagiarism, or knowingly furnishing false information to the University are examples of dishonesty.” [Part 5, Section III-B-2-a, University Regulations] Furthermore, the University Senate has stipulated that “the commitment of acts of cheating, lying, and deceit in any of their diverse forms (such as the use of substitutes for taking examinations, the use of illegal cribs, plagiarism, and copying during examinations) is dishonest and must not be tolerated. Moreover, knowingly to aid and abet, directly or indirectly, other parties in committing dishonest acts is in itself dishonest.” [University Senate Document 72-18, December 15, 1972]


[https://www.purdue.edu/odos/osrr/academic-integrity-brochure/](https://www.purdue.edu/odos/osrr/academic-integrity-brochure/)

**Emergencies** -- Please remain in communication with your faculty (via e-mail or telephone). Strictly following and interpreting existing University Policy: In the event of a major campus emergency, course requirements, deadlines and grading percentages are subject to changes that may be necessitated by a revised semester calendar or other circumstances beyond the instructor’s control. Relevant changes to this course will be posted onto the course website or can be obtained by contacting the instructors via email. Please note that you are expected to read your @purdue.edu email on a frequent basis.

**Preparing for a Campus Emergency:** at [http://www.purdue.edu/ehps/emergency_preparedness/](http://www.purdue.edu/ehps/emergency_preparedness/)

**Sign up for Emergency Text Messages** at [http://www.purdue.edu/securepurdue/](http://www.purdue.edu/securepurdue/)

**Additional Emergency Response Procedures** can be found at the end of this syllabus, as the Emergency Preparedness Attachment.

**Grief Absence Policy for Students** -- The existing University Policy: Purdue University recognizes that a time of bereavement is very difficult for a student. The University therefore provides the following rights to students facing the loss of a family member through the Grief Absence Policy for Students (GAPS).

**GAPS Policy:** Students will be excused for funeral leave and given the opportunity to earn equivalent credit and to demonstrate evidence of meeting the learning outcomes for missed assignments or assessments in the event of the death of a member of the student’s family.
Call the Office of the Dean of Students at 765-494-1747 to speak with a counselor regarding an absence.

https://www.purdue.edu/advocacy/students/absences.html

**Students with Disabilities** -- The existing University Policy: Purdue University is required to respond to the needs of the students with disabilities as outlined in both the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990 through the provision of auxiliary aids and services that allow a student with a disability to fully access and participate in the programs, services, and activities at Purdue University.

If you have a disability that requires special academic accommodation, please make an appointment to speak with me within the first three (3) weeks of the semester in order to discuss any adjustments. It is important that we talk about this at the beginning of the semester. It is the student's responsibility to notify the Disability Resource Center (https://www.purdue.edu/studentsuccess/specialized/drc/) of an impairment/condition that may require accommodations and/or classroom modifications.

**Adverse Weather Conditions** -- The existing University Policy will be followed: The University takes into consideration local and regional weather conditions, travel conditions and decisions by local school districts when deciding whether to delay, dismiss or cancel classes and/or routine operations for an entire campus due to Adverse Weather Conditions. When conditions warrant, a decision to delay, dismiss, or cancel classes and/or routine operations is coordinated with appropriate local city, county or state officials and communicated to faculty, staff and students of the affected campus. The decision to delay, dismiss or cancel classes and/or routine operations for the West Lafayette campus is made by the President and for each of the Regional Campuses it is made by the Chancellor. The President and the Chancellors will each assign a designee for such purposes to act in his or her absence.

Please check your e-mail regularly for any weather- and other-related emergency updates.


**Campus Emergencies Preparedness**: http://www.purdue.edu/emergency_preparedness/

**Tippecanoe County Weather (NOAA)**: http://forecast.weather.gov/MapClick.php?zoomCommand=standard&sector=INZ029

**Nondiscrimination** -- The existing Purdue University Nondiscrimination Policy: Purdue University is committed to maintaining a community which recognizes and values the inherent worth and dignity of every person; fosters tolerance, sensitivity, understanding, and mutual respect among its members; and encourages each individual to strive to reach his or her own potential. In pursuit of its goal of academic excellence, the University seeks to develop and nurture diversity. The University believes that diversity among its many members strengthens the institution, stimulates creativity, promotes the exchange of ideas, and enriches campus life.

Purdue University prohibits discrimination against any member of the University community on the basis of race, religion, color, sex, age, national origin or ancestry, marital status, parental status, sexual orientation, disability, or status as a veteran. The University will conduct its programs, services and activities consistent with applicable federal, state and local laws, regulations and orders and in conformance with the procedures and limitations as set forth in (http://www.purdue.edu/purdue/ea_eou_statement.html) which provides specific contractual rights and remedies.

**Anti-Harassment Policy** -- Strictly following and interpreting existing University Policy: Purdue University is committed to maintaining an environment that recognizes the inherent worth and dignity of every person; fosters tolerance, sensitivity, understanding and mutual respect; and encourages its members to strive to reach their potential. The most effective way to work toward preventing Harassment is through education that emphasizes respect for every individual.
Harassment in the workplace or the educational environment is unacceptable conduct and will not be tolerated. Purdue University is committed to maintaining an educational and work climate for faculty, staff and students that is positive and free from all forms of Harassment. This policy addresses Harassment in all forms, including Harassment toward individuals with legally protected status for reasons of race, gender, religion, color, age, national origin or ancestry, genetic information or disability and Harassment toward individuals for other reasons such as sexual orientation, gender identity, gender expression, marital status or parental status. The University will not tolerate Harassment of its faculty, staff or students by persons conducting business with or visiting the University, even though such persons are not directly affiliated with the University.


**Violent Behavior Policy** -- Strictly following and interpreting existing University Policy: Purdue University is committed to providing a safe and secure campus environment for members of the university community. Purdue strives to create an educational environment for students and a work environment for employees that promote educational and career goals. Violent Behavior impedes such goals. Therefore, Violent Behavior is prohibited in or on any University Facility or while participating in any university activity.


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**EMERGENCY PREPAREDNESS ATTACHMENT**

**EMERGENCY NOTIFICATION PROCEDURES** are based on a simple concept – if you hear a fire alarm inside, proceed outside. If you hear a siren outside, proceed inside.

- **Indoor Fire Alarms** mean to stop class or research and immediately evacuate the building.
  - Proceed to your Emergency Assembly Area away from building doors. **Remain outside** until police, fire, or other emergency response personnel provide additional guidance or tell you it is safe to leave.

- **All Hazards Outdoor Emergency Warning Sirens** mean to immediately seek shelter (**Shelter in Place**) in a safe location within the closest building.
  - **“Shelter in place”** means seeking immediate shelter inside a building or University residence. This course of action may need to be taken during a tornado, a civil disturbance including a shooting or release of hazardous materials in the outside air. Once safely inside, find out more details about the emergency*.
  - **Remain in place** until police, fire, or other emergency response personnel provide additional guidance or tell you it is safe to leave.

*In both cases, you should seek additional clarifying information by all means possible…Purdue Emergency Status page, text message, email alert, TV, radio, etc…review the Purdue Emergency Warning Notification System multi-communication layers at [http://www.purdue.edu/ehps/emergency_preparedness/warning-system.html](http://www.purdue.edu/ehps/emergency_preparedness/warning-system.html)

EMERGENCY RESPONSE PROCEDURES:
Review the Emergency Procedures Guidelines
https://www.purdue.edu/emergency_preparedness/flipchart/index.html
Review the Building Emergency Plan (available on the Emergency Preparedness website or from the building deputy) for:
  • evacuation routes, exit points, and emergency assembly area;
  • when and how to evacuate the building;
  • shelter in place procedures and locations;
  • additional building specific procedures and requirements.

EMERGENCY PREPAREDNESS AWARENESS VIDEOS
  • "Shots Fired on Campus: When Lightning Strikes," is a 20-minute active shooter awareness video that illustrates what to look for and how to prepare and react to this type of incident. See: http://www.purdue.edu/securePurdue/news/2010/emergency-preparedness-shots-fired-on-campus-video.cfm (Link is also located on the EP website)
  • All Hazards Online Awareness training video (on Webcert & Blackboard.) A 30 minute computer based training video that provides safety and emergency preparedness information. See the EP website for sign up instructions.

MORE INFORMATION
Reference the Emergency Preparedness web site for additional information:
https://www.purdue.edu/ehps/emergency_preparedness/
Supporting Document

Title: Intro to Plant Science Programs

Semesters Offered: Fall

Lecture/Lab Hours: 2 hours/per week

Credit(s): 1.0

Justification: For the past few years we have been using AGR 29000 as the course number for our department intro course. This is a temporary number, but we were usually the only ones using it. Last year there were a few courses that used the AGR 29000 number. This led to some confusion, as the freshmen didn’t know which section to register for. AGR 29000 was a temporary number and we were always meant to switch to a permanent number. This year it seems prudent to make that change to clarify registration for our students.

Outcomes: Will the course be nominated for inclusion on a University Foundational Core or COA Core course list? NO

Outcomes: Mapping of course outcomes to University Embedded or Departmental learning outcomes. This course helps satisfy the following outcomes:

Example of a Course Syllabus:

AGR 12500 – Intro to Plant Science Programs
2015 Fall Semester Outline
Tuesdays 3:30-5:20
Lilly 1425

August 25  Speed Introductions, Greenhouse Tour, Experiment Part 1
  John Cavaletto (BTNY)

September 1  Experiment Part 2, Faculty Research Presentation 1
  John Cavaletto (BTNY) and Dr. Damon Lisch (BTNY)
  *Emergency Contact due through myPurdue

September 8  Tour of Meigs Research Farm
  Dr. Bruce Bordelon (HORT) and Dr. Janna Beckerman (BTNY)
<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
<th>Speakers</th>
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<tr>
<td>September 15</td>
<td>Tour Agronomy Center for Research and Education (ACRE)</td>
<td>Jim Beaty (AGRY) and Dr. Bryan Young (BTNY)</td>
</tr>
<tr>
<td>September 22</td>
<td>Faculty Research Presentations 2 and 3</td>
<td>Dr. Anjali Iyer-Pascuzzi (BTNY) and Dr. Cliff Weil (AGRY)</td>
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<tr>
<td></td>
<td>*Resume due</td>
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<tr>
<td>September 29</td>
<td>Faculty Research Presentations 4 and 5</td>
<td>Dr. Mitch Tuinstra (AGRY) and Dr. Jeff Volenec (AGRY)</td>
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<td>October 6</td>
<td>Faculty Research Presentations 6 and 7</td>
<td>Dr. Steve Scofield (AGRY) and Dr. Jin-Rong Xu (BTNY)</td>
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<tr>
<td>October 13</td>
<td>October Break: No Class!</td>
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<tr>
<td>October 20</td>
<td>Plant and Pest Diagnostic Laboratory and Evaluations</td>
<td>Gail Ruhl (BTNY)</td>
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<tr>
<td></td>
<td>*Final Project due</td>
<td></td>
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</table>
AGR 29000 – Intro to Plant Sciences
2015 Fall Semester Syllabus
Tuesdays 3:30-5:20
Lilly 1425

Course Instructors:  Dr. Peter Goldsbrough, Department Head - Botany and Plant Pathology
                    Dr. Joe Anderson, Department Head - Agronomy

Course Assistant:  Tyson McFall
tjmcfall@purdue.edu

Course Description:  The goal of this course is to introduce you to the wide variety of plant related research that takes place at Purdue. You will get to tour several research facilities, meet professors, and learn about employment opportunities within your major.

Points Breakdown:

<p>| | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Attendance (5 pts. per class)</td>
<td>40 pts.</td>
</tr>
<tr>
<td>Emergency Contact Assignment</td>
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<tr>
<td>Resume Assignment</td>
<td>20 pts.</td>
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<tr>
<td>Final Project</td>
<td>30 pts.</td>
</tr>
<tr>
<td>Total</td>
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</table>

Absences:  To request an excused absence for an illness, interview, or family emergency email Tyson before 2:30pm the day of class.

Note about Meigs and ACRE Fieldtrips:
These are both outdoor research facilities off campus. We will be taking a bus to get there and will only cancel the trip in the case of severe weather. We will still tour the farms in the event of rain, so check the weather and bring an umbrella or jacket if needed. We will be walking through grass and research fields. Please wear appropriate footwear and clothing, as these areas can be muddy. If you have severe allergies or special circumstances, please let Tyson know.
A. COURSES TO BE DELETED

None

B. COURSES TO BE ADDED

FNR/AGRY 52800 Wildlife and Environmental Forensics  Sem 1, cr. 2. Preq: (CHEM 11100 or equivalent); and (BIOL 11000 or a similar upper-level undergraduate or graduate-level terrestrial ecology course).

Course Description:
This course will cover theoretical and applied approaches to the science of wildlife and environmental forensics. First, a general introduction on environmental forensics will be provided and discussed. Next, different types of investigations including the application of tools and procedures used to solve crimes using morphological, chemical and biological analysis of evidence will be presented and discussed. All material will be presented and discussed in relation to criminal investigations. At the end of the course, the class will summarize (written report) and represent (video) actual closed criminal cases highlighting the technical strengths and weaknesses of the case by applying knowledge gained throughout the course.

C. COURSES TO BE CHANGED

None

D. CURRICULAR CHANGES

None
Supporting Document

Contact for information:
Maria S. Sepúlveda Michael L. Mashtare
6-3428 4-1840
mssepulv@purdue.edu mmashtar@purdue.edu
FORS 103 LILLY B-472

Course Subject Abbreviation and Number: FNR/AGRY 52800

Course Title: Wildlife and Environmental Forensics

Course Description:
This course will cover theoretical and applied approaches to the science of wildlife and environmental forensics. First, a general introduction on environmental forensics will be provided and discussed. Next, different types of investigations including the application of tools and procedures used to solve crimes using morphological, chemical and biological analysis of evidence will be presented and discussed. All material will be presented and discussed in relation to criminal investigations. At the end of the course, the class will summarize (written report) and represent (video) actual closed criminal cases highlighting the technical strengths and weaknesses of the case by applying knowledge gained throughout the course.

A. Justification for the Course:
   a. Need
      Currently, there is no wildlife and environmental forensic course offered in the FNR/AGRY curriculum. Further, this course represents a new addition to Purdue’s current offering in forensic sciences and therefore can benefit a wider range of students across campus. This course will benefit Purdue students by providing instruction on a wide range of wildlife and environmental forensic issues.
   b. Level and target audience
      This class is targeted towards graduate and advanced undergraduate students that have a solid understanding of wildlife and other environmental sciences. We will emphasize the importance of a transdisciplinary approach for solving environmental forensic cases and expect students will have taken courses in chemistry and biology. Expected enrollment is 25-30 students when offered every fall semester.

B. Learning Outcomes and Method of Evaluation or Assessment:

   1. Learning Outcomes (LO)
      i. LO1: Students will be able to explain the history and scope of environmental forensic science (Modules 1 and 2)
         1. Objective 1: Review the history of forensic science
         2. Objective 2: Define forensic science and each of its sub-disciplines
         3. Objective 3: Discuss the role and functions of a forensic scientist
         4. Objective 4: Discuss national and international environmental and wildlife laws
      ii. LO2: Students will be able to explain the critical steps that need to be followed during a crime scene investigation (Modules 3, 6, and 7)
          1. Objective 1: Describe how crime scenes are secured and processed
          2. Objective 2: Apply quality assurance/quality control and acceptability of data in court
          3. Objective 3: Discuss the consequences of not properly collecting crime scene evidence
      iii. LO3: Students will be able to apply field and laboratory techniques used for crime scene investigations (Modules 4, 5 and 8)
           1. Objective 1: Review field methods/techniques employed by each forensic sub-discipline
2. Objective 2: Review laboratory methods/techniques employed by each forensic sub-discipline
3. Objective 3: Critically analyze weaknesses and strengths of past forensic cases

2. **Methods of Assessment and Evaluation**
   Format for midterm and final exams will consist on an in-classroom written evaluation of forensic concepts and a take-home exam that tests the ability of students to apply what they have learned using past forensic cases as examples. Individual and group short assessments will be conducted throughout the semester for both online and in-classroom lectures. A final group project will require the selection of a specific wildlife/environmental forensic case and the production of two videos based on the case. Videos will be presented and discussed by the entire class.

C. **Grading criteria**
   A final grade will be assigned based upon mid and final exams; individual and group short assessments; a group project and class presentation; a take-home final; and classroom participation. Format for exams will consist on an in-classroom written evaluation of forensic concepts and a take-home exam that tests the ability of students to apply what they have learned using past forensic cases as examples. Individual and group short assessments will be conducted throughout the semester for both online and in-classroom lectures. A final group project will require the selection of a specific wildlife/environmental forensic case and the production of two videos and a legal brief based on the case. Videos will be presented and discussed with by the entire class. The final grade will be calculated with weights of 20%, 20%, 30%, 20% and 10% for the mid-term, final, individual and group short assessments, group project and classroom participation, respectively.

D. **Methods of instruction**
   This class will meet twice per week, 50 minutes per session. Approximately one third of the lectures will be online. Videos will be posted in Blackboard starting at 8:00 AM the day of the lecture, and will be taken down 48 h later. Classroom lectures will consist of a mixture of standard lectures and via WebEX with some specialized/invited speakers.

E. **Prerequisite(s):**
   This course has a prerequisite of CHEM 11100 and BIOL 11000 or a similar upper-level undergraduate or a graduate-level terrestrial ecology course. Advanced undergraduate students may enroll with instructor permission.

F. **Course Instructor(s):**
   This course is taught by Dr. Maria S. Sepúlveda, Professor in the Department of Forestry and Natural Resources, and Dr. Michael L. Mashtare, Assistant Professor in the Department of Agronomy and Division of Environmental and Ecological Engineering. Both instructors are members of the Graduate Faculty.

G. **Course Outline:**
   This course is organized into 8 modules. Each module was included to fulfill one or more of the LOs (see Section B.1). Module 1 offers an introduction to the course. Module 2 focuses on the history of environmental and wildlife forensics. Basics of criminal investigation, field and laboratory forensic techniques are covered under Modules 3, 4 and 5. Under Modules 6, 7 and 8, we discuss special topics and end with group presentations and a discussion of past forensic cases.

H. **Library Resources:**
   The required textbooks for this class are available online through Purdue Libraries, with no additional costs to students.
Course Syllabus:

Wildlife and Environmental Forensics (FNR/AGRY 52800)

Instructors:  
Dr. Maria S. Sepúlveda, 103 Forestry Bldg., Phone: 496-3428  
Email: msssepulv@purdue.edu  
Office hours: by appointment only

Dr. Michael L. Mashtare, Lilly Hall, Room B472, Phone: 494-1840  
Email: mmashtar@purdue.edu  
Office hours: by appointment only

Classroom: FORS 216 or online.

Course Information and Materials: Will be posted in Blackboard.

Day and Time: Tuesdays and Thursdays, 10:30 to 11:20 AM


Total Number of Credits: 2

General Course Description: This course will cover theoretical and applied approaches to the science of environmental forensics with an emphasis on fish and wildlife forensics. First, a general introduction on environmental forensics will be provided and discussed. Next, different types of investigations including application of tools and procedures used to solve crimes using morphological, chemical and biological analysis of evidence will be presented and discussed. All material will be presented and discussed in relation to criminal investigations. At the end of the course, the class will summarize (written report) and represent (video) actual closed criminal cases and technical strengths and weaknesses discussed applying knowledge gained throughout the course.

Learning Outcomes:

i. LO1: Students will be able to explain the history and scope of environmental forensic science (Modules 1 and 2)  
1. Objective 1: Review the history of forensic science  
2. Objective 2: Define forensic science and each of its sub-disciplines  
3. Objective 3: Discuss the role and functions of a forensic scientist  
4. Objective 4: Discuss national and international environmental and wildlife laws

ii. LO2: Students will be able to explain the critical steps that need to be followed during a crime scene investigation (Modules 3, 6, and 7)  
1. Objective 1: Describe how crime scenes are secured and processed  
2. Objective 2: Apply quality assurance/quality control and acceptability of data in court  
3. Objective 3: Discuss the consequences of not properly collecting crime scene evidence

iii. LO3: Students will be able to apply field and laboratory techniques used for crime scene investigations (Modules 4, 5 and 8)  
1. Objective 1: Review field methods/techniques employed by each forensic sub-discipline  
2. Objective 2: Review laboratory methods/techniques employed by each forensic sub-discipline  
3. Objective 3: Critically analyze weaknesses and strengths of past forensic cases

Grading Format:
<table>
<thead>
<tr>
<th>ASSIGNMENT</th>
<th>Date</th>
<th>% of Total</th>
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<tbody>
<tr>
<td>MIDTERM EXAM*</td>
<td>October 8</td>
<td>20%</td>
</tr>
<tr>
<td>FINAL EXAM*</td>
<td>Finals week</td>
<td>20%</td>
</tr>
<tr>
<td>SHORT ASSESSMENTS</td>
<td>Throughout term</td>
<td>15%</td>
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<tr>
<td>GROUP ASSESSMENTS</td>
<td>After each module</td>
<td>15%</td>
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<tr>
<td>GROUP PROJECT**</td>
<td>November 17 &amp; November 19 to December 8</td>
<td>20%</td>
</tr>
<tr>
<td>CLASS PARTICIPATION***</td>
<td>Throughout term</td>
<td>10%</td>
</tr>
</tbody>
</table>

* Exams will consist of short-answer essay, T & F, and fill in the blank questions.
 ** See below for more information.
 *** You will be assessed throughout the term on your class participation. Participation has three components: (1) attendance; (2) posting of questions for discussion papers on Blackboard; (3) provision of thoughtful and critical questions and comments during class; and (4) in class group exercises.

**Grades:**

- **A+**: ≥ 98%
- **A**: 92-97.99%
- **A-**: = 90-91.99%
- **B+**: 88-89.99%
- **B**: 82-87.99%
- **B-**: 80-81.99%
- **C+**: 78-79.99%
- **C**: 72-77.99%
- **C-**: 70-71.99% (lowest passing grade)

Late assignments will be docked 10% of the total point value for each day late and missed exams will be assigned a zero score. If you cannot take an exam or turn in an assignment on time, it is your responsibility to contact us prior to the date in question. With the exception of emergencies, exam make-ups or late assignment requests will only be honored if a legitimate reason is provided in writing at least one week prior to that date.

**Special Needs:** If you need course adaptations or accommodations because of a disability, please contact us as soon as possible in order to make the necessary arrangements.

**Academic Dishonesty:** Academic dishonesty (e.g., cheating, plagiarism, etc.) will not be tolerated in this course. This is in full compliance with the Purdue University Academic Dishonesty Statement (viewable at: [http://www.purdue.edu/studentregulations/student_conduct/index.html](http://www.purdue.edu/studentregulations/student_conduct/index.html)). Students found to be guilty of academic dishonesty will receive a “0” score for the related assignment. Written assignments will be checked for plagiarism using appropriate software.

**Diversity Statement:** Purdue University is committed to fostering diversity and inclusion and welcomes individuals of all ages, religions, sex, sexual orientations, races, nationalities, languages, military experience, disabilities, family statuses, gender identities and expressions, political views, and socioeconomic statuses. Please respect the different experiences, beliefs and values expressed by everyone in this course. Behaviors that threaten, harass, discriminate or that are disrespectful of others will not be tolerated. Inappropriate behaviors will be addressed with disciplinary action, which may include being referred to the Office of the Dean of Students. Please visit Purdue’s Nondiscrimination policy for more information: [http://www.purdue.edu/purdue/ea_eou_statement.html](http://www.purdue.edu/purdue/ea_eou_statement.html).

**Feedback Regarding the Course:** This is a new course so any feedback (verbal or written) regarding any aspect of the course is most appreciated! Suggestions made during the semester can often be incorporated to improve the quality of the class right away- please let us know what you think. An internal anonymous student evaluation will be performed in the middle of the semester. A formal student evaluation will be undertaken at the end of the semester.

**GROUP PROJECT:**

Starting no later than October break, students will work in teams of up to 4 students preparing to present past environmental forensic cases to the class. Presentations will occur during the last fourth of the course. Each
group will identify a real past wildlife/environmental forensic case using different outlets such as books, peer-reviewed articles, or news media. Prior to presenting the case to the class, groups will summarize the information from each case in the form of a report, as preparing for a court trial. Students will create a 10 min video summarizing the major facts about the case (more detailed formatting and content information will be provided). **All videos and reports regardless on when you are presenting are due November 17.** Reports will be uploaded to Blackboard prior to each presentation and everyone in the class is required to read it prior to coming to class and be ready for participating during the case discussion. **Each student listening to the presentation will ask a minimum of one question to the presenting panel. Questions related to these presentations will be included on the final exam.**
Lecture Topics. With exception of exams, exact dates might be subject to change. Online lectures are shown in red font.

<table>
<thead>
<tr>
<th>Month</th>
<th>Day</th>
<th>Module</th>
<th>Lecture Topic</th>
<th>Speaker</th>
<th>Venue</th>
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</thead>
<tbody>
<tr>
<td>August</td>
<td>25</td>
<td>Module 1: Introduction</td>
<td>Course introduction. How can forensics be applied to environmental sciences?</td>
<td>Sepúlveda/ Mashtare</td>
<td>Classroom</td>
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<td></td>
<td>27</td>
<td>Module 2: History of Forensics</td>
<td>History of forensics</td>
<td>Mashtare</td>
<td>Classroom</td>
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<tr>
<td></td>
<td></td>
<td>Science and Legal Aspects</td>
<td>Types of wildlife forensic investigations</td>
<td>Sepúlveda</td>
<td>Online</td>
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<tr>
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<td>8</td>
<td></td>
<td>International and US environmental/wildlife legislation</td>
<td>Sepúlveda</td>
<td>Online</td>
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<td>Module 3: Basics of Criminal Investigation</td>
<td>Crime scene investigation I: Major steps in a crime scene investigation; securing a crime scene; mapping and sketching the crime scene; location and collection of evidence</td>
<td>Sepúlveda</td>
<td>Online</td>
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<td>Crime scene investigation II: Photographic documentation; handling, preservation and processing of biological; evidence; chain of custody and acceptability in court</td>
<td>Sepúlveda</td>
<td>Online</td>
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<td>17</td>
<td>Module 4: Field Forensic Techniques</td>
<td>Postmortem estimation; vertebrate decomposition; forensic pathology</td>
<td>Sepúlveda</td>
<td>Online</td>
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<td>Forensic entomology</td>
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<td>Trace and impression evidence for the identification of mammals</td>
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<td>Module 5: Laboratory Forensic Techniques</td>
<td>Forensic toxicology</td>
<td>Sepúlveda</td>
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<td>Laboratory Forensic Techniques</td>
<td>Forensic environmental chemistry I</td>
<td>Mashtare</td>
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<td>Forensic environmental chemistry II</td>
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<td>MIDTERM EXAM</td>
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<td>OCTOBER BREAK</td>
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<td>Stable isotopes</td>
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<td>Forensic serology and hematology</td>
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<td>Ballistics and bullet trajectory</td>
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<td>Examples of Forensic Cases: Ashland Lab</td>
<td>Trail/Hamlin</td>
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<td>November</td>
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<td>Module 6: Forensics on Trial</td>
<td>Case study 1: Weak evidence</td>
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<td>Case study 2: Solid evidence</td>
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<td>Building a case: The importance of data quality control</td>
<td>Royer</td>
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<td>Module 7: Special Topics</td>
<td>Special Topic 1: Class will select topic</td>
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<td>Special Topic 2. Class will select topic Videos and Reports Due</td>
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<td>Module 8: Presentations and Discussion of Forensic Cases</td>
<td>Forensic Case 1</td>
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<td>Forensic Case 2</td>
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<td>26</td>
<td>THANKSGIVING</td>
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<td>December</td>
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<td>Forensic Case 5</td>
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<td>10</td>
<td>FINAL EXAM</td>
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* Indiana Department of Natural Resources Law Enforcement Office, ntholen@dnr.in.gov; b Entomology Department, Purdue University, stampert@purdue.edu; c Department of Forestry and Natural Resources, Purdue University, pzzollner@purdue.edu; d Department of Forestry and Natural Resources, Purdue University, eflaher@purdue.edu; e Department of Forestry and Natural Resources, Purdue University, aadelmo@purdue.edu; f United States Fish & Wildlife Service, National Fish and Wildlife Forensic Laboratory, brian_hamlin@fws.gov pepper_trail@fws.gov; g Department of Biology and Department Forestry and Natural Resources, Purdue University, markchristie@purdue.edu; h Exponent, lroyer@exponent.com.

Current 8 semester ABMK plan
## MAJOR: AGRONOMY  
**CONCENTRATION: AGRONOMIC BUSINESS AND MARKETING (ABMK)**

Credits required for graduation: 120

### Freshman Year

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<tr>
<th>First Semester</th>
<th>Second Semester</th>
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<tr>
<td>(0.5) AGR 10100 (Introduction to the College of Agriculture and Purdue University)</td>
<td>(3) AGRY 20300 (Introductory Microeconomics for Food and Agribusiness)*** or core economics selective†</td>
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<tr>
<td>(0.5) AGR 11300 (Introduction to Agronomy Academic Programs)</td>
<td>(4) BIOL 11100 (Fundamentals of Biology II) † or</td>
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<tr>
<td>(4) BIOL 11000 (Fundamentals of Biology I) †</td>
<td>(4) BTNY 11000 (Introduction to Plant Science) †</td>
</tr>
<tr>
<td>(3) CHM 11100 (General Chemistry) †</td>
<td>(3) CHM 11200 (General Chemistry) †</td>
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<tr>
<td>(3) MA 15910 (Introduction to Calculus) † or MA 16010 (Applied Calculus I) †</td>
<td>(4) ENGL 10600 (First-Year Composition) †</td>
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<td>(3) Agronomy crops selective</td>
<td>(3) Agronomy selective</td>
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### Sophomore Year

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<th>Third Semester</th>
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<tr>
<td>(3) AGRY 25500 (Soil Science)</td>
<td>(3) AGRY 36500 (Soil Fertility)</td>
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<tr>
<td>(1) AGRY 39800 (Agronomy Seminar)</td>
<td>(3) STAT 30100 (Elementary Statistical Methods) †</td>
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<td>(3) BTNY 30100 (Introductory Plant Pathology)</td>
<td>(3) Agricultural economics selective**</td>
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<tr>
<td>(4) CHM 25700 (Organic Chemistry)</td>
<td>(3) Agronomy selective (Science, Technology, &amp; Society) ‡</td>
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<tr>
<td>(3) COM 11400 (Fundamentals of Speech Communication) †</td>
<td>(3) Ecology or plant ecology selective</td>
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### Junior Year

<table>
<thead>
<tr>
<th>Fifth Semester</th>
<th>Sixth Semester</th>
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<tr>
<td>(2) ENTM 20600 (General Entomology)</td>
<td>(3) AGRY 33100 (Principles of Selling in Agricultural Business)</td>
</tr>
<tr>
<td>(1) ENTM 20700 (General Entomology Laboratory)</td>
<td>(3) AGRY 32000 (Genetics)</td>
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<tr>
<td>(4) Additional math or science selectives</td>
<td>(3) BTNY 30400 (Introductory Weed Science)</td>
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<td>(3) Agricultural economics or management selective**</td>
<td>(4) Additional math or science selectives</td>
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<tr>
<td>(3) Social science or humanities selective</td>
<td>(3) Written or oral communication selective</td>
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### Senior Year

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<tr>
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<tbody>
<tr>
<td>(1) AGRY 49800 (Agronomy Senior Seminar)</td>
<td>(3) AGRY 32700 (Principles of Food and Agribusiness Marketing or (3) MGMT 32300 (Introduction to Market Analysis)*</td>
</tr>
<tr>
<td>(3) Agricultural economics selective**</td>
<td></td>
</tr>
<tr>
<td>(3) Humanities selective †</td>
<td>(3) ENGL 42000 (Business Writing)</td>
</tr>
<tr>
<td>(3) Social science or humanities selective</td>
<td>(6) Agricultural economics, consumer science and retailing, horticulture, or organizational leadership and supervision selectives</td>
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<tr>
<td>(3) Social science or humanities selective (30000+ level)</td>
<td>(3) Electives</td>
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*Other Marketing courses as appropriate.  
**AGBM students may pursue a minor in Farm Management (FM) or Food Agribusiness Management (FA); see CoA catalog/AGEC website for current requirements for these minors.  
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<td>(2) ENTM 20600 (General Entomology)</td>
<td>(3) AGEC 33100 (Principles of Selling in Agricultural Business)</td>
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<td>(1) ENTM 20700 (General Entomology Laboratory)</td>
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<td>(4) Additional math or science selectives</td>
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## Current 8 semester AMGT plan

**MAJOR: AGRONOMY**  
**CONCENTRATION: CROP AND SOIL MANAGEMENT (AMGT)**  
Credits required for graduation: 120

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(4) BTNY 11000 (Introduction to Plant Science) † |
| (0.5) AGR 11300 (Introduction to Agronomy Academic Programs) | (3) CHM 11200 (General Chemistry) †  
(4) ENGL 10600 (First-Year Composition) † |
| (3) AGRY 10500 (Crop Production) | (3) Core economics selective † |
| (4) BIOL 11000 (Fundamentals of Biology I) † | (14) |
| (3) CHM 11100 (General Chemistry) † | |
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<td>(3) STAT 30100 (Elementary Statistical Methods) †</td>
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| (4) CHM 25700 (Organic Chemistry) | (3) Agronomy selective (Science, Technology, & Society) ‡  
(3) Ecology or plant ecology selective  
(3) Written or oral communication selective |
| (3) COM 11400 (Fundamentals of Speech Communication) † | (15) |
| (3) Directed selective | |
| (14) | |

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(3) Directed selective |
| (3) Social science or humanities selective | (4) Mathematics or science selectives  
(3) Social science or humanities selective (30000+ level) |
| (3) Elective | (16) |
| (16) | |

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(6) Electives |
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| (3) Social science or humanities selective | |
| (3) Elective | |
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‡-See University Core Foundational Outcome list of approved courses
Proposed 8 semester AMGT plan

MAJOR: AGRONOMY
CONCENTRATION: CROP AND SOIL MANAGEMENT (AMGT)
Credits required for graduation: 120

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<td>(4) ENGL 10600 (First-Year Composition) †</td>
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</tr>
<tr>
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<td>(3) Agronomy selective</td>
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<tr>
<td>(3) Social science or humanities selectsives</td>
<td>(3) Directed selective</td>
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<tr>
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‡-See University Core Foundational Outcome list of approved courses
## Major: Agronomy
### Concentration: International Agronomy (IAGR)
Credits required for graduation: 120

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</tr>
<tr>
<td>(4) BIOL 11000 (Fundamentals of Biology I) †</td>
<td>(3) AGRY 28500 (World Crop Adaptation and Distribution) †</td>
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<tr>
<td>(3) CHM 11100 (General Chemistry) †</td>
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<tr>
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<tr>
<td>(3) AGR 21700 (Economics) or (3) ECON 21700 (Economics) or (3) ECON 25200 (Macroeconomics)</td>
<td>(3) AGRY 36500 (Soil Fertility)</td>
</tr>
<tr>
<td>(3) AGRY 25500 (Soil Science)</td>
<td>(3) AGRY 33500 (Weather and Climate)</td>
</tr>
<tr>
<td>(1) AGRY 39800 (Agronomy Seminar)</td>
<td>(3) STAT 30100 (Elementary Statistical Methods) †</td>
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<tr>
<td>(4) CHM 25700 (Organic Chemistry)</td>
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<td>(3) Directed selective</td>
<td>(3) AGRY 32000 (Genetics)</td>
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<td>(3) Foreign language selective</td>
<td>(1) AGRY 35000 (Global Awareness)</td>
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<tr>
<td>(4) Mathematics or science selectives</td>
<td>(2) Conversation language selective</td>
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**MAJOR: AGRONOMY**  
**CONCENTRATION: INTERNATIONAL AGRONOMY (IAGR)**  
Credits required for graduation: 120

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‡-See University Core Foundational Outcome list of approved courses
Department of Botany and Plant Pathology
Proposed Course and Curricular Changes

A. COURSE TO BE DELETED

None

B. COURSES TO BE ADDED

None

C. COURSES TO BE CHANGED

From:

BTNY 20100 Plants and Civilization. Sem. 2, Class 3, Cr. 3

To:

BTNY 28500 Plants and Civilization Sem. 2, Class 3, Cr. 3.

This course, intended primarily for non-majors, covers the history of agriculture, with focus on the centers of origin of our major food, fiber, and medicinal plants, and their historical, cultural, and economic relevance. The course also surveys the biology of crop plants, with respect to taxonomy, anatomy, cell structure, physiology, development, and genetics. Discussions also center on the roles plant biotechnology may play in sustainable agriculture and in helping to alleviate problems caused by overpopulation and ecological stress.

Co-requisites: None

Restrictions: None

D. CURRICULAR CHANGES

None
Supporting document

COURSE CONTACT INFORMATION:

Name: Dr. Nicholas Carpita  
Phone Number: 494-4653  
E-mail Address: carpita@purdue.edu  
Campus Address: LILY 1-464

COURSE SUBJECT ABBREVIATION AND NUMBER: BTNY 28500

COURSE TITLE: Plants and Civilization

COURSE CREDITS AND INSTRUCTIONAL TYPE: Sem. 2, Class 3, Cr. 3.

COURSE DESCRIPTION:

A. Justification:

Although the course is for non-majors in plant sciences and no co-requisites are required, the course is taught at a moderately advanced level. To ground the student in biological principles, the first five weeks are an intensive review of plant structure, cell biology and development, nutritional biochemistry, genetics, and evolution. This sets the proper intellectual stage to understand the origin and history of crop plants and the genetics of their selection and improvement. The course is meant to be a comprehensive overview of the roles that plants play in human existence, and is not an introductory course as its current number projects. Changing the course number to 28500 reflects the relative rigor that it is taught. Most of the students taking the course as an elective and third- and fourth year students, yet leaving it as a 200-level course without co-requisites enables a broader student enrollment.

Level of Course: The course is designed primarily for second- through fourth-year undergraduate students who require science and global understanding electives.

B. College Learning Outcomes Addressed by This Course

___x___ Professional Preparation: Demonstrate proficiency in their chosen discipline that incorporates knowledge skills, technology, and professional conduct.

___x___ Scientific Principles: Demonstrate use of the scientific method to identify problems, formulate and test hypotheses, conduct experiments and analyze data, and derive conclusions.

___x___ Critical Thinking: Demonstrate critical thinking by using data and reasoning to develop sound responses to complex problems.

_____ Communication: Demonstrate the ability to write and speak with effectiveness while considering audience and purpose.

_____ Teamwork: Demonstrate the ability to work effectively as part of a problem-solving team.

___x___ Cultural Understanding: Demonstrate knowledge of a range of cultures and an understanding of human values and points of view of other than their own.

___x___ Social Science Principles: Demonstrate ability to apply social, economic, political, and environmental principles to living in a global community.
Civic Responsibility: Demonstrate awareness of civic responsibility to community and society at large.

Lifelong Learning: Demonstrate skills necessary for lifelong learning.

Methods of Evaluation or Assessment

Learning outcomes:

This is a non-majors course to instill an appreciation for the impact plants have made and continue to make on human society. The course will consist of three sections. In Section I ‘Essential Plant Biology’ we will begin with an overview of the concepts of time and space, the sizes of things from molecules to the universe, and plant biology, nutritional biochemistry, and genetics. [This material will be presented at a level appropriate for non-majors without previous coursework in biology, plant science, chemistry or physics.] In Section II ‘Origins of Crop Plants’, the taxonomic breadth of the sources of plants will be stressed, including a thorough examination of the centers of origin of all of our major crop plants, and how and why each has impacted human civilizations. In Part III ‘Plants and Civilization’ we will explore the broader uses of plants as herbs and spices, medicines, stimulating substances, psychoactive compounds, wood and fibers, and will conclude with topical aspects of climate change, bioenergy, and feeding a hungry world. In addition to the formal lectures in Sections II and III, ‘Special Topics’ related to a plant or food product will include preparation and/or tastings These tastings range from the earliest recipes, to sensory perception of essential oils, to appreciation of ethnic traditional foods.

Exams:

There will be three exams (100 points each), at 5 weeks on Sections 1-6, at 10 weeks on Sections 7-14, and during Finals’ Week on Sections 14-21. Exams will cover material presented in lectures, supplemental handouts, and the reading assignments in the textbook. Exam questions may include true/false, multiple choice, matching, fill in the blank, short answer, complete/label drawings, and short essay. PDF files of last year’s exams are made available at the course web site.

Weekly quizzes and take-home assignments:

At the end of every lecture Thursday a short quiz in class (or a take-home assignment due the following Tuesday), over the week’s material. Thursday’s in-class quizzes will be based on the study guide provided in lecture presentations at Blackboard. The top 10 (of 15 total) will count for 100 points total. For this reason, no make-up quizzes will be given, regardless of circumstances.

Attendance:

Attendance in class for all lectures is expected, and mandatory to take the weekly in-class quiz or receive take-home assignment. However, take-home assignments will be posted at Blackboard the morning of the due date.

Grading:

A total of 400 points is possible from exams (300) and take-home assignments (100). In general, A= 360 pts., B= 320 pts., C= 280 pts., D= 240 pts. Some curve correction may be necessary. The +/- grading will not be used.

Extra-credit Assignments:

Up to 40 points made be earned by extra-credit, which will constitute book or film reviews of relevance to the subject matter of the course. An approved list of books and films will be supplied in the first few weeks of class. Extra credit of 20 points will be given for book reviews, and 10 points will be given for film reviews. At least
one of the reviews must be a book. The reviews may be completed at any time up until the last exam during final’s week.

C. Co-requisites: None.

Restrictions: None

D. Course Instructor(s)/contact information:

Dr. Nicholas Carpita
Professor of Botany & Plant Pathology
Department: Botany and Plant Pathology
Phone: 765.494.4653
Fax: 765.494.0363
Office: Lilly 1-464
E-mail: carpita@purdue.edu

E. Course Outline of Topics/Syllabus:

See attached

F. Reading List/Textbook:

Recommended reference texts


Lecture Powerpoints and supplemental reading material available on-line at Blackboard Learn in advance of lectures.

G. Library Resources

Standard on-line resources; Recommended texts to be placed on reserve.

H. Example of Course Syllabus

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**BTNY 28500 – PLANTS AND CIVILIZATION**

**Course details:**

**Recommended textbook:**


Supplemental reading material will be handed out weekly in class

**Web site:** www.btny.purdue.edu/Courses/BTNY201

**Class:** Tues/Thurs 1:30-2:45 pm, Lilly 3-418

**Instructor:**

Prof. Nick Carpita
Department of Botany & Plant Pathology

Office: 1-464 Lilly Hall
Office Hours: by appointment
Mailbox: See receptionist in Lilly 1-423
Telephone: 494-4653
E-mail: carpita@purdue.edu
Course Materials:
The lectures are in PowerPoint, and PDFs of these presentations will be placed at Blackboard on Friday of the week before. At the end will be a summary and study guide for the week’s material.

Exams:
There will be three exams (100 points each), at 5 weeks on Sections 1-6, at 10 weeks on Sections 7-14, and during Finals’ Week on Sections 14-21. Exams will cover material presented in lectures, supplemental handouts, and the reading assignments in the textbook. Exam questions may include true/false, multiple choice, matching, fill in the blank, short answer, complete/label drawings, and short essay. PDF files of last year’s exams will be available at the course web site. The course can be restructured annually, so study the lecture material, not the old exams. Take the old exams after you study to test yourself.

Weekly quizzes and take-home assignments:
At the end of every lecture Thursday a short quiz in class (or a take-home assignment due the following Tuesday), over the week’s material. Thursday’s in-class quizzes will be based on the study guide provided in lecture presentations at Blackboard. The top 10 (of 15 total) will count for 100 points total. For this reason, no make-up quizzes will be given, regardless of circumstances.

Attendance:
Attendance in class for all lectures is expected, and mandatory to take the weekly in-class quiz or receive take-home assignment. However, take-home assignments will be posted at Blackboard the morning of the due date.

Grading:
A total of 400 points is possible from exams (300) and take-home assignments (100). In general, A= 360 pts., B= 320 pts., C= 280 pts., D= 240 pts. Some curve correction may be necessary. The +/- grading will not be used.

Extra-credit Assignments:
Up to 40 points made be earned by extra-credit, which will constitute book or film reviews of relevance to the subject matter of the course. An approved list of books and films will be supplied in the first few weeks of class. Extra credit of 20 points will be given for book reviews, and 10 points will be given for film reviews. At least one of the reviews must be a book. The reviews may be completed at any time up until the last exam during final’s week.

Course Objectives:
This is a non-majors course to instill an appreciation for the impact plants have made and continue to make on human society. The course will consist of three sections. In Section I ‘Essential Plant Biology’ we will begin with an overview of the concepts of time and space, the sizes of things from molecules to the universe, and plant biology, nutritional biochemistry, and genetics. [This material will be presented at a level appropriate for non-majors without previous coursework in biology, plant science, chemistry or physics.] In Section II ‘Origins of Crop Plants’, the taxonomic breadth of the sources of plants will be stressed, including a thorough examination of the centers of origin of all of our major crop plants, and how and why each has impacted human civilizations. In Part III ‘Plants and Civilization’ we will explore the broader uses of plants as herbs and spices, medicines, stimulating substances, psychoactive compounds, wood and fibers, and will conclude with topical aspects of climate change, bioenergy, and feeding a hungry world. In addition to the formal lectures in Sections II and III, ‘Special Topics’ related to a plant or food product will include preparation and/or tastings on Fridays. These tastings range from the earliest recipes, to sensory perception of essential oils, to appreciation of ethnic traditional foods.
1. Introduction and Overview

[Chapters 1 pp. 1-15]

1.1 Course Overview

The time-space continuum
The plant body, its cells, its chemistry
How the plant’s chemistry is related to human nutrition
Genetics and the improvement of crops
Co-evolution of humans and plants
Origins of agriculture in the domestication of plants
Great crops of the world
Great foods of the world made from plants
The diversity of plants as raw materials
The use of plants beyond food
The logistics of providing food for a rapidly growing population
Improvement of yield and quality of our crop plants through genetic engineering

Film: Powers of Ten
A logarithmic journey through space

2. Fundamentals of Plant Science and Biology

2.1 Plant Anatomy  [Chapter 3 pp. 28-46; Chapter 5 pp. 69-74; Chapter 6 pp. 84-87]
Roots, stems, and leaves: Foods and products
Flowers and reproductive organs
Simple fleshy fruits
Aggregate and multiple fruits
Dry fruits: Dehiscence and indehisence

2.3 The Plant Cell
[Chapters 2 pp. 16-24; Chapter 4, pp. 50-68]
Organelles and their function
Chloroplasts and photosynthesis
Mitochondria and respiration
Cellular structures are molecules
Proteins, sugars, lipids, nucleic acids, and aromatic substances.

3. Human Nutrition and Plant Biochemicals

[Chapter 10 pp. 150-171]
3.1 Fundamental molecules of life

Proteins: plant protein bodies
Lipids and Cholesterol: Oil bodies
Sugars and Complex Carbohydrates:
Sucrose & starch, cellulose & fibers
Nucleic Acids: Blueprint of life
Aromatic substances: Richest source of useful molecules

3.2 Building a human cell

Membranes
Protein functions
Energy

3.3 Essentials of human nutrition
Calories
Proteins and fats
Vitamins
Minerals
Balancing nutritional requirements

4. Genetics and Plant Biology

4.1 Flowering and Reproduction
[Chapter 2 pp. 24-27; Chapter 5 pp. 69-83; Chapter 9 pp. 134-149]

Meiosis vs. mitosis
Alternation of generations

4.2 Principles of Mendelian Genetics
[Chapter 7 pp. 99-117; Chapter 15 pp. 246-248]
The mono- and dihybrid cross
Incomplete dominance
Maternal inheritance
Parthenocarpy and apomixis

4.2 Molecular Genetics
DNA—the genetic material
Genes encode proteins
Transcription and the genetic code
Translation of mRNA into protein
Mutations
Recombinant DNA technologies
How genes are cloned

5. Plant Systematics and Evolution
[Chapters 8 pp. 118-133; Chapter 9 pp. 134-136]

5.1 How plants are named
Evolution and natural selection
The five Kingdoms of life
Survey of the plant world

6. Origin of Man and History of Agriculture I
[Chapter 11 pp. 172-182]

6.1 Early sites of development of agriculture

Hunter-gather societies
Important centers of plant domestication
Role of plants in great civilizations, past and present

—Exam I—

7. The Grass Family
[Chapter 12 pp. 183-204]

7.1 Characteristics of the plant body

Vegetative growth
The flower and grain
Survey of the cereal crops
7.2 Origin of cereal grains

Origin of wheat
Earliest ‘natural genetic engineering’ of a crop plant and selection by humans
Other related crops: barley, rye, triticale, oats
sorghum and millet

Special Topic:
Tabouli, one of the first prepared foods

7.3 Origin of maize and rice

The ancestry of maize and selection of the modern cultivars
Humans as “Walking Maize”
The development of rice
Three essential types of rice

Special Topics
The “Staff of Life”—making bread
Pasta!

8. Legumes and Starchy Dietary Staples
[Chapter 13 pp. 205-217]

8.1 Origin of legumes

Important legume crops
Lentil and chick peas
Soya beans and peanuts as sources of protein and fats
Peas as sources of protein and starch
The history of the soya bean
Nitrogen fixation
Forage and cover crops

Special Topics
Hummous
Lentil soup

9. Solanaceous species and starchy staples
[Chapter 14 pp. 218-232]

9.1 Origin of the potato: a storage organ for starch

The Irish Potato Famine
The tomato and the deadly nightshade
Other Solanaceous species: Eggplant, Peppers

9.2 Other starchy foods
Cassava, sweet potato and yams, taro…

9.3 The Cucurbitales
Pepos or Squash: Watermelon, pumpkin, cucumber, zucchini…
9.4 Some re-introduced ‘old’ crops
Quinoa, amaranth, tarwi, tamarillo, oca

Special Topics
Tomato and pepper sauces

10. Nuts and Oil Crops
[Supplemental reading]

10.1 Nutmeats from Sapindales and Rosales
Pistachio, hazelnuts, walnuts, chestnuts, pecans, almonds…

10.2 Value-added oil crops
Corn, soya, canola, safflower, sunflower, olive, peanut, walnut, sesame, palm, coconut.

Special Topics
Diversity of oil flavors

11. History of Agriculture II
[supplemental reading]

11.1 Essential crop plants for early agriculture
Starchy staples
Protein
Oils and lipids

12. Citrus Crops
[Supplemental reading]

12.1 Hesperidium: The citrus family
Oranges and grapefruit, tangerines, lemons and limes, Pummelos, citrons, bergamots, kumquats…

Special Topics
The key lime

13. Fruit Crops
[Supplemental reading]

13.1 The Rosales
Pomes and Drupes: Apple, pear, peach, nectarine, plum Berries: strawberry, raspberry

13.2 The Ericales
blueberry, cranberry and their relatives

13.3 Tropical Fruits
Banana, pineapples, kiwi, cherimoya, carambola…

Special Topics
Apple tasting
Tropical fruits

14. **Brassica and Allium species**
   [Supplemental reading]

   14.1 *The Capparales*
   cabbage, kale, and mustards

   14.2 *The Liliales*
   onion, garlic, leek, and other allium species

--Exam II--

15. **Essential Oils: Herbs and Spices**
   [Chapter 17 pp. 277-295]

   15.1 *Essential Oils*
   Fragrances, medicinal oils

   15.2 *Spices*
   Ancient trade
   Age of exploration
   Important consequences: New World Discoveries and imperialism
   Botanical properties and culinary uses

   15.3 *Herbs*
   Aromatic mint
   Parsley family
   Mustard family
   Lilies: Pungent *Allium* species

   Special topic
   How good is your nose?

16. **Medicinal Botany; Poisonous, and Allergenic Plants**
   [Chapters 19 pp. 321-340; Chapter 21 pp. 361-381]

   16.1 *Plants in medicine*
   Chinese, early Greeks and Romans
   Age of herbals
   Modern prescription drugs
   Herbal medicine today

   16.2 *Active Principles in Plants*
   Alkaloids
   Glycosides
   Foxglove and control of heart disease
   Aspirin from willow bark
   Treating malaria with fever bark
   Snakeroot and schizophrenia, hypertension
   Native American medicine
   Ephedrine
   Cancer therapy and some promising herbal remedies
16.3 Noxious plants
Notable poisonous and allergenic plants
Insecticides from plants

17. Stimulating Beverages
[Chapter 16 pp. 261-276]

17.1 Coffee
Origin in Africa
Cultivation in Arabia
European colonization of the Far East and the coffee trade
Coffee and the politics of England
Processing
Physiological effects of caffeine

17.2 Tea
Oriental origins and history
Cultivation and processing
The flavors of tea
Why the British drink tea

17.3 Chocolate
New World origins
“Drink of The Gods”
Cultivation and processing

Special Topics
Assessing coffee, tea and chocolate quality

18. Psychoactive Plants
[Chapter 20 pp. 341-360]

18.1 Psychoactive Drugs
The opium Papaver (morphine and heroin)
Cannabis (marijuana)
Coca (cocaine)
Peyote (mescaline)
Psilocybe (psilocybin) and Claviceps (LSD)
Kava
Health risks and medicinal uses

18.2 Tobacco
Cultivation and importance in agriculture
Health risks and modern attitudes

19. Algae and Fungi
[Chapters 22 pp. 385-398; Chapter 23 pp. 399-424; Chapter 24 pp. 440-445; Chapter 25 pp. 447-462]

20. Alcohol
[Chapter 24, pp. 425-443]

20.1 Fermented Beverages
Beer and ales
Wine

20.2 *Distilled beverages*
Liquors, spirits

*Special Topic*
Appreciation of wine and beer
[Sorry, no tasting today]

21. **Fibers: Cloth, Paper, and Wood**
[Chapter 18 pp. 296-320]

21.1 *Fiber crops*
Types of fibers: Trichomes and bast fibers
Cotton
Linen: An ancient fabric
Other ‘bast’ fibers
Miscellaneous fibers
Rayon: "Artificial silk"

21.2 *Wood and Wood Products*
Hardwoods and softwoods
Lumber, veneer, and plywood
Fuel
Paper
Early writing surfaces
The art of papermaking

21.3 *Bioenergy Research*
Importance of alternate carbon-neutral and carbon-negative fuels
A new paradigm for agriculture

22. **Feeding A Hungry World**
[Chapter 15 pp. 233-260]

22.1 *Human Population Growth*
Lessons in demography
Why do hunger and malnutrition persist in a world of plenty?

22.2 *Food Security*
Preserving genetic diversity: Germplasm and seed banks
Global food prospects
Agricultural Research & Development
Classical plant breeding & modern crop improvement
Biotechnology and sustainable Agriculture

--Exam III--
Department of Entomology
Proposed Course and Curricular Changes

A. COURSES TO BE DELETED

1. ENTM 52100 - Urban and Industrial pest Management

This course has low enrollments, and there are no plans to offer this course in the future. While ENTM 52100 fulfills the pest management requirement, ENTM 51000 is the more viable course and deleting this course will not negatively impact any program.

2. ENTM 60300 – Insect Molecular Genetics, Systematics, and Phylogeny

This course was last offered in Fall 2011, and there are no plans to offer this course in the future. Deleting this course will not negatively impact any program.

B. COURSES TO BE ADDED

None

C. COURSES TO BE CHANGED

None

D. CURRICULAR CHANGES

None
Department of Food Science
Proposed Course and Curricular Changes

A. Courses to be deleted:
   None

B. Courses to be added:
   1. FS 53100 Sciences of Experimental Cuisine, cr. 3
      Course Description:
      The Food Science program is committed to transferring knowledge for continuously improving the safety, quality, value, and security of the world’s food supply. This course offers a unique learning opportunity that engages students in thinking critically about food preparation and scientifically-based product development. An important aspect of learning is doing, and all students benefit from the opportunity to practice. To practice food product development, students need the space, equipment, and guidance to do so. Advances in food science and the popularity of ‘molecular gastronomy’ have increased broad interest in manipulating and customizing the texture and appearance of foods. Having moved beyond traditional kitchen preparation, and at a much smaller scale than the conventional food processing industry, this ‘molecular’ approach to foods has adopted ingredients, techniques, and equipment that have typically been used in scientific laboratories. The investigation of the chemical and physical processes of food preparation has created not only new textures/flavors/etc. of foods, but also new teaching and learning opportunities that prepare students to think critically about food construction/deconstruction and scientifically-based product development. The designed foods and accompanying techniques provide a unique opportunity to engage students in the investigation of basic principles and advanced topics in food chemistry, encompassing organic/physical/bio-chemistry concepts and the clash between processed and local foods movements (and other current topics), and culminating in edible products. The skills developed in this course have been requested by industry that hires our students, and therefore students who successfully develop these critical thinking and product development skills will likely be better positioned to enter the workforce.

   2. FS 53500 Aseptic Processing Technologies Sem. 1, cr. 1
      Course Description:
      Aseptic processing is a specialized type of food processing, in which the packaging is sterilized separately from the food product being sterilized, then the package and product are combined under sterile conditions. Because the final product has a long shelf life, needs no refrigeration, and the package is light weight, this type of processing is increasing popular and widely used, for both consumer products (e.g., juice boxes, wine in a box), and for transport of bulk food products. Therefore, training in this area is valuable for students who will work in the food industry. For over three decades, Purdue University Dept. of Food Science has been well known for its expertise and experience in aseptic processing. Every summer for 32 years, the Food Science Dept. has taught a workshop for food industry professionals that covers the chemistry, microbiology, packaging, processing, equipment, and regulations related to aseptic processing. Purdue Food Science students with very similar training in this specialized area
through a course benefit when they seek employment in the food industry. The Aseptic Processing Technologies course compliments many of the other major Food Science courses taken by upper-level undergraduates and by Food Science graduate students in the major. This is also true for the Agricultural & Biological Engineering students in the Biological and Food Processing Engineering option.

C. Courses to be Changed

None

D. Curricular Changes

We request an approval for modification of the list of selective courses for Food Science Minor Requirements.

Current Required Courses:

- **FS 16100 Science of Food** (3 credits)
  No Prerequisites

- **FS 36200 Food Microbiology** (3 credits)
  Prerequisites: Undergraduate level BIOL 22100 Minimum Grade of C- and (Undergraduate level BCHM 30700 Minimum Grade of D- or Undergraduate level BCHM 56100 Minimum Grade of D- or Undergraduate level CHM 33300 Minimum Grade of D-)

- **FS 34100 Food Processing I** (2 credits)
  Prerequisites: 4 Credits in Physics. 8 Credits in Chemistry. FS 36200 Course. Minimum Grade of D-. May not be taken concurrently. 6 Credits in Mathematics

- **FS 45300 Food Chemistry** (3 credits)
  Prerequisites: Undergraduate level CHM 25500 Minimum Grade of C- or Undergraduate level CHM 25700 Minimum Grade of C- or Undergraduate level CHEM C3410 Minimum Grade of C- or Undergraduate level CHM 26100 Minimum Grade of C- or Undergraduate level MCMP 20400 Minimum Grade of C-) and (Undergraduate level BCHM 30700Minimum Grade of D- or Undergraduate level BCHM 56100 Minimum Grade of D- or Undergraduate level CHM 33300 Minimum Grade of D-)

Selective Courses to be added (7 credits):

- All FS courses with a maximum of 3 credits independent study (FS 29100, FS 49100)

- **NUTR 31500 Fundamentals of Nutrition** (3 credits)
  Prerequisites: (Undergraduate level BIOL 11100 or Undergraduate level BIOL 13100 or Undergraduate level BIOL 20300 or Undergraduate level BIOL 21300 or Undergraduate level BIOL 30100) and (Undergraduate level CHM 25500 or Undergraduate level CHM 25700 or Undergraduate level MCMP 20400)
- **ANSC 35100 Meat Science** (3 credits)
  No Prerequisites

- **ANSC 35101 Meat Science Lab** (1 credit)
  Prerequisite or corequisite: ANSC 35100.
Supporting Document to the Form 40G
for a New Graduate Course

To: Purdue University Graduate Council

From: Faculty Member: Lisa Mauer
   Department: Food Science
   Campus: West Lafayette

Date: January 6, 2016

Subject: Proposal for New Graduate Course

Contact for information if questions arise:
   Name: Lisa Mauer
   Phone: 765-494-9111
   Email: mauerl@purdue.edu
   Address: 1149 NLSN

Course Subject Abbreviation and Number: FS 53100

Course Title: Science Experimental Cuisine

Course Description:
This course brings together culinary arts and the application of food chemistry and ingredient technology principles. Emphasis will be placed on food construction and deconstruction, using common food preparation and ‘molecular gastronomy’ techniques. Throughout this course, students will:

1. Develop and use the vocabulary of a professional chef
2. Understand and intelligently discuss how cooking works
3. Demonstrate practical proficiency in food preparation skills
4. Understand and experience food from farm to fork
5. Compare and contrast home, culinary/food service, and large food industry food production practices
6. Use common food preparation and ‘molecular gastronomy’ techniques to manipulate the structure of food ingredients and finished food products
7. Describe the fundamental structure-function relationships of food ingredients and how each of the applied techniques alters the ingredient structure and/or function
8. Explore and control common food-related reactions/interactions including: emulsification, Maillard browning, caramelization, gelatinization, gelation, denaturation
9. Exemplify the scientific process and inquiry driven research by designing, implementing, and analyzing experiments related to food construction and deconstruction
10. Design and create food textures and products by manipulating fundamental structure-function relationships of food ingredients, and explain the science of how the foods were constructed
Semesters Offered:

For the benefit of graduate student plan of study development, how frequently will this prototype be offered? Which semesters?

- Fall semester, once annually

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 majors and/or concentrations, 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.

- The Food Science program is committed to transferring knowledge for continuously improving the safety, quality, value, and security of the world’s food supply. This course offers a unique learning opportunity that engages students in thinking critically about food preparation and scientifically-based product development. An important aspect of learning is doing, and all students benefit from the opportunity to practice. To practice food product development, students need the space, equipment, and guidance to do so. Advances in food science and the popularity of ‘molecular gastronomy’ have increased broad interest in manipulating and customizing the texture and appearance of foods. Having moved beyond traditional kitchen preparation, and at a much smaller scale than the conventional food processing industry, this ‘molecular’ approach to foods has adopted ingredients, techniques, and equipment that have typically been used in scientific laboratories. The investigation of the chemical and physical processes of food preparation has created not only new textures/flavors/etc. of foods, but also new teaching and learning opportunities that prepare students to think critically about food construction/deconstruction and scientifically-based product development. The designed foods and accompanying techniques provide a unique opportunity to engage students in the investigation of basic principles and advanced topics in food chemistry, encompassing organic/physical/bio-chemistry concepts and the clash between processed and local foods movements (and other current topics), and culminating in edible products. The skills developed in this course have been requested by industry that hires our students, and therefore students who successfully develop these critical thinking and product development skills will likely be better positioned to enter the workforce.

- This course builds on food chemistry concepts presented in the prerequisite course (FS 45300 or FS 55000), and meets the criteria established by the Graduate Council policy for this level of course as follows: a) primary literature and advanced textbooks are used; b) assessments, such as those of the final project presentation and report, demonstrate synthesis of concepts and ideas by students; c) the topics are current, and are currently requested by industry that hires our students; and d) multiple aspects of the course (homework assignments, final project) emphasize research/discovery methods and efforts, including reading, critiquing, and proposing and performing product development.

- Anticipated enrollment
  - Undergraduate 10-12
  - Graduate 6-8
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.). Expand lists and sub-lists as needed.

- Objectives and Student Learning Outcomes
  - Develop and use the vocabulary of a professional chef
    - Define the terminology related to each lecture/lab
    - Use the correct terminology when describing the preparation techniques, foods, and reactions
  - Understand and intelligently discuss how cooking works
    - Explain the concepts of each cooking technique
    - Discuss common applications of each cooking technique and why this is so
  - Demonstrate practical proficiency in food preparation skills
    - Demonstrate each food preparation skill
    - Successfully apply each food preparation skill to foods
  - Understand and experience food from farm to fork
    - Describe how different commodities are produced on the farm (tie this to a farm visit)
    - Discuss what happens as foods move from the farm to the fork
  - Compare and contrast home, culinary/food service, and large food industry food production practices
    - Evaluate food products made by home, food service, and large food industry production practices
  - Use common food preparation and ‘molecular gastronomy’ techniques to manipulate the structure of food ingredients and finished food products
    - Demonstrate applications of food preparation and molecular gastronomy techniques for manipulating food structures
  - Describe the fundamental structure-function relationships of food ingredients and how each of the applied techniques alters the ingredient structure and/or function
    - Discuss the fundamental structure-function relationships of food ingredients
    - Assess how each of the applied techniques alters the ingredient structure/function
  - Explore and control common food-related reactions/interactions including: emulsification, Maillard browning, caramelization, gelatinization, gelation, denaturation
    - Evaluate how changing formulation and food preparation techniques influences food-related reactions/interactions
  - Exemplify the scientific process and inquiry driven research by designing, implementing, and analyzing experiments related to food construction and deconstruction
    - Design, implement, and analyze food construction and deconstruction experiments
  - Design and create food textures and products by manipulating fundamental structure-function relationships of food ingredients, and explain the science of how the foods were constructed
    - Plan and prepare creative foods from formulations you have developed
    - Explain the science of how the foods were constructed
- **Methods of Evaluation**

Describe the methods of evaluation or assessment of student learning outcomes. (Include evidence for both direct and indirect methods.) Expand table rows as needed.

<table>
<thead>
<tr>
<th>Learning Objective</th>
<th>Methods of Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Define the terminology related to each lecture/lab</td>
<td>Quiz</td>
</tr>
<tr>
<td>Use the correct terminology when describing the preparation techniques, foods, and reactions</td>
<td>Lab skills, lecture participation, lab reports, homework</td>
</tr>
<tr>
<td>Explain the concepts of each cooking technique</td>
<td>Lab skills, lecture participation, lab reports, homework</td>
</tr>
<tr>
<td>Discuss common applications of each cooking technique and why this is so</td>
<td>Lecture participation, homework, lab reports</td>
</tr>
<tr>
<td>Demonstrate each food preparation skill</td>
<td>Lab skills</td>
</tr>
<tr>
<td>Successfully apply each food preparation skill to foods</td>
<td>Lab skills</td>
</tr>
<tr>
<td>Describe how different commodities are produced on the farm (tie to farm visit)</td>
<td>Homework, lecture participation</td>
</tr>
<tr>
<td>Discuss what happens as foods move from the farm to the fork</td>
<td>Homework, lecture participation, lab reports</td>
</tr>
<tr>
<td>Evaluate food products made by home, food service, and large food industry production practices</td>
<td>Lab skills, lab reports</td>
</tr>
<tr>
<td>Demonstrate applications of food preparation and molecular gastronomy techniques for manipulating food structures</td>
<td>Lab skills, homework, lab reports</td>
</tr>
<tr>
<td>Discuss the fundamental structure-function relationships of food ingredients</td>
<td>Lecture participation, homework, lab reports</td>
</tr>
<tr>
<td>Assess how each of the applied techniques alters the ingredient structure/function</td>
<td>Lab skills, lab reports, homework</td>
</tr>
<tr>
<td>Evaluate how changing formulation and food preparation techniques influences food-</td>
<td>Lab skills, lab reports, homework</td>
</tr>
</tbody>
</table>
related reactions/interactions

Design, implement, and analyze food construction and deconstruction experiments

Homework, final project

Plan and prepare creative foods from formulations you have developed

Homework, final project

Explain the science of how the foods were constructed

Homework, final project, final report

• Grading Criteria

Grading criteria (select from checklist); include a statement describing the criteria that will be used to assess students and how the final grade will be determined. Add and delete rows as needed.

<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>10%</td>
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<tr>
<td>Papers and Projects</td>
<td>20%</td>
</tr>
<tr>
<td>Homework</td>
<td>25%</td>
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<tr>
<td>Laboratory Exercises</td>
<td>35%</td>
</tr>
<tr>
<td>Attendance and Class Participation</td>
<td>10%</td>
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</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>1-2</td>
<td>Lecture</td>
<td>[click here and explain contribution]</td>
</tr>
<tr>
<td>3-4</td>
<td>Laboratory</td>
<td>[click here and explain contribution]</td>
</tr>
</tbody>
</table>
C. Prerequisite(s):

List prerequisites and/or experiences/background required. If no prerequisites are indicated, provide an explanation for their absence. Add bullets as needed.

- FS 45300 Food Chemistry
- Or FS 55000 Food Chemistry

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? (If the answer is no, indicate when it is expected that a request will be submitted.) Add rows as needed.

<table>
<thead>
<tr>
<th>Name</th>
<th>Rank</th>
<th>Dept.</th>
<th>Graduate Faculty or expected date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lisa Mauer</td>
<td>professor</td>
<td>FS</td>
<td>Yes</td>
</tr>
<tr>
<td>Allison Kingery</td>
<td>Professional chef</td>
<td>Ford Dining Hall</td>
<td></td>
</tr>
</tbody>
</table>

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. *(This information must be listed and may be copied from syllabus).*

I. Throughout this course, students practice in lab the skills, food preparation, and hand-on investigation of manipulating food structures and textures. The value being that the lab experience enables students to learn while doing. For example, in the knife handling skills section, we first cover the basic ‘how to’ information in lecture, followed by a demonstration and student practice of their own knife skills and the basic cut types in the lab.

<table>
<thead>
<tr>
<th>WEEK</th>
<th>DAY</th>
<th>TOPIC</th>
<th>BOOK CHAPTER</th>
</tr>
</thead>
<tbody>
<tr>
<td>1, Aug. 24</td>
<td>Monday</td>
<td>Introduction, knife handling, how a chef approaches a kitchen and workspace</td>
<td>CH 1-4</td>
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<tr>
<td></td>
<td>Wednesday</td>
<td>Meet in the lab to get started</td>
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<tr>
<td></td>
<td>Wednesday – Lab 1</td>
<td>THE BASICS: Knife skills and safety, kitchen sanitation, equipment identification, make mirepoix / basic knife cuts/ vinegar extraction/ mashed potatoes/</td>
<td>CH 5, 21</td>
</tr>
</tbody>
</table>
serving sizes/ plating and food presentation

**DEMO:** Knife cuts

Lab Points: 10 medium diced potatoes, 10 julienned carrots

<table>
<thead>
<tr>
<th>Date</th>
<th>Monday</th>
<th>Wednesday</th>
<th>Wednesday – Lab 2</th>
<th>Wednesday – Lab 3</th>
<th>3, Sept. 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>2, Aug. 31</td>
<td>Quiz: Week 1 terminology.</td>
<td>Stocks and soups, Moist heating:</td>
<td>SOUP! Demonstrate knife skills.</td>
<td>STEAMY: Sauces, steaming, poaching, and</td>
<td>NO CLASS: LABOR</td>
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<tr>
<td></td>
<td></td>
<td>boiling, steaming, and submersion</td>
<td>Bouquets, Sachets, Stocks and Soups.</td>
<td>sous vide. Cooking eggs.</td>
<td>DAY</td>
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<tr>
<td></td>
<td></td>
<td>cooking (sous vide); braising and</td>
<td>Clarify butter. Fabricate a chicken.</td>
<td>DEMO: Poaching, Variations in thickeners</td>
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<td></td>
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<td>stewing. Demo sous vide set-up.</td>
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<td>Lab Points: properly thickened sauce,</td>
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<td></td>
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<td>poached egg</td>
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<td>Lab Points: Clarified butter, 8-piece</td>
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<td></td>
<td></td>
<td>chicken</td>
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<table>
<thead>
<tr>
<th>Date</th>
<th>Monday</th>
<th>Wednesday</th>
<th>Wednesday – Lab 2</th>
<th>Wednesday – Lab 3</th>
<th>4, Sept. 14</th>
</tr>
</thead>
<tbody>
<tr>
<td>3, Sept. 7</td>
<td>Quiz: Week 2 terminology</td>
<td>Quiz: Week 2 terminology</td>
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<tr>
<td></td>
<td></td>
<td>Identification: Dairy, Egg, Dry</td>
<td>Identification: Sauces, bases,</td>
<td>DEMO: Poaching, Variations in thickeners</td>
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<td></td>
<td>Goods Sauces, bases, thickeners,</td>
<td>thickeners. From scratch versus</td>
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<td></td>
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<td>and emulsions.</td>
<td>commercial preps.</td>
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<td>Eggs. Activity – taste thickeners.</td>
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<td>4, Sept. 14</td>
<td>Quiz: Week 3 terminology</td>
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<tr>
<td>Date</td>
<td>Day</td>
<td>Activity</td>
<td>Page References</td>
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<tr>
<td>5, Sept. 21</td>
<td>Monday</td>
<td>Quiz: Week 4 terminology</td>
<td>CH 17-18</td>
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<td></td>
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<td>Dry heating: grilling, broiling, roasting, sautéing, pan frying, and deep frying</td>
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<td></td>
<td>Wednesday</td>
<td>Meet in lab to get started</td>
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<td></td>
<td>Wednesday – Lab 5</td>
<td>TOO MANY Cs (CARROTS and CHICKEN): Cooking vegetables and fruits. Moist and dry heating techniques.</td>
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<td>DEMO: Cooking methods, additional vegetable/fruit handling</td>
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<td>Lab Points: Properly cooked chicken wing</td>
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<tr>
<td>6, Sept. 28</td>
<td>Monday</td>
<td>Quiz: Week 5 terminology</td>
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<td>Traditional food preservation: canning, drying, fermentation, etc. Activity – oddly preserved foods.</td>
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<td></td>
<td>Wednesday</td>
<td>Meet in lab to get started</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Wednesday – Lab 6</td>
<td>CAN IT! Traditional food preservation: canning (from scratch and using mixes), drying, etc.</td>
<td>CH 23-24</td>
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<td>DEMO: How to use a pressure-cooker</td>
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<td>Lab Points: Properly canned items in time frame</td>
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<tr>
<td>7, Oct. 5</td>
<td>Monday</td>
<td>Quiz: Week 6 terminology</td>
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<td>Potatoes, starch gelatinization, grains, and legumes. Activity – taste and gelatinize starch.</td>
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</tbody>
</table>
### Wednesday
The Full Breakfast. Activity – aroma and flavor of coffees.

### Wednesday – Lab 7
**THE ULTIMATE BREAKFAST:** Potatoes, eggs, bacon... and coffee

**DEMO:** Different coffee brewing techniques, cooking bacon

**Lab Points:** Properly cooked egg and bacon

<table>
<thead>
<tr>
<th>Date</th>
<th>Day</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>8, Oct. 12</td>
<td>Monday</td>
<td>OCTOBERBREAK: NO CLASS</td>
</tr>
<tr>
<td></td>
<td>Wednesday</td>
<td>Quiz: Week 7 terminology</td>
</tr>
<tr>
<td>I. Wednesday – Lab 8</td>
<td></td>
<td>Pasta and dumplings. Activity – pasta ID.</td>
</tr>
<tr>
<td>9, Oct. 19</td>
<td>Monday</td>
<td>Quiz: Week 8 terminology</td>
</tr>
<tr>
<td></td>
<td>Wednesday</td>
<td>Meet in lab to get started</td>
</tr>
<tr>
<td></td>
<td>Wednesday – Lab 9</td>
<td>LET THEM EAT BREAD: yeast breads, quick breads, and gluten-free breads</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>DEMO:</strong> Baguette formation</td>
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<td></td>
<td></td>
<td><strong>Lab Points:</strong> Baguette</td>
</tr>
<tr>
<td>10, Oct. 26</td>
<td>Monday</td>
<td>Quiz: Week 9 terminology</td>
</tr>
<tr>
<td></td>
<td>Wednesday</td>
<td>Pastry</td>
</tr>
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<td></td>
<td>Wednesday – Lab 10</td>
<td>SWEET CHALLENGE: Pastry desserts and the banana muffin challenge.</td>
</tr>
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<td><strong>DEMO:</strong> Mixing methods for cakes and cookies</td>
</tr>
</tbody>
</table>

### 8, Oct. 12

**Monday**
OCTOBERBREAK: NO CLASS

**Wednesday**
Quiz: Week 7 terminology

**Lab Points:** Pappardelle, ravioli

### 9, Oct. 19

**Monday**
Quiz: Week 8 terminology

**Wednesday**
Meet in lab to get started

### 10, Oct. 26

**Monday**
Pastry

**Wednesday**
Custards, creams, mousses, fillings, frostings
<table>
<thead>
<tr>
<th>Date</th>
<th>Monday</th>
<th>Quiz: Week 10 terminology</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lab Points: Banana muffin, properly executed pastry recipe</td>
<td>CH 34, 35</td>
</tr>
<tr>
<td>11, Nov. 2</td>
<td></td>
<td>Crystalline and amorphous sugar; Caramelization. Activity – taste different sweeteners and chocolates.</td>
</tr>
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<td></td>
<td>Wednesday</td>
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<tr>
<td></td>
<td>Chocolate</td>
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<tr>
<td></td>
<td><strong>Wednesday – Lab 11</strong></td>
<td><strong>SUGARWORK: Plated desserts, art, design, and sugarwork</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>DEMO: crème brûlée, sugarwork, cake decorating techniques</td>
</tr>
<tr>
<td></td>
<td>Lab Points: decorated cupcake, sugarwork, caramel sauce</td>
<td></td>
</tr>
<tr>
<td>12, Nov. 9</td>
<td>Monday</td>
<td>Quiz: Week 11 terminology</td>
</tr>
<tr>
<td></td>
<td>Dairy</td>
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<td></td>
<td>Wednesday</td>
<td>Meet in lab to get started</td>
</tr>
<tr>
<td></td>
<td><strong>Wednesday – Lab 12</strong></td>
<td><strong>SWEET_HOT_ANTIGRIDDLE:</strong> Chocolate, molten chocolate cake, liquid nitrogen ice cream, and the antigriddle</td>
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<tr>
<td></td>
<td></td>
<td>DEMO: Tempering chocolate, Antigriddle</td>
</tr>
<tr>
<td></td>
<td>Lab Points: Successful molten cake, Happy birthday plate</td>
<td></td>
</tr>
<tr>
<td>13, Nov. 16</td>
<td>Monday</td>
<td>Quiz: Week 12 terminology</td>
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<tr>
<td></td>
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<td>Molecular gastronomy: gelation, foams, beverages, and extractions</td>
</tr>
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<td></td>
<td>Wednesday</td>
<td>Meet in lab to get started</td>
</tr>
<tr>
<td></td>
<td><strong>Wednesday – Lab 13</strong></td>
<td><strong>MOLECULAR GASTRONOMY:</strong> Carbonations, foams, and gels</td>
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<tr>
<td></td>
<td></td>
<td>DEMO: Molecular gastronomy tools</td>
</tr>
<tr>
<td></td>
<td>Lab Points: successful spherification</td>
<td></td>
</tr>
</tbody>
</table>
14, Nov. 23  Monday  Quiz: Week 13 terminology
               Final project planning

               Wednesday  THANKSGIVING BREAK- NO CLASS

15, Nov. 30  Monday  Final project work: present concept to the class

               Wednesday – Lab 14  Meet in lab: Trial final project preparations

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.

- Primary Reading List


- Secondary Reading List


G. Library Resources

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

- Web of Science
- Food Science Technology Abstracts

H. 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 Program. See Appendix K.  
Supporting Document to the Form 40G
for a New Graduate Course

To: Purdue University Graduate Council
From: Faculty Member: Suzanne Nielsen
Department: Food Science
Campus: WL
Date: 1/19/2016
Subject: Proposal for New Graduate Course

Contact for information
if questions arise:
Name: Suzanne Nielsen
Phone: 765-496-1727
Email: nielsens@purdue.edu
Address: 745 Agriculture Mall Drive

Course Subject Abbreviation and Number: FS 53500
Course Title: Aseptic Processing Technologies

Course Description:
Overview of aseptic processing and packaging systems; thermal processing and fluid flow in continuous heat exchangers; food microbiology, chemistry, and packaging as applied to aseptic processing. Establishing processes for aseptic processing of liquid and particulate foods.

Semesters Offered:
Spring every year

A. Justification for the Course:

- Detailed Justification of Course
  - Aseptic processing is a specialized type of food processing, in which the packaging is sterilized separately from the food product being sterilized, then the package and product are combined under sterile conditions. Because the final product has a long shelf life, needs no refrigeration, and the package is light weight, this type of processing is increasing popular and widely used, for both consumer products (e.g., juice boxes, wine in a box), and for transport of bulk food products. Therefore, training in this area is valuable for students who will work in the food industry.
  - For over three decades, Purdue University Dept. of Food Science has been well known for its expertise and experience in aseptic processing. Every summer for 32 years, the
Food Science Dept. has taught a workshop for food industry professionals that covers the chemistry, microbiology, packaging, processing, equipment, and regulations related to aseptic processing. Purdue Food Science students with very similar training in this specialized area through a course benefit when they seek employment in the food industry.

- The Aseptic Processing Technologies course compliments many of the other major Food Science courses taken by upper-level undergraduates and by Food Science graduate students in the major. This is also true for the Agricultural & Biological Engineering students in the Biological and Food Processing Engineering option.

- Justification of Level of Course
  - This course uses primary literature, in addition to a textbook on aseptic processing.
  - This course on aseptic technologies requires that students synthesis important concepts from food chemistry, microbiology, packaging, and processing, to understand and appreciate the safety, quality, and regulatory aspects of this specialized type of food processing. To be successful in this course, students must have knowledge of food chemistry, food microbiology, food processing, food packaging, and food regulations, all of which are from junior or senior-level courses in the Food Science curriculum, or obtained by graduate students in the Basic Food Science course series which is taken during the first semester as a graduate student.
  - Especially since the FDA approved the use of hydrogen peroxide for sterilizing packaging materials in the 1980s, there have been continual changes in the various aspects of aseptic processing technologies. These changes are incorporated into the teaching of this class.
  - The results of research and testing in the aseptic processing are incorporated into the course.
  - A decision making and problem solving session is a capstone exercise in the course.

- Anticipated enrollment
  - This course is requested as a 1-credit course at the 500-level, with enrollment limited to 24 students, and with expected equal enrollment of seniors and graduate students.
    - Undergraduate 12
    - Graduate 12

B. Learning Outcomes and Method of Evaluation or Assessment:

- Objectives and Student Learning Outcomes

Overall Summary of Course Learning Objectives: Upon completion of this course, students should be able to do the following regarding aseptic processing operations and aseptically processed food products:
1) Describe the chemical reactions that most affect the quality, including how to control and monitor these, 2) Describe the microbiological concerns, and use this knowledge in problem solving, 3) Select appropriate packages and package integrity tests, and 4) Understand the heat transfer principles; and calculate thermal processes, lethality flow rate characteristics, and residence time distribution.

The faculty who will be responsible for each section of the course and the information for each section are presented below. The course is taught in four major sections: Chemistry, Microbiology, Packaging, and Processing & Engineering. There is also information on equipment and regulations that is taught both as separate lectures, and incorporated into the major sections.
1. **Chemistry**  
**Faculty Member:** Dr. Suzanne Nielsen, Professor  
**Objective:**  
1. To compare aseptically processed and packaged to conventional processing and packaged foods with regard to the following:  
   a. The likelihood of residual enzyme activity, and what can be done to deal with enzyme activity problems in aseptically processed foods.  
   b. The sources of oxygen, chemical reactions associated with oxygen, and what (if anything) can be done to minimize and monitor levels of oxygen.  
   c. Potential problems associated with the use of accelerated shelf life studies to estimate shelf life, in general and specifically for aseptically processed products  
2. To differentiate the activation energy for chemical reactions that generally affect the quality of aseptically processed food, as compared to the activation energy for microbial destruction; Explain why activation energy is important in explaining the quality advantage of aseptically processed and packaged foods, and potential problems in storage.  
3. To identify the major specific types of chemical reactions (including, e.g., browning, nutrient loss, flavor loss) that limit the quality, and therefore the shelf life, of aseptically processed foods; Identify how these could be minimized and these reactions can be monitored/quantified.  
4. To explain what microbiological, processing, and packaging conditions contribute to the occurrence of chemical reactions that limit the shelf life of aseptically processed and packaged foods, and what can be done to minimize these chemical reactions.  

**Course Expectations:**  
1. Study topic based on lecture presentation and handout, laboratory handout, book chapter, and outcomes listed below.  
3. Take an in-class examination (about 20 min) covering the chemistry of aseptic processing.  

**Course Outcomes:** Upon completion of the chemistry portion of the course, students should be able describe the nature and cause of chemical reactions that most affect the quality of aseptically processed foods, and how these can be controlled and monitored.

2. **Microbiology**  
**Faculty Member:** Dr. Haley Oliver, Assoc. Prof.  
**Objectives:**  
1. To understand the importance of pathogenic and spoilage microorganisms for aseptically processed and packed foods – including ingredients, processed food, processing environment, and package.  
2. To understand how to make a food product, the food processing environment, and food package aseptic, and how to validate the aseptic process and product.  
3. To understand how to investigate spoilage and foodborne pathogens that may be a problem for aseptic food products.  
4. To understand the cleaning and sanitation process for processed foods and the concept of commercially sterility.  
5. To have an understanding of basic laboratory techniques used to (i) identify and enumerate foodborne organisms and (ii) validate the aseptic process.  

**Course Expectations:**  
1. Participate in classroom and laboratory activities.  
2. Review lecture and laboratory notes.  
3. Read chapters 4 and 8 of “Principles of Aseptic Processing and Packaging of Foods, 3rd ed.” and other resources, if needed.
4. Individually do a take-home exercise focused on microbiology of aseptic products. This part of the examination will be distributed electronically one week before the due date.

**Course Outcomes:** Upon completion of the course, students will be able to discuss microbiological issues and concerns for aseptically processed food operations. The student will be able to contribute to problem solving for aseptically processed foods and will understand where to access important information related to aseptic food processing and food regulations.

3. **Packaging**

   **Faculty Member:** Dr. George Sadler, Adjunct Professor

   **Objectives:**
   1. To identify types of packages used for aseptically processed and packaged products, as well as their materials, structures, designs, functions, permeabilities, methods of formation, advantages, and disadvantages.
   2. To describe the information needed to develop a successful package for an aseptic product and apply this to the selection of a package for any given aseptic food product.
   3. To describe types of package integrity tests and their advantages and disadvantages and applications of integrity tests to ensure quality for any given aseptic food product.

   **Course Expectations:**
   1. Actively participate in classroom and laboratory activities
   2. Read all materials in course packet
   3. Read chapters 6 and 7 of “Principles of Aseptic Processing and Packaging of Foods, 3rd ed.”, and use other books on reserve, if needed.
   4. Individually do a take-home problem-solving exercise focusing on the packaging of aseptic products. This part of the examination will be distributed electronically one week before the due date.

   **Course Outcomes:** Upon completion of this course, students will be able to select appropriate packages and series of package integrity tests for aseptically processed and packaged foods.

4. **Processing and Engineering**

   **Faculty Member:** Dr. Brian Farkas, Professor

   **Objectives:**
   1. To understand the basics of thermal processing
   2. To understand F-value and be able to calculate it
   3. To understand the effects of the hold tube and methods to adjust lethality
   4. To understand flow in aseptic processing
   5. To understand difficulties of heat transfer with particulates
   6. To understand residence time distribution, its measurement and calculation
   7. To understand critical factors related to aseptic processing and process scheduling
   8. To understand the importance of key equipment features

   **Course Expectations:**
   1. Participate in classroom and laboratory activities
   2. Read all materials in course packet
   3. Read chapters 2, 3, and 7 in “Principles of Aseptic Processing and Packaging”, and other books on reserve, if needed.
   4. Individually do a take-home exercise involving calculations of aseptic processing that could include thermal processing, flow rate and residence time distribution. This part of the examination will be distributed electronically one week before the due date.

   **Course Outcomes:** Upon completion of this course, students should be able to calculate thermal processes for aseptically processed foods, lethality flow rate characteristics, and residence time.
distribution. In addition, students should understand the heat transfer principles of aseptic processing of both liquids and particulate containing foods.

<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</td>
<td>80%</td>
</tr>
<tr>
<td>Attendance and Class Participation**</td>
<td>20%</td>
</tr>
</tbody>
</table>

• Methods of Evaluation

Four Exams:

Chemistry: In-class written exam (short answers, problem solving scenarios)

Microbiology, Packaging, and Processing: Three separate take-home exams, with problem-solving questions and calculations (in case of processing exam)

**Attendance throughout the semester is important because the course involving some important information provided, demonstrations, equipment shown, etc. in a laboratory setting. The final class session is an exercise that involves decision making and problem solving, for which the students need to draw on information from all components of the course.

• Methods of Instruction

<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>~60 MIN. ON AVG.</td>
<td>Lecture</td>
<td>Major method for chemistry, microbiology, packaging, and processing components of course</td>
</tr>
<tr>
<td>~20 MIN. ON</td>
<td>Presentation</td>
<td>Showing equipment, etc., usually in a classroom or laboratory setting</td>
</tr>
<tr>
<td>AVG.</td>
<td>~10 MIN. ON AVG.</td>
<td>~10 MIN. ON AVG.</td>
</tr>
<tr>
<td>------</td>
<td>-----------------</td>
<td>-----------------</td>
</tr>
<tr>
<td></td>
<td>Laboratory</td>
<td>Hands-on testing, etc. done by students</td>
</tr>
<tr>
<td></td>
<td>Practice/Observation</td>
<td>Apply knowledge to case studies/problem solving</td>
</tr>
<tr>
<td></td>
<td>Note that numbers are based on class meeting 100 min./week for 8 weeks; Numbers provided are an average over the 8 week period</td>
<td></td>
</tr>
</tbody>
</table>

C. Prerequisite(s):

- Prerequisites: Undergraduate courses in food chemistry, food microbiology and food processing, or Basic Food Science course series completed for graduate students

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>Suzanne Nielsen</td>
<td>Professor</td>
<td>FS</td>
<td>Yes</td>
</tr>
<tr>
<td>Haley Oliver</td>
<td>Assoc. Prof.</td>
<td>FS</td>
<td>Yes</td>
</tr>
<tr>
<td>Brian Farkas</td>
<td>Professor</td>
<td>FS</td>
<td>Yes</td>
</tr>
<tr>
<td>George Sadler</td>
<td>Adjunct Prof.</td>
<td>FS</td>
<td>No (but has previously had approval to serve on grad. committees)</td>
</tr>
<tr>
<td>Steve Smith</td>
<td>Pilot Plant Manager</td>
<td>FS</td>
<td>No (will not be requested)</td>
</tr>
</tbody>
</table>

E. Course Outline:

Schedule:

Jan. 14 Nielsen, Smith  Introduction to Aseptic Processing
Jan. 21 Nielsen  Chemistry
Jan. 28 Nielsen  Chemistry; Chemistry Lab
Feb. 4 Nielsen  Given Chemistry in-class exam (~20 min.)
     Oliver  Microbiology & Sanitation
Feb. 11 Oliver  Microbiology & Sanitation
Feb. 18 Oliver/Hammons/Ray  Microbiology Lab; Given take-home Microbiology exam
Feb. 25 Smith  Intro. to Packaging Equipment (Aseptic Fillers); Microbiology take-home exam due
Mar. 3 Sadler  Packaging
Mar. 10 Sadler  Packaging; Given take-home Packaging exam
Mar. 17  Spring Break
Mar. 24 Farkas  Processing; Packaging take-home exam due
Mar. 31 Farkas  Processing
Apr. 7 Smith, Paxson  Processing lab; Given take-home Processing exam
Apr. 14 Smith  Equipment Features lab; Processing take-home exam due
Apr. 21 Smith  Equipment Features lab (cont.)
Apr. 28 Smith  Equipment Features lab (cont.); Regulations
Exam Week Smith  Decision Making & Problem Solving

F. Reading List (including course text):

- Primary Reading List

  Articles (and federal documents):


G. Library Resources

- For this 1-credit course, no resources are required beyond the textbook listed above and specialized articles given.

H. 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 Program. See Appendix K. http://www.purdue.edu/gradschool/faculty/documents/Graduate_School_Policies_and_Procedures_Manual.pdf
A. COURSES TO BE DELETED

None

B. COURSES TO BE ADDED

FNR/AGRY 52800 Wildlife and Environmental Forensics. Sem. 1. 2 Cr.
This course will cover theoretical and applied approaches to the science of wildlife and environmental forensics. First, a general introduction on environmental forensics will be provided and discussed. Next, different types of investigations including the application of tools and procedures used to solve crimes using morphological, chemical and biological analysis of evidence will be presented and discussed. All material will be presented and discussed in relation to criminal investigations.

C. COURSES TO BE CHANGED

From:
FNR 57100 – Advanced Ornithology
Credit Hours: 3.00. Study of current avian topics and techniques. Class discussion of recent scientific literature; field and laboratory exercises to illustrate approaches to ornithological research. One weekend field trip is offered. (Offered in odd-numbered years.). Typically offered Spring.

To:
FNR 57100 – Advanced Ornithology
Credit Hours: 3.00. Study of current avian topics and techniques. Class discussion of recent scientific literature; field and laboratory exercises to illustrate approaches to ornithological research. One weekend field trip is offered. (Offered in even-numbered years.). Typically offered Fall.

Justification: Ornithology courses are typically offered in the spring to take advantage of spring migration. But in our area, the bulk of spring migration takes place after the end of the spring semester. Winter weather in recent years has made it difficult to schedule field exercises. We can do all of the planned field exercises in the autumn and we will experience a wider array of avian behaviors and phenomena during that time period. In addition, this shift will reduce conflicts with other FNR 50000 level courses taken by the
same students interested in FNR 57100, and better align the instructor’s teaching and administration duties.

D. CURRICULAR CHANGES

Revision: Sustainable Biomaterials – Process and Product Design

Five courses that are offered by the Department of Technology and Innovation (TLI) at Purdue Polytechnic were changed when the TLI underwent a curriculum revision (see table below). Our curriculum needs to be updated to reflect new course names and numbers. In addition, one class (BCM 41900) needs to be dropped from the list of sustainability selectives since it is no longer taught.

<table>
<thead>
<tr>
<th>Old Course</th>
<th>New Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT 21400 Introduction to Lean Manufacturing</td>
<td>TLI 23500 Introduction to Lean Manufacturing and Sustainability</td>
</tr>
<tr>
<td>IT 34200 Introduction to Statistical Control</td>
<td>TLI 31600 Statistical Quality Control</td>
</tr>
<tr>
<td>IT 44200 Production Planning</td>
<td>TLI 43530 Operations Planning and Management</td>
</tr>
<tr>
<td>IT 45000 Production Cost Analysis</td>
<td>TLI 33400 Economic Analysis for Technology System</td>
</tr>
<tr>
<td>IT 48300 Facility Design for Lean Manufacturing</td>
<td>TLI 43540 Facilities Planning and Material Handling</td>
</tr>
</tbody>
</table>

Supporting Document

Contact for information:
María S. Sepúlveda                       Michael L. Mashtare
6-3428                                   4-1840
mssepulv@purdue.edu                      mmashtar@purdue.edu
FORS 103                                 LILLY B-472

Course Subject Abbreviation and Number: FNR/AGRY 52800

Course Title: Wildlife and Environmental Forensics

Course Description:
This course will cover theoretical and applied approaches to the science of wildlife and environmental forensics. First, a general introduction on environmental forensics will be provided and discussed. Next, different types of investigations including the application of tools and procedures used to solve crimes using morphological, chemical and biological analysis of evidence will be presented and discussed. All material will be presented and discussed in relation to criminal investigations. At the end of the course, the class will summarize (written report) and represent (video) actual closed criminal cases highlighting the technical strengths and weaknesses of the case by applying knowledge gained throughout the course.
A. Justification for the Course:
   a. Need
   Currently, there is no wildlife and environmental forensic course offered in the FNR/AGRY curriculum. Further, this course represents a new addition to Purdue’s current offering in forensic sciences and therefore can benefit a wider range of students across campus. This course will benefit Purdue students by providing instruction on a wide range of wildlife and environmental forensic issues.
   b. Level and target audience
   This class is targeted towards graduate and advanced undergraduate students that have a solid understanding of wildlife and other environmental sciences. We will emphasize the importance of a transdisciplinary approach for solving environmental forensic cases and expect students will have taken courses in chemistry and biology. Expected enrollment is 25-30 students when offered every fall semester.

B. Learning Outcomes and Method of Evaluation or Assessment:
   1. Learning Outcomes (LO)
      i. LO1: Students will be able to explain the history and scope of environmental forensic science (Modules 1 and 2)
         1. Objective 1: Review the history of forensic science
         2. Objective 2: Define forensic science and each of its sub-disciplines
         3. Objective 3: Discuss the role and functions of a forensic scientist
         4. Objective 4: Discuss national and international environmental and wildlife laws
      iii. LO2: Students will be able to explain the critical steps that need to be followed during a crime scene investigation (Modules 3, 6, and 7)
         1. Objective 1: Describe how crime scenes are secured and processed
         2. Objective 2: Apply quality assurance/quality control and acceptability of data in court
         3. Objective 3: Discuss the consequences of not properly collecting crime scene evidence
      iv. LO3: Students will be able to apply field and laboratory techniques used for crime scene investigations (Modules 4, 5 and 8)
         1. Objective 1: Review field methods/techniques employed by each forensic sub-discipline
         2. Objective 2: Review laboratory methods/techniques employed by each forensic sub-discipline
         3. Objective 3: Critically analyze weaknesses and strengths of past forensic cases
   a. Methods of Assessment and Evaluation
   Format for midterm and final exams will consist on an in-classroom written evaluation of forensic concepts and a take-home exam that tests the ability of students to apply what they have learned using past forensic cases as examples. Individual and group short assessments will be conducted throughout the semester for both online and in-classroom lectures. A final group project will require the selection of a specific wildlife/environmental forensic case and the production of two videos based on the case. Videos will be presented and discussed by the entire class.
   C. Grading criteria
   A final grade will be assigned based upon mid and final exams; individual and group short assessments; a group project and class presentation; a take-home final; and classroom participation. Format for exams will consist on an in-classroom written evaluation of forensic concepts and a take-home exam that tests the ability of students to apply what they have learned using past forensic cases as examples. Individual and group short assessments will be conducted throughout the semester for both online and in-classroom lectures. A final group project will require the selection of a specific wildlife/environmental forensic case and the production of two videos and a legal brief based on the case. Videos will be presented and discussed with by the entire class. The final grade will be
calculated with weights of 20%, 20%, 30%, 20% and 10% for the mid-term, final, individual and group short assessments, group project and classroom participation, respectively.

D. **Methods of instruction**
   This class will meet twice per week, 50 minutes per session. Approximately one third of the lectures will be online. Videos will be posted in Blackboard starting at 8:00 AM the day of the lecture, and will be taken down 48 h later. Classroom lectures will consist of a mixture of standard lectures and via WebEX with some specialized/invited speakers.

E. **Prerequisite(s):**
   This course has a prerequisite of CHEM 111 and BIOL 110 or a similar upper-level undergraduate or a graduate-level terrestrial ecology course. Advanced undergraduate students may enroll with instructor permission.

F. **Course Instructor(s):**
   This course is taught by Dr. Maria S. Sepúlveda, Professor in the Department of Forestry and Natural Resources, and Dr. Michael L. Mashtare, Assistant Professor in the Department of Agronomy and Division of Environmental and Ecological Engineering. Both instructors are members of the Graduate Faculty.

G. **Course Outline:**
   This course is organized into 8 modules. Each module was included to fulfill one or more of the LOs (see Section B.1). Module 1 offers an introduction to the course. Module 2 focuses on the history of environmental and wildlife forensics. Basics of criminal investigation, field and laboratory forensic techniques are covered under Modules 3, 4 and 5. Under Modules 6, 7 and 8, we discuss special topics and end with group presentations and a discussion of past forensic cases.

H. **Library Resources:**
   The required textbooks for this class are available online through Purdue Libraries, with no additional costs to students.
Wildlife and Environmental Forensics (FNR/AGRY 52800)

Instructors: Dr. Maria S. Sepúlveda, 103 Forestry Bldg., Phone: 496-3428
             Email: mssepulv@purdue.edu
             Office hours: by appointment only

             Dr. Michael L. Mashtare, Lilly Hall, Room B472, Phone: 494-1840
             Email: mmashtar@purdue.edu
             Office hours: by appointment only

Classroom: FORS 216 or online.

Course Information and Materials: Will be posted in Blackboard.

Day and Time: Tuesdays and Thursdays, 10:30 to 11:20 AM

       Available online through Purdue libraries.

Total Number of Credits: 2

General Course Description: This course will cover theoretical and applied approaches to the science of environmental forensics with an emphasis on fish and wildlife forensics. First, a general introduction on environmental forensics will be provided and discussed. Next, different types of investigations including application of tools and procedures used to solve crimes using morphological, chemical and biological analysis of evidence will be presented and discussed. All material will be presented and discussed in relation to criminal investigations. At the end of the course, the class will summarize (written report) and represent (video) actual closed criminal cases and technical strengths and weaknesses discussed applying knowledge gained throughout the course.

Learning Outcomes:

i. Students will be able to explain the history and scope of environmental forensic science (Modules 1 and 2)
   1. Objective 1: Review the history of forensic science
   2. Objective 2: Define forensic science and each of its sub-disciplines
   3. Objective 3: Discuss the role and functions of a forensic scientist
   4. Objective 4: Discuss national and international environmental and wildlife laws

ii. Students will be able to explain the critical steps that need to be followed during a crime scene investigation (Modules 3, 6, and 7)
   1. Objective 1: Describe how crime scenes are secured and processed
   2. Objective 2: Apply quality assurance/quality control and acceptability of data in court
   3. Objective 3: Discuss the consequences of not properly collecting crime scene evidence

iii. Students will be able to apply field and laboratory techniques used for crime scene investigations (Modules 4, 5 and 8)
    1. Objective 1: Review field methods/techniques employed by each forensic sub-discipline
    2. Objective 2: Review laboratory methods/techniques employed by each forensic sub-discipline
    3. Objective 3: Critically analyze weaknesses and strengths of past forensic cases
**Grading Format:**

<table>
<thead>
<tr>
<th>ASSIGNMENT</th>
<th>Date</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIDTERM EXAM*</td>
<td>October 8</td>
<td>20%</td>
</tr>
<tr>
<td>FINAL EXAM*</td>
<td>Finals week</td>
<td>20%</td>
</tr>
<tr>
<td>SHORT ASSESSMENTS</td>
<td>Throughout term</td>
<td>15%</td>
</tr>
<tr>
<td>GROUP ASSESSMENTS</td>
<td>After each module</td>
<td>15%</td>
</tr>
<tr>
<td>GROUP PROJECT**</td>
<td>November 17 &amp; November 19 to December 8</td>
<td>20%</td>
</tr>
<tr>
<td>CLASS PARTICIPATION***</td>
<td>Throughout term</td>
<td>10%</td>
</tr>
</tbody>
</table>

* Exams will consist of short-answer essay, T & F, and fill in the blank questions.
** See below for more information.
*** You will be assessed throughout the term on your class participation. Participation has three components: (1) attendance; (2) posting of questions for discussion papers on Blackboard; (3) provision of thoughtful and critical questions and comments during class; and (4) in class group exercises.

**Grades:**
- A+ ≥ 98%;
- A = 90-97.99%;
- A- = 90-91.99%;
- B+ = 88-89.99%;
- B = 82-87.99%;
- B- = 80-81.99%;
- C+ = 78-79.99%;
- C = 72-77.99%;
- C- = 70-71.99% (lowest passing grade).

Late assignments will be docked 10% of the total point value for each day late and missed exams will be assigned a zero score. If you cannot take an exam or turn in an assignment on time, it is your responsibility to contact us prior to the date in question. With the exception of emergencies, exam make-ups or late assignment requests will only be honored if a legitimate reason is provided in writing at least one week prior to that date.

**Special Needs:** If you need course adaptations or accommodations because of a disability, please contact us as soon as possible in order to make the necessary arrangements.

**Academic Dishonesty:** Academic dishonesty (e.g., cheating, plagiarism, etc.) will not be tolerated in this course. This is in full compliance with the Purdue University Academic Dishonesty Statement (viewable at: [http://www.purdue.edu/studentregulations/student_conduct/index.html](http://www.purdue.edu/studentregulations/student_conduct/index.html)). Students found to be guilty of academic dishonesty will receive a “0” score for the related assignment. Written assignments will be checked for plagiarism using appropriate software.

**Diversity Statement:** Purdue University is committed to fostering diversity and inclusion and welcomes individuals of all ages, religions, sex, sexual orientations, races, nationalities, languages, military experience, disabilities, family statuses, gender identities and expressions, political views, and socioeconomic statuses. Please respect the different experiences, beliefs and values expressed by everyone in this course. Behaviors that threaten, harass, discriminate or that are disrespectful of others will not be tolerated. Inappropriate behaviors will be addressed with disciplinary action, which may include being referred to the Office of the Dean of Students. Please visit Purdue’s Nondiscrimination policy for more information: [http://www.purdue.edu/purdue/ea_eou_statement.html](http://www.purdue.edu/purdue/ea_eou_statement.html).

**Feedback Regarding the Course:** This is a new course so any feedback (verbal or written) regarding any aspect of the course is most appreciated! Suggestions made during the semester can often be incorporated to improve the quality of the class right away—please let us know what you think. An internal anonymous student evaluation will be performed in the middle of the semester. A formal student evaluation will be undertaken at the end of the semester.

**GROUP PROJECT:**
Starting no later than October break, students will work in teams of up to 4 students preparing to present past environmental forensic cases to the class. Presentations will occur during the last fourth of the course. Each group will identify a real past wildlife/environmental forensic case using different outlets
such as books, peer-reviewed articles, or news media. Prior to presenting the case to the class, groups will summarize the information from each case in the form of a report, as preparing for a court trial. Students will create a 10 min video summarizing the major facts about the case (more detailed formatting and content information will be provided). **All videos and reports regardless on when you are presenting are due November 17.** Reports will be uploaded to Blackboard prior to each presentation and everyone in the class is required to read it prior to coming to class and be ready for participating during the case discussion. **Each student listening to the presentation will ask a minimum of one question to the presenting panel.** Questions related to these presentations will be included on the final exam.
# Lecture Topics

With exception of exams, exact dates might be subject to change. Online lectures are shown in red font.

<table>
<thead>
<tr>
<th>Month</th>
<th>Day</th>
<th>Module</th>
<th>Lecture Topic</th>
<th>Speaker</th>
<th>Venue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aug</td>
<td>25</td>
<td>Module 1: Introduction</td>
<td>Course introduction. How can forensics be applied to environmental sciences?</td>
<td>Sepúlveda/</td>
<td>Classroom</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Mashtare</td>
<td></td>
</tr>
<tr>
<td></td>
<td>27</td>
<td>Module 2: History of Forensics Science and Legal Aspects</td>
<td>History of forensics</td>
<td>Mashtare</td>
<td>Classroom</td>
</tr>
<tr>
<td>Sept</td>
<td>1</td>
<td>History of Forensics</td>
<td>Types of wildlife forensic investigations</td>
<td>Sepúlveda</td>
<td>Online</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>International and US environmental/wildlife legislation</td>
<td></td>
<td>Sepúlveda</td>
<td>Online</td>
</tr>
<tr>
<td>8</td>
<td></td>
<td>IN DNR law enforcement</td>
<td></td>
<td>Tholen\textsuperscript{a}</td>
<td>Classroom</td>
</tr>
<tr>
<td>10</td>
<td></td>
<td>Module 3: Basics of Criminal Investigation</td>
<td>Crime scene investigation I: Major steps in a crime scene investigation; securing a crime scene; mapping and sketching the crime scene; location and collection of evidence</td>
<td>Sepúlveda</td>
<td>Online</td>
</tr>
<tr>
<td>15</td>
<td></td>
<td>Module 4: Field Forensic Techniques</td>
<td>Postmortem estimation; vertebrate decomposition; forensic pathology</td>
<td>Sepúlveda</td>
<td>Online</td>
</tr>
<tr>
<td></td>
<td>17</td>
<td></td>
<td></td>
<td>Stamper\textsuperscript{b}</td>
<td>Classroom</td>
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<tr>
<td>22</td>
<td></td>
<td></td>
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<td>Zollner\textsuperscript{c}</td>
<td>Classroom</td>
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<tr>
<td>Oct</td>
<td>1</td>
<td>Module 5: Laboratory Forensic Techniques</td>
<td>Forensic toxicology</td>
<td>Sepúlveda</td>
<td>Online</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>Forensic environmental chemistry I</td>
<td></td>
<td>Mashtare</td>
<td>Classroom</td>
</tr>
<tr>
<td>8</td>
<td></td>
<td>Forensic environmental chemistry II</td>
<td></td>
<td>Mashtare</td>
<td>Classroom</td>
</tr>
<tr>
<td>13</td>
<td></td>
<td>MIDTERM EXAM</td>
<td>剑</td>
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<tr>
<td>15</td>
<td></td>
<td>OCTOBER BREAK</td>
<td>Stable isotopes</td>
<td>Flaherty\textsuperscript{d}</td>
<td>Classroom</td>
</tr>
<tr>
<td>20</td>
<td></td>
<td>Forensic serology and hematology</td>
<td></td>
<td>Abdel-moneim\textsuperscript{e}</td>
<td>Classroom</td>
</tr>
<tr>
<td>22</td>
<td></td>
<td>Ballistics and bullet trajectory</td>
<td></td>
<td>Abdel-moneim\textsuperscript{e}</td>
<td>Classroom</td>
</tr>
<tr>
<td>27</td>
<td></td>
<td>Eg. of Forensic Cases: Ashland Lab</td>
<td>DNA Analyses</td>
<td>Trail/Hamlin\textsuperscript{f}</td>
<td>Classroom</td>
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<tr>
<td>29</td>
<td></td>
<td>MIDTERM EXAM</td>
<td></td>
<td>Christie\textsuperscript{g}</td>
<td>Classroom</td>
</tr>
<tr>
<td>Nov</td>
<td>3</td>
<td>Module 6: Forensics on Trial</td>
<td>Case study 1: Weak evidence</td>
<td>Mashtare</td>
<td>Classroom</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td></td>
<td>Case study 2: Solid evidence</td>
<td>Sepúlveda</td>
<td>Online</td>
</tr>
<tr>
<td>10</td>
<td></td>
<td>Building a case: The importance of data quality control</td>
<td></td>
<td>Royer\textsuperscript{h}</td>
<td>Classroom</td>
</tr>
<tr>
<td>12</td>
<td></td>
<td>Module 7: Special Topics</td>
<td>Special Topic 1: Class will select topic</td>
<td>TBD</td>
<td>Classroom</td>
</tr>
<tr>
<td>17</td>
<td></td>
<td>Special Topics</td>
<td>Special Topic 2. Class will select topic.</td>
<td>TBD</td>
<td>Classroom</td>
</tr>
<tr>
<td>19</td>
<td></td>
<td>Module 8: Presentations and Discussion of Forensic Cases</td>
<td>Forensic Case 1</td>
<td>Group 1</td>
<td>Classroom</td>
</tr>
<tr>
<td>24</td>
<td></td>
<td></td>
<td>Forensic Case 2</td>
<td>Group 2</td>
<td>Classroom</td>
</tr>
<tr>
<td>26</td>
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<td>THANKSGIVING</td>
<td>Forensic Case 3</td>
<td>Group 3</td>
<td>Classroom</td>
</tr>
<tr>
<td>Dec</td>
<td>1</td>
<td>Forensic Case 4</td>
<td></td>
<td>Group 4</td>
<td>Classroom</td>
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<tr>
<td>3</td>
<td></td>
<td>Forensic Case 5</td>
<td></td>
<td>Group 5</td>
<td>Classroom</td>
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<tr>
<td>8</td>
<td></td>
<td>Forensic Case 5</td>
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<tr>
<td>10</td>
<td></td>
<td>FINAL EXAM</td>
<td>剑</td>
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</tr>
</tbody>
</table>

\textsuperscript{a} Indiana Department of Natural Resources Law Enforcement Office, mtholen@dnr.in.gov; \textsuperscript{b} Entomology Department, Purdue University, stampert@purdue.edu; \textsuperscript{c} Department of Forestry and Natural Resources, Purdue University, pzollner@purdue.edu; \textsuperscript{d} Department of Forestry and Natural Resources, Purdue University, mtholen@dnr.in.gov; \textsuperscript{e} Department of Forestry and Natural Resources, Purdue University, sdelmo@purdue.edu; \textsuperscript{f} United States Fish & Wildlife Service, National Fish and Wildlife Forensic Laboratory, brian_hamlin@fws.gov; pepper_trail@fws.gov; \textsuperscript{g} Department of Biology and Department Forestry and Natural Resources, Purdue University, markchristie@purdue.edu; \textsuperscript{h} Exponent, lroyer@exponent.com.
Course Subject Abbreviation and Number: FNR 58100

Course Title: Introduction to Scientific Teaching

Course Description:
This course introduces topics related to teaching science courses. Students will read and review assigned readings and then participate in a discussion at a weekly meeting. Students in the course will learn about and practice effective communication of scientific topics, learn and apply methods to engage a diversity of students in class, and develop skills for leading both formal and informal classes or group meetings. All students are required to present a summary of their experiences related to their lab option at the end of the semester.

A. Justification for the Course:
   a. Need
   Currently there is no semester-long teaching course offered in the Forestry and Natural Resources Department or related departments that provides an overview of teaching science courses. This course benefits FNR by providing formal scientific training of teaching assistants (TAs) for both graduate and undergraduate TAs. This course could benefit a wide range of students across campus although because of the discussion format, a smaller class size is preferred.

   b. Level and
   techniques to improve and support diversity in the classroom.

   ii. LO3: Students will integrate techniques discussed during the course into development or presentation of course materials.

   c. Objective 1: Apply Backwards Design to target audience
   This class is targeted at upper-level undergraduate students that have an opportunity to serve as an undergraduate teaching assistant (UGTA) in a section of a lab course or to graduate students with an interest in teaching and/or with a TA assignment. This course emphasizes active learning methods as well as general classroom and course management. Expected enrollment is 6-15 students every semester.

B. Learning Outcomes and Method of Evaluation or Assessment:
   a. Learning Outcomes (LO)
      i. LO1: Students will compare and contrast a variety of teaching strategies for the science classroom or laboratory to support student learning.
         Objective 1: Explain and diagram how learning works.
         Objective 2: Construct personal weekly schedules and discuss time management skills.
         Objective 3: Experiment with Socratic questioning methods.
         Objective 4: Discuss difficult classroom situations and identify professional solutions for dealing with these situations.

      ii. LO2: Students will evaluate effective teaching techniques and strategies used in different settings with a diverse group of students.
         Objective 1: Compare and contrast assessment and evaluation methods including the use of rubrics.
Objective 2: Apply Bloom’s Taxonomy to the development of assessment and evaluation tools.

Objective 3: Evaluate the use of a variety of active learning and inquiry-based teaching methods for teaching content and skills.

Objective 4: Identify pathways and the development of course materials.

iii. LO3: Students will develop a personal teaching philosophy statement after reflecting on course materials and discussions.

Objective 1: Create a professional-style teaching philosophy statement that summarizes a reflection on discussions from the course and personal teaching goals.

Objective 2: Utilize methods, skills, and concepts discussed in class during teaching.

b. Methods of Assessment and Evaluation

Students enrolled will meet weekly for discussions based on the weekly readings. Each week, students will submit a 1-2 page reflection essay summarizing their response to the reading and providing 2-3 questions to facilitate discussion with their peers. Students are also evaluated based on their participation in the weekly discussion, their teaching philosophy statement, and a summary of their laboratory/teaching experience or a field notebook summarizing 2-3 hours of teaching observations each week of the semester.

C. Grading Criteria:

A final grade will be assigned based on discussion participation, a weekly 1-2 page summary or reflection essay, a teaching philosophy statement, and a summary of their teaching experience during the semester the student was enrolled in the course OR a “field notebook” summarizing 2-3 hours of teaching observations each week of the semester that provides additional reflection on course content and discussions.

D. Methods of Instruction:

This class will meet once per week for a 80 minute session. Readings are posted on Blackboard. Class meetings will consist of a group discussion with minimal to no lecturing.

E. Prerequisites:

This course has no course prerequisites but students must be upper-level undergraduates with a teaching opportunity or graduate students.

F. Course Instructor:

This course is taught by Dr. Elizabeth Flaherty, Assistant Professor in the Department of Forestry and Natural Resources. This instructor is a member of the Graduate Faculty and has participated in a variety of teaching programs including a National Academies of Science Summer Institute in Life Sciences program and Purdue University’s IMPACT program.

G. Course Outline:

This course is organized by weekly meetings that explore a wide diversity of teaching topics ranging from how students learn, to practical topics such as assessment and developing course content, to exploring the use of improvisational theater games both to teach science but also to improve an instructor’s ability to think on their feet.

H. Library Resources:

The required readings are available through the Purdue Libraries with no additional cost to students.
UNDERGRADUATE DEGREE PROGRAM

Major Title: Sustainable Biomaterials – Process and Product Design (SUBO)

SUBO major includes 5 courses that are offered by the Department of Technology and Innovation (TLI) at Purdue Polytechnic. With the establishment of Purdue Polytechnic, the TLI underwent a curriculum revision that included changes in the Subject Heading, Course Number, and Titles of the five courses which are currently required in the SUBO major.

From our perspective, these are all positive changes. First, four new names now describe more clearly what we desired for these courses, while the fifth course name change minor (shown below). The content of these courses is the same.

Additionally, BCM 41900 – Sustainable Construction was dropped from the list of sustainability selectives since it is no longer taught.

<table>
<thead>
<tr>
<th>Old Course</th>
<th>New Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT 21400 Introduction to Lean Manufacturing</td>
<td>TLI 23500 Introduction to Lean Manufacturing and Sustainability</td>
</tr>
<tr>
<td>IT 34200 Introduction to Statistical Control</td>
<td>TLI 31600 Statistical Quality Control</td>
</tr>
<tr>
<td>IT 44200 Production Planning</td>
<td>TLI 43530 Operations Planning and Management</td>
</tr>
<tr>
<td>IT 45000 Production Cost Analysis</td>
<td>TLI 33400 Economic Analysis for Technology System</td>
</tr>
<tr>
<td>IT 48300 Facility Design for Lean Manufacturing</td>
<td>TLI 43540 Facilities Planning and Material Handling</td>
</tr>
</tbody>
</table>
A. DESCRIPTION

SUSTAINABLE BIOMATERIALS – PROCESS AND PRODUCT DESIGN

Major Requirements:
Curriculum is composed of University and College of Agriculture core courses (a), sustainability core and selectives (b), wood products core (c), processing core (d), electives (e), and capstone (f) courses listed below:

a) University and College of Agriculture Core Courses (44 + 9 = 53 credits required)
   Attached list (44)
   Social sciences and humanities selective (9)

b) Sustainability Core Courses (20 credits required)
   Core (14 credits required):
   FNR 10300 - Introduction to Environmental Conservation (3) Spring (Dunning & Dukes)
   FNR 23000 - World Forests and Society (3) Fall (Haviarova)
   FNR 30200 - Global Sustainability Issues (2) Spring (Haviarova)
   FNR 22310 or POL 22300 - Introduction to Environ. Policy (3) Spring (Ma)
   CE/EEE 35500 - Engineering Environmental Sustainability (3) Spring, Fall (Nies)

Selectives (6 credits required):*
   FNR 49800 - Global Sustainability Issues – Study Abroad (1) Spring (Haviarova)
   FNR 40600 - Natural Resources Environ. Econ. (3) Fall (Gramig)
   POL 32700 - Global Green Politics (3) Fall & Spring (Young)
   POL 42900 - Climate, Science, Society (3) Fall & Spring (Durr)
   FNR 37500 - Human Dimensions of Natural Resources (3) Spring (Zhao Ma)
   FNR 47000 - Fundamentals of Planning (1) Fall (Prokopy)
   FNR 57200 - Community Involvement in Natural Resources (2) Fall (Prokopy)
   FNR 48800 - Global Environmental Issues (3) Fall (Dunning)
   EEE 30000 - Environmental Ecology Modeling (3) Spring (Jafvert)
   EEE 43000 - Industrial Ecology and LCA (3) Spring (Howarter)
   FNR 46000 - International Natural Resources Issues (3) (Dunning)
   BCM 41900 - Sustainable Construction (3)
   SFS 30200 - Principles of Sustainability (3) or Fall (Hallett)
   TECH 19000 - Applied Sustainability Principles (3) Fall (Bartoline)

c) Sustainable Biomaterials - Process and Product Design Core Courses (15 credits required)
   FNR 30110 - Sustainable Forest Products Manufacturing (3) Spring (Cassens)
   FNR 31110 - Structure, Identification and Properties of Woody Biomaterials (3) Spring (Cassens)
   FNR 41800 - Properties of Wood Related to Manufacturing (3) Fall (Gazo)
   FNR 41910 - Furniture Product Development and Strength Design (3) Spring (Haviarova)
   FNR 42500 - Secondary Wood Products Manufacturing (3) Spring (Gazo)
d) Processing Core Courses (24 credits required)
   CGT 11000 - Technical Graphics Communications (3) Fall & Spring (Short)
   MET 14300 - Materials and Processes I (3) Fall & Spring (Zehrng)
   MET 24500 - Manufacturing Systems (3) Fall & Spring (Efendy)
   IT 21400 - Introduction to Lean Manufacturing
   TLI 23500 - Introduction to Lean Manufacturing and Sustainability (3) Spring (Deranek)
   IT 34200 - Introduction to Statistical Quality
   TLI 31600 - Statistical Quality Control (3) Fall & Spring (Stephens)
   IT 45000 - Production Cost Analysis
   TLI 33400 - Economic Analysis for Technology System (3) Fall & Spring (Schuver, Sutton)
   IT 48300 - Facility Design for Lean Manufacturing
   TLI 43540 - Facilities Planning and Material Handling (3) Fall & Spring (Stephens)
   IT 44200 - Production Planning
   TLI 43530 - Operations Planning and Management (3) Fall & Spring

e) Unrestricted Electives (8 credits required)

f) Capstone (3 credits required)
   FNR 48410 - Sustainable Furniture Design for CNC Manufacturing (3) Fall (Gazo, Haviarova, Paul) OR
   FNR 49000 - Sustainable Product/Process Design Guided Research (1-3) Spring or Fall (Industry related project with Haviarova or Gazo or Cassens) [can be taken multiple times]

CREDIT SUMMARY:

   Credit tally (53+56+8+3=120 credits)
   University and College of Agriculture Core Courses = 53 credits
   Major/concentration core courses = 56 credits
      sustainability = 17 credits
      wood products = 15 credits
      processing = 24 credits
   Unrestricted electives = 8 credits
   Capstone = 3 credits
B. PLAN OF STUDY, FOUNDATIONAL AND EMBEDDED OUTCOMES
Sustainable Biomaterials – Process and Product Design
Bachelor of Science 120* Credits

The program prepares students for management positions in wood products manufacturing, particularly for the hardwood cabinet and furniture industries. It features knowledge in wood-based materials (biomaterials) and design and processing of wood products, industrial engineering technology and sustainability concepts.

Freshman Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Second Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>(0.5) AGR 10100 Intro. College Agriculture &amp; Purdue</td>
<td>(4) BTNY 11000 Introduction to Plant Science</td>
</tr>
<tr>
<td>(0.5) AGR 11900 Intro. to FNR Academic Programs</td>
<td>(3) CHM 11200 General Chemistry II</td>
</tr>
<tr>
<td>(4) BIOL 11000 Fundamentals of Biology I</td>
<td>(3) COM 11400 Fundamentals of Speech Commun.</td>
</tr>
<tr>
<td>(3) CHM 11100 General Chemistry I</td>
<td>(3) FNR 10300 Intro.to Environmental Conservation</td>
</tr>
<tr>
<td>(4) ENGL 10600 English Composition</td>
<td>(3) Ethics selective</td>
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<tr>
<td>(3) MA 16010 Introductory Analysis I</td>
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<td>(16)</td>
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Sophomore Year

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<thead>
<tr>
<th>Third Semester</th>
<th>Fourth Semester</th>
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<tbody>
<tr>
<td>(3) ECON Selective</td>
<td>(3) CGT 11000 Technical Graphics Communications</td>
</tr>
<tr>
<td>(3) Environmental policy selective</td>
<td>(3) FNR 30110 Sustainable Forest Prod. Manufact.</td>
</tr>
<tr>
<td>(3) MET 14300 Materials and Processes I</td>
<td>(2) IT 21400 Intro. to Lean Manufacturing</td>
</tr>
<tr>
<td>(3) STAT 30100 Elementary Statistical Methods</td>
<td>(3) TLI 23500 Intro to Lean Mfg. and Sustainability</td>
</tr>
<tr>
<td>(3) Sustainability Selective</td>
<td>(4) Physics selective</td>
</tr>
<tr>
<td>(3)</td>
<td>(3) Unrestricted elective</td>
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<tr>
<td>(15)</td>
<td>(16)</td>
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Junior Year

<table>
<thead>
<tr>
<th>Fifth Semester</th>
<th>Sixth Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>(3) FNR 23000 World’s Forest &amp; Society</td>
<td>(3) EEE 35500 Eng. Environmental Sustainability</td>
</tr>
<tr>
<td>(3) FNR 41800 Properties of Wood Related to Manuf.</td>
<td>(3) FNR 31110 Structure, Ident. &amp; Proper. of Biomat.</td>
</tr>
<tr>
<td>(3) ENGL 42100 Technical Writing</td>
<td>(3) MET 24500 Manufacturing Systems</td>
</tr>
<tr>
<td>(2) IT 31200 Intro. to Statistical Quality</td>
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<tr>
<td>(3) TLI 31600 Statistical Quality Control</td>
<td>(3) Humanities or social science or selective</td>
</tr>
<tr>
<td>(3) Humanities selective</td>
<td>(3) Hum. Or Social science sel. (30000 or higher)</td>
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Senior Year

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<tr>
<th>Seventh Semester</th>
<th>Eighth Semester</th>
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<tbody>
<tr>
<td>(3) FNR 42500 Secondary Wood Products Manufacturing</td>
<td>(2) FNR 30200 Global Sustainability Issues</td>
</tr>
<tr>
<td>(3) FNR 48410 Sustainable Furn. Design for CNC Manuf.**</td>
<td>(3) FNR 41910 Furn. Prod. Develop. &amp; Strength Des.</td>
</tr>
<tr>
<td>(3) IT 43200 Production Planning</td>
<td>(2) IT 48300 Facility Design for Lean Manufacturing</td>
</tr>
<tr>
<td>(3) TLI 43530 Operations Planning and Management</td>
<td>(3) TLI 43540 Facilt. Planning and Material Handling</td>
</tr>
<tr>
<td>(3) IT 45000 Production Cost Analysis</td>
<td>(3) Sustainability Selective</td>
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<tr>
<td>(3) TLI 33400 Economic Analysis for Technology System</td>
<td></td>
</tr>
<tr>
<td>(3) Unrestricted elective</td>
<td>(2) Unrestricted elective</td>
</tr>
<tr>
<td>(15)</td>
<td>(13)</td>
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</tbody>
</table>

* You must complete 9 credits of coursework with an international focus and 3 credits in the area of multicultural awareness. These may overlap with other required or selective coursework.

** Capstone course. FNR 49000 Sustainable Product/Process Design Guided Research may be taken as alternative.

Economics Selective: AGEC 20300 Introductory Microeconomics for Food and Agribusiness, AGEC 20400 Introduction to Resources Economics and Environmental Policy, AGEC 21700 Economics, ECON 21000 Principles of Economics, ECON 25100 Microeconomics

Environmental Policy Selective: FNR 22310 Introduction to Environmental Policy or POL 22300 Introduction to Environmental Policy

Ethics Selective: PHIL 11100 Ethics, PHIL 28000 Ethic and Animals or PHIL 29000 Environmental Ethics

Physics Selective: PHYS 15200 Mechanics, PHYS 22000 General Physics, PHYS 22100 General Physics.
The most current approved course lists for College of Agriculture Core Requirements including Humanities, Social Sciences, Written or Oral Communications, International Understanding, and Multicultural Awareness are available at [http://www.ag.purdue.edu/oap/Pages/core_requirements.aspx](http://www.ag.purdue.edu/oap/Pages/core_requirements.aspx).

### College and University UCC Foundational Outcomes

<table>
<thead>
<tr>
<th>College of Agriculture</th>
<th>UCC Foundational Outcomes</th>
<th>Curriculum Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural Orientation - (1) CR</td>
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<td>AGR 10100 and AGR 11900</td>
</tr>
<tr>
<td>Biological Sciences - (8) CR</td>
<td>Science</td>
<td>BIOL 11000 and (BIOL 11100 or BTNY 11000)</td>
</tr>
<tr>
<td>Calculus - (3)</td>
<td>Quantitative Reasoning</td>
<td>MA 16010</td>
</tr>
<tr>
<td>General Chemistry - (6) CR</td>
<td>Science</td>
<td>CHEM 11100 and CHEM 11200</td>
</tr>
<tr>
<td>Statistics - (3)</td>
<td></td>
<td>STAT 30100</td>
</tr>
<tr>
<td>Science, Technology, and Society</td>
<td>STS</td>
<td>FNR 10300</td>
</tr>
<tr>
<td>Additional Mathematics and Sciences</td>
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<td>Physics Selective</td>
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<tr>
<td>First-Year Composition - (4) CR</td>
<td>Written Communication</td>
<td>ENGL 10600</td>
</tr>
<tr>
<td>Fundamentals of Speech Communication – (3) CR</td>
<td>Oral Communication</td>
<td>COM 11400</td>
</tr>
<tr>
<td>Additional Written and Oral Communication – (3) CR.</td>
<td></td>
<td>ENGL 42100</td>
</tr>
<tr>
<td>Economics – (3) CR</td>
<td>Social Science</td>
<td>Economics Selective</td>
</tr>
<tr>
<td>Humanities – (3) CR</td>
<td>Humanities</td>
<td>Ethics selective subset of UCC Selective</td>
</tr>
<tr>
<td>Social Sciences or Humanities – (9) CR</td>
<td></td>
<td>CoA Selective</td>
</tr>
<tr>
<td>Information Literacy</td>
<td>Information Literacy</td>
<td>STAT 30100</td>
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### Embedded Outcomes

<table>
<thead>
<tr>
<th>Embedded Outcomes</th>
<th>Curriculum Course(s)</th>
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</thead>
<tbody>
<tr>
<td>Creative Thinking</td>
<td>FNR 48410 Sustainable Furniture Design for CNC Manufacture</td>
</tr>
<tr>
<td>Critical Thinking</td>
<td>FNR 41910 Furniture Product Development and Strength Design</td>
</tr>
<tr>
<td>Ethical Reasoning</td>
<td>EEE 35500 Sustainable Environmental Sustainability</td>
</tr>
<tr>
<td>Global Citizenship and Awareness</td>
<td>FNR 30200 Global Sustainability Issues</td>
</tr>
<tr>
<td>Intercultural Knowledge</td>
<td>FNR 23000 World’s Forest &amp; Society</td>
</tr>
<tr>
<td>Leadership and Teamwork</td>
<td>FNR 48410 Sustainable Furniture Design for CNC Manufacture</td>
</tr>
<tr>
<td>Quantitative Reasoning</td>
<td>IT 44200 Introduction to Statistical Quality and IT 45000 Production Cost Analysis</td>
</tr>
<tr>
<td></td>
<td>TLI 31600 Statistical Quality Control and TLI 33400 Economic Analysis for Technology System</td>
</tr>
<tr>
<td>Integrative Knowledge</td>
<td>IT 44200 Production Planning TLI 43530 Operations Planning and Management</td>
</tr>
<tr>
<td>Written Communication (Levels 2 and 3)</td>
<td>ENGL 42100 Technical Writing</td>
</tr>
<tr>
<td>Information Literacy (Levels 2 and 3)</td>
<td>IT 48300 Facility Design for Lean Manufacturing TLI 43540 Facilities Planning and Material Handling</td>
</tr>
<tr>
<td>Oral Communication (Level 2 and 3)</td>
<td>FNR 48410 Sustainable Furniture Design for CNC Manufacture</td>
</tr>
</tbody>
</table>

### Statewide General Transfer Core

<table>
<thead>
<tr>
<th>Statewide General Transfer Core</th>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human Cultures (Humanities/Artistic)</td>
<td>UCC Humanities Selective</td>
<td>3</td>
</tr>
<tr>
<td>Human Cultures (Social Sciences)</td>
<td>AGEC 20300 or AGEC 20400 or AGEC 25100</td>
<td>3</td>
</tr>
<tr>
<td>Science Selective</td>
<td>CHM 11100 and CHM 11200</td>
<td>6</td>
</tr>
<tr>
<td>Science Selective</td>
<td>BIOL 11000 and BTNY 11000</td>
<td>8</td>
</tr>
<tr>
<td>Written Communications</td>
<td>ENGL 10600</td>
<td>4</td>
</tr>
<tr>
<td>Oral Communications (Speaking/Listening)</td>
<td>COM 11400</td>
<td>3</td>
</tr>
<tr>
<td>Quantitative Reasoning</td>
<td>MA 16010</td>
<td>3</td>
</tr>
</tbody>
</table>
Department of Horticulture and Landscape Architecture
Proposed Course and Curricular Changes

A. COURSES TO BE DELETED

None

B. COURSES TO BE ADDED

HORT 12100 Medicine in the Garden. Sem. 1. Class 1, cr. 1.
A survey of the uses and properties of horticultural plants for human health and well-being. Topics will focus on the close relationships between plants and human physiology, nutrition, medicines, mind-altering drugs, poisons, and beverages.
Prerequisite: None.

HORT 29100 Selected Topics in Horticulture. Sem. 1 and 2. SS. Distance Learning. Individual Study, Laboratory, Lecture, Presentation, Cr. 1-3. May be repeated an unlimited number of times under different topics. This variable-credit, lower-level selected topics course will be used for lower-division undergraduate research projects, for development of new lower-division courses and for temporary courses for lower-division students.
Prerequisites: None

LA 16100 Land and Society. Sem. 1. Class 1, cr. 1
An introduction to human interaction with the landscape with emphasis on the science of ecology and the technological advancements that form the response to contemporary social and environmental issues. Specific topics include: shifting cultural views of nature, climate change, land development patterns, green infrastructure and building technologies, and the role of design in shaping responses.
Prerequisites: None

C. COURSES TO BE CHANGED

From:

Basic physiological processes of higher plants, particularly as related to the influence of environmental factors on growth, metabolism, and reproduction. Laboratory experiments involve hands-on experience with numerous aspects of plant physiology, including water relations, photosynthesis, growth, dormancy, hormones, and flowering.

Prerequisites:
( (Undergraduate level BIOL 11000 Minimum Grade of D- or Undergraduate level BTNY 11000 Minimum Grade of D- or Undergraduate level BTNY 21000 Minimum Grade of D-) or (Undergraduate level BIOL 13100 Minimum Grade of D- and Undergraduate level BIOL 13200 Minimum Grade of D-) ) and (Undergraduate level CHM 25500 Minimum...
Grade of D- or Undergraduate level CHM 25700 Minimum Grade of D- or Undergraduate level CHM 26200 Minimum Grade of D- or Undergraduate level CHEM C3410 Minimum Grade of D- or Undergraduate level CHM 26100 Minimum Grade of D- or Undergraduate level CHEM C3420 Minimum Grade of D-).

To:

Basic physiological processes of higher plants, particularly as related to the influence of environmental factors on growth, metabolism, and reproduction. Laboratory experiments involve hands-on experience with numerous aspects of plant physiology, including water relations, photosynthesis, growth, dormancy, hormones, and flowering.

Prerequisites:
( (Undergraduate level BIOL 11000 Minimum Grade of D- or Undergraduate level BTNY 11000 Minimum Grade of D- or Undergraduate level BTNY 21000 Minimum Grade of D-) or (Undergraduate level BIOL 13100 Minimum Grade of D-) ) and (Undergraduate level CHM 25500 Minimum Grade of D- or Undergraduate level CHM 25700 Minimum Grade of D- or Undergraduate level CHM 26200 Minimum Grade of D- or Undergraduate level CHEM C3410 Minimum Grade of D- or Undergraduate level CHM 26100 Minimum Grade of D- or Undergraduate level CHEM C3420 Minimum Grade of D-).

Justification:
Rex Fodrea said the Biology Department is no longer offering BIOL 13200.

From:

HORT 31500 Landscape Design. Sem. 1. Class 1, lab. 4, cr. 3.
An introduction to the landscape design process. The focus will be on smaller sites, constructed site systems and planting design. Graphic skills will emphasize techniques for drawing site plans and other illustrations. Typically offered Fall.

Prerequisites:
Undergraduate level HORT 22400 Minimum Grade of D-.

To:

HORT 31500 Landscape Design. Sem. 1. Class 1, lab. 4, cr. 3.
An introduction to the landscape design process. The focus will be on smaller sites, constructed site systems and planting design. Graphic skills will emphasize techniques for drawing site plans and other illustrations. Typically offered Fall.

Prerequisites:
None.

Justification: Photoshop is no longer needed as part of the graphic skills.

From:

HORT 42000 Ornamental Plant Production. Sem. 1. Class 3, cr. 3.
An intensive study of specific production technologies used to commercially grow landscape and floriculture crops, including greenhouse and nursery management. The course will have an emphasis on the growth and development of major floral and nursery crops as influenced by the environment and cultural techniques. Students will pay individual lodging or meal expenses when necessary. Typically offered Fall.

To:

**HORT 42000 Ornamental Plant Production.** Sem. 1. Class 3, cr. 3.
An intensive study of specific production technologies used to commercially grow landscape and floriculture crops, including greenhouse and nursery management. The course will have an emphasis on the growth and development of major floral and nursery crops as influenced by the environment and cultural techniques. Typically offered Fall.

**Justification:** Lodging or meal expenses are no longer a part of the course.

From:

**LA 30900 Co-op Preparation.** Sem. 2. Class 1, cr. 1.

The material presented in this course consists of a broad overview of the employment opportunities in the professional practice of landscape architecture and the ways to secure an internship. It provides the student with information about career choices in landscape architecture and an appropriate knowledge base with which to make informed internship choices. Students prepare written and graphic documents for seeking employment. Students prepare for interviews and communications leading to employment as an intern in landscape architecture. Course meets during weeks 1-8. Typically offered Spring.

**Prerequisites:**
Undergraduate level LA 31600 Minimum Grade of D- and Undergraduate level LA 34600 Minimum Grade of D- and Undergraduate level LA 32500 Minimum Grade of D-.

To:

**LA 30900 Co-op Preparation.** Sem. 1. Class 1, cr. 1.
The material presented in this course consists of a broad overview of the employment opportunities in the professional practice of landscape architecture and the ways to secure an internship. It provides the student with information about career choices in landscape architecture and an appropriate knowledge base with which to make informed internship choices. Students prepare written and graphic documents for seeking employment. Students prepare for interviews and communications leading to employment as an intern in landscape architecture. Course meets during weeks 1-8. Typically offered Fall.

**Co-requisites:**
Undergraduate level LA 31600 and Undergraduate level LA 34600 and Undergraduate level LA 32500.

**Justification:** Change of semester offered gives students more time to prepare portfolios, resumes and cover letters for securing a yearlong co-op position. The change from prerequisites to co-requisites restricts the course to landscape architecture juniors.
**From:**

**SFS 30100 Agroecology. Sem. 1. Class 3, cr. 3.**
This course introduces students to the application of ecological concepts to food production systems and farm management. We will consider species interactions, nutrient and water cycles, regenerative practices, alternative approaches to agriculture, and ecosystem services provided to and by agro-ecosystems. Typically offered Fall.

**To:**

**SFS 30100 Agroecology. Sem. 2. Class 3, cr. 3.**
This course introduces students to the application of ecological concepts to food production systems and farm management. We will consider species interactions, nutrient and water cycles, regenerative practices, alternative approaches to agriculture, and ecosystem services provided to and by agro-ecosystems. Typically offered Spring.

**Justification:** To accommodate instructor teaching schedule.

**From:**

**SFS 30200 Principles of Sustainability. Sem. 2. Class 3, 3 cr.**

**To:**

**SFS 30200 Principles of Sustainability. Sem. 1. Class 3, 3 cr.**
Principles of sustainability is an experiential (discussion/debate) course that delivers an expansive overview of the principles of sustainability as they relate to energy and resources, communities, and agriculture. Students will learn to understand and analyze different food and farming systems and how they relate to environmental, economic and social sustainability.

**Justification:** To accommodate the semester switch of SFS 30100.

**D. CURRICULAR CHANGES**

Sustainable Food and Farming Systems Plan of Study

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Horticulture: Landscape Contracting and Management Plan of Study

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Supporting document

HORT 12100 Medicine in the Garden

Semesters Offered: Fall

Lecture/Lab Hours: Lecture

Credit(s): 1

A. Justification

From revolutionary discoveries in plant-based medicines to the newly revised dietary guidelines put out by the USDA and World Health Organization, the importance of horticulture for human health has become abundantly clear. Horticultural crops serve as significant sources of essential nutrients and minerals, phytonutrients that reduce the incidence and progression of chronic diseases, medicines, and other products that contribute to human health and overall well-being. Presently, there is no dedicated course offered at Purdue that provides foundational knowledge about the connection between plants and human health, nor the advancements being made in the field. Many other land-grant universities not only provide such courses, but even offer plant science specializations in this emerging area of study. The new course, Medicine in the Garden, will examine the roles of fruits, vegetables, nuts, herbs, spices, and medicinal plants in human health and well-being. It will provide introductory knowledge about how plants influence various aspects of human physiology, cover horticultural products that contribute to human well-being and society, and familiarize students with approaches used to improve horticultural crops for human health.

The course is appropriate for any level of undergraduate student, but will be targeted towards freshmen and sophomores interested in obtaining basic knowledge about the roles plants play in human health.

B. Outcomes: Will the course be nominated for inclusion on a University Foundational Core or COA Core course List: Yes, as a University Core Curriculum Science, Technology and Society selective.

B. College Learning Outcomes Addressed by This Course

_____ Professional Preparation: Demonstrate proficiency in their chosen discipline that incorporates knowledge skills, technology, and professional conduct.

_x__ Scientific Principles: Demonstrate use of the scientific method to identify problems, formulate and test hypotheses, conduct experiments and analyze data, and derive conclusions.

_x__ Critical Thinking: Demonstrate critical thinking by using data and reasoning to develop sound responses to complex problems.

_x__ Communication: Demonstrate the ability to write and speak with effectiveness while considering audience and purpose.

_x__ Teamwork: Demonstrate the ability to work effectively as part of a problem-solving team.
Cultural Understanding: Demonstrate knowledge of a range of cultures and an understanding of human values and points of view of other than their own.

Social Science Principles: Demonstrate ability to apply social, economic, political, and environmental principles to living in a global community.

Civic Responsibility: Demonstrate awareness of civic responsibility to community and society at large.

Lifelong Learning: Demonstrate skills necessary for lifelong learning.

Methods of evaluation or assessment
Learning Outcomes:
This course will provide students new knowledge about the role of horticulture in human health and well-being, with the following goals:

- Understand that horticultural crops serve as major sources of nutrients essential for human health and phytonutrients that reduce the incidence and progression of chronic diseases
- Understand the contribution of horticulture to society, including advances in agriculture, medicine, and overall human health and well-being
- Understand why plants produce chemicals that affect human health and behavior
- Understand what are the modern approaches, including breeding and biotechnology, to improve horticultural crops for human health and well-being

Students will additionally learn critical thinking and teamwork skills through Think, Pair, and Share Exercises. Students will also improve written communication skills through their term paper, and gain lifelong learning skills through the process of peer reviewing another student’s term paper.

Methods of evaluation or assessment:
Students will be required to complete six online quizzes, each worth 30 points, based on material covered in lecture, including Think, Pair, and Share Exercises. There is no final exam. Students will also be required to write a short term paper (50 points), and will provide a peer review (10 points) of another student’s paper. The peer review will not factor into the grade of the paper being evaluated.

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C. Prerequisites: none

D. Example of a Course Syllabus

Medicine in the Garden (HORT 12100)

Lead Instructor: Dr. Josh Widhalm, Assistant Professor of Horticulture
Overview
HORT 12100, *Medicine in the Garden*, examines the roles of fruits, vegetables, nuts, herbs, spices, and medicinal plants in human health and well-being. The course surveys the historical and modern uses of horticultural crops influencing aspects of human physiology, including nutrition, vision, cancer, autoimmune diseases, and the gut microbiome. It additionally covers flavors and aromas, alcoholic beverages, recreational drugs, and poisons. This one credit course will be of interest to plant science, biochemistry, pharmacy, food science, and pre-med students, as well as non-science majors.

Learning Outcomes
This course will provide students new knowledge about the role of horticulture in human health and well-being, with the following goals:

- Understand that horticultural crops serve as major sources of nutrients essential for human health and phytonutrients that reduce the incidence and progression of chronic diseases
- Understand the contribution of horticulture to society, including advances in agriculture, medicine, and overall human health and well-being
- Understand why plants produce chemicals that affect human health and behavior
- Understand what are the modern approaches, including breeding and biotechnology, to improve horticultural crops for human health and well-being

Lecture Topics

Week 1: **Introduction.** A brief historical perspective on horticulture and human health.  >*Think, Pair, and Share Exercise:* How have horticultural products shaped history?

Week 2: **Plants: What are they, where did they come from, and why are they important?** Will briefly touch on plants and (i) evolution; (ii) contribution to the atmosphere; (iii) position in the food chain; (iv) ecology and evolution of plant chemical diversity.  >*Think, Pair, and Share Exercise:* Why would plants evolve attributes that would be attractive to insects, animals, and humans?

Week 3: **Roles of fruits and vegetables in human nutrition.** Topics include (i) vitamins and minerals (ii) preventative effects of phytonutrients on chronic diseases; (iii) relationship between diet and epigenetics.  >*Think, Pair, and Share Exercise:* What societal factors influence consumption of fruits and vegetables?

Week 4: **Plants and the gut microbiome.** Connection between diet, composition of microbiome and health issues such as obesity. Topics include prebiotics, polyphenols, glucosinolates, and isoflavones.  
*Online Quiz 1 available*
Week 5: Medicinal drugs. Topics include aspirin, anti-cancer drugs, anti-diabetic drugs, and anti-virals. Covers historical context, chemistry, human physiology, and modern usage, including efficacy, dosage forms, and routes of administration.

>Think, Pair, and Share Exercise: When it comes to discovering new medicine, why is it important to protect the environment and natural habitats?

Week 6: Herbal supplements. Topics include Echinacea, garlic, milk thistle, and ginseng. Covers historical context and modern usage, including efficacy, dosage forms and routes of administration.

Online Quiz 2 available

Term paper assignments

Week 7: Brain health. Topics include ginkgo, St John’s Wort, rosemary, turmeric, celery (luteolin), broccoli and cauliflower (choline), walnuts (omega 3), chickpeas (magnesium). Covers historical context, chemistry, human physiology, and modern usage.

Week 8: Mind altering drugs and stimulants. Topics include marijuana, cocaine, heroin, morphine, and caffeine. Covers historical context, chemistry, human physiology, and modern usage.

>Think, Pair, and Share Exercise: Why would plants evolve to produce chemicals that affect brains?

Online Quiz 3 available

Week 9: Alcoholic beverages. Topics include beer, wine, and whiskey. Covers historical context, chemistry, human physiology, and modern usage.

>Think, Pair, and Share Exercise: The French Paradox

Week 10: Coffee, tea, and cacao (chocolate). Covers historical context, chemistry, human physiology, and modern usage.

Online Quiz 4 available

Week 11: Flavors and aromas. Topics include herbs and spices, fragrance industry, mosquito repellants. Historical context, chemistry, human physiology, and modern usage.

Week 12: Poisonous plants. Topics include poison-hemlock, Aconitum, deadly nightshade, Oleander, strychnine, and the castor oil plant. Covers historical context, chemistry, human physiology, and modern usage.

>Think, Pair, and Share Exercise: What killed King Joffrey?

Online Quiz 5 available

Term papers due

Week 13: Approaches to studying bioactive compounds in plants. Topics include extraction and compositional analysis of compounds, from metabolic profiling in the laboratory to home distillation.

Peer review assignments

Week 14: Modern strategies for cultivating horticultural crops. Topics include hydroponics, aquaponics, greenhouses, traditional gardening, organic production and urban farming.

>Think, Pair, and Share Exercise: Is organic produce healthier?
Week 15: Plant improvement strategies for human health and feeding a malnourished world. Topics include traditional breeding and biotechnology.

>Think, Pair, and Share Exercise: What considerations do researchers need to make when developing plant improvement strategies?

>Online Quiz 6 available
Peer reviews due

**Required textbook**
None

**Additional reading**
Provided material
Online books available for free via Purdue Libraries

**Grading**
Students will be required to complete six online quizzes, each worth 30 points, based on material covered in lecture, including *Think, Pair, and Share Exercises*. There is no final exam. Students will also be required to write a short term paper (50 points), and will provide a peer review (10 points) of another student’s paper. The peer review will not factor into the grade of the paper being evaluated.

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**Term paper and peer review**
During week 6, students will be assigned a species from either the *Phytomedicines, Herbal Drugs, and Poisons* book or *Culinary Herbs & Spices of the World* book (both available online for free via the Purdue Libraries website). Based on the assigned species, each student will be required to write a 1.5-2 page paper (single spaced, 12 pt Times New Roman font).

In the paper, students should describe the following about their assigned species:
- Scientific name and origin
- How it is classified?
- Which parts of the plant are used and how is it grown?
- What is the bioactive compound(s)?
- What is the chemical classification of bioactive compound(s)?
- How does the bioactive compound(s) relate to human physiology (what are the properties and uses of the plant)?
- How does the bioactive compound(s) relate to plant physiology/ecology?
- Historical and modern significance of the species and/or bioactive compound
- Additional interesting information, such as pop culture references to the bioactive compound or species
Term papers are due by Week 12. In Week 13, each student will receive another student’s term paper to peer review. The written evaluation summary of another student’s paper will be worth 10 points. Reviews will need to be no more than half a page, and criteria on which to base the evaluation will be provided by the instructors. The peer review will not factor into the grade of the paper being evaluated.

**Attendance**
The resources of Purdue University are provided for the intellectual development of its students. Courses with defined schedules are provided to facilitate an orderly and predictable environment for learning, as well as to provide assurance of a registered student's right to access the course. Scheduled courses allow students to avoid conflicts and reflect the University's expectation that students should be present for every meeting of a class/laboratory for which they are registered. Faculty are responsible for organizing and delivering a course of instruction and for certifying student accomplishment on the basis of performance.

Students are expected to attend every scheduled class. If you have a valid excuse for missing class, including illness, family emergency, religious observation, military requirement, University-sponsored activity, or any other absence recognized by Purdue, one of the instructors will provide you the information missed. Students missing class without a valid excuse will not receive assistance from the instructors in obtaining missed material. For additional information, consult the official Purdue policy on class attendance: [http://www.purdue.edu/studentregulations/regulations_procedures/classes.html](http://www.purdue.edu/studentregulations/regulations_procedures/classes.html)

**Course evaluation**
During the last two weeks of the semester, you will be provided an opportunity to evaluate this course and your instructor(s). On Monday of the fifteenth week of classes, you will receive an official email from evaluation administrators with a link to the online evaluation site. You will have two weeks to complete this evaluation. Your participation in this evaluation is an integral part of this course. Your feedback is vital to improving education at Purdue University. We strongly urge you to participate in the evaluation system.

**Academic Integrity**
From Stephen Akers, Executive Associate Dean of Students ([https://www.purdue.edu/odos/academic-integrity/](https://www.purdue.edu/odos/academic-integrity/)):

Purdue University values intellectual integrity and the highest standards of academic conduct. To be prepared to meet societal needs as leaders and role models, students must be educated in an ethical learning environment that promotes a high standard of honor in scholastic work. Academic dishonesty undermines institutional integrity and threatens the academic fabric of Purdue University. Dishonesty is not an acceptable avenue to success. It diminishes the quality of a Purdue education, which is valued because of Purdue’s high academic standards.

Fostering an appreciation for academic standards and values is a shared responsibility among students, faculty, and staff. The information in this brochure is directed to students to define academic dishonesty and how to avoid it.

**Definition of academic dishonesty**
Purdue prohibits “dishonesty in connection with any University activity. Cheating,
plagiarism, or knowingly furnishing false information to the University are examples of dishonesty" (Part 5, Section III-B-2-a, Student Regulations). Furthermore, the University Senate has stipulated that "the commitment of acts of cheating, lying, and deceit in any of their diverse forms (such as the use of substitutes for taking examinations, the use of illegal cads, plagiarism, and copying during examinations) is dishonest and must not be tolerated. Moreover, knowingly to aid and abet, directly or indirectly, other parties in committing dishonest acts is in itself dishonest" (University Senate Document 72-18, December 15, 1972).

More specifically, the following are a few examples of academic dishonesty that have been discovered at Purdue University.

- substituting on an exam for another student
- substituting in a course for another student
- paying someone else to write a paper and submitting it as one's own work
- giving or receiving answers by use of signals during an exam
- copying with or without the other person's knowledge during an exam
- doing class assignments for someone else
- plagiarizing published material, class assignments or lab reports
- turning in a paper that has been purchased from a commercial research firm or obtained from the Internet
- padding items of a bibliography
- obtaining an unauthorized copy of a test in advance of its scheduled administration
- using unauthorized notes during an exam
- collaborating with other students on assignments when it is not allowed
- obtaining a test from the exam site, completing and submitting it later
- altering answers on a scored test and submitting it for a regrade
- accessing and altering grade records
- stealing class assignments from other students and submitting them as one's own
- fabricating data
- destroying or stealing the work of other students

Plagiarism is a special kind of academic dishonesty in which one person steals another person's ideas or words and falsely presents them as the plagiarist's own product. This is most likely to occur in the following ways:

- using the exact language of someone else without the use of quotation marks and without giving proper credit to the author
- presenting the sequence of ideas or arranging the material of someone else even though such is expressed in one's own words, without giving appropriate acknowledgment submitting a document written by someone else but representing it as one's own

Nondiscrimination policy statement

Purdue University is committed to maintaining a community which recognizes and values the inherent worth and dignity of every person; fosters tolerance, sensitivity, understanding, and mutual respect among its members; and encourages each individual to strive to reach his or her own potential. In pursuit of its goal of academic excellence, the University seeks to develop and nurture diversity. The University believes that diversity among its many members strengthens the institution, stimulates creativity, promotes the exchange of ideas, and enriches campus life.
Purdue University views, evaluates, and treats all persons in any University related activity or circumstance in which they may be involved, solely as individuals on the basis of their own personal abilities, qualifications, and other relevant characteristics.

Purdue University prohibits discrimination against any member of the University community on the basis of race, religion, color, sex, age, national origin or ancestry, genetic information, marital status, parental status, sexual orientation, gender identity and expression, disability, or status as a veteran. The University will conduct its programs, services and activities consistent with applicable federal, state and local laws, regulations and orders and in conformance with the procedures and limitations as set forth in Purdue’s Equal Opportunity, Equal Access and Affirmative Action policy which provides specific contractual rights and remedies. Additionally, the University promotes the full realization of equal employment opportunity for women, minorities, persons with disabilities and veterans through its affirmative action program.

Any question of interpretation regarding this Nondiscrimination Policy Statement shall be referred to the Vice President for Ethics and Compliance for final determination.

For additional information: [http://www.purdue.edu/purdue/ea_eou_statement.html](http://www.purdue.edu/purdue/ea_eou_statement.html)

**Students with disabilities**

Academic accommodations must be arranged through the Disability Resource Center ([http://www.purdue.edu/studentsuccess/specialized/drc/](http://www.purdue.edu/studentsuccess/specialized/drc/)). The instructors are 100% committed to make sure all necessary accommodations are met to ensure all students have the opportunity to learn. If there is any additional support that we may offer, please do not hesitate to contact us.

Purdue University is committed to making education, employment, services, programs and activities accessible. Purdue University offers numerous resources to employees, students and visitors who may need additional assistance while attending, visiting and/or working for the University. The Purdue Community works together to remove any barriers that prevent equal opportunities to individuals who have disabilities.

**Campus emergency and adverse weather procedures**

Emergency preparedness is your personal responsibility. Purdue University is actively preparing for natural disasters or human-caused incidents with the ultimate goal of maintaining a safe and secure campus.

- For any emergency call 911.
- There are nearly 300 Emergency Telephone Systems throughout campus that connect directly to the Purdue Police Department (PUPD). If you feel threatened or need help, push the button and you will be connected to the PUPD.
- If we hear a fire alarm we will immediately evacuate the building by directly exiting outside through the door at the front right of the room.
- If we are notified of a Shelter in Place requirement for a tornado warning we will shelter in the lowest level of this building away from windows and doors. Our preferred location is the basement. We will proceed out of the lecture room entrance (the door you come in) and take the stairs into the basement. Once in the basement, proceed to the end of the hallway to accommodate other people coming down the stairs.
- If we are notified of a Shelter in Place requirement for a hazardous materials release we will shelter in our classroom shutting any open doors and windows.
- If we are notified of a Shelter in Place requirement for a civil disturbance such as a
shooting we will shelter in a room that is securable preferably without windows. Our preferred location is in the lecture hall.

For additional information, please consult the Emergency Procedure Guidelines: http://www.purdue.edu/emergency_preparedness/. Sign up for emergency text alerts: http://www.purdue.edu/securepurdue/

When harsh weather is a possibility, Purdue administrators continuously monitor forecasts to ensure public safety. The university uses several systems to alert the campus community about weather-related changes to class schedules or work hours, starting with the Purdue home page. For more information on weather preparedness: http://www.purdue.edu/newsroom/health_safety/weather.html
HORT 29100 Selected Topics in Horticulture (variable titles will be used)

Semesters Offered: Spring, Summer, and/or Fall

Lecture/Lab Hours: Distance Learning, Individual Study, Laboratory, Lecture, Presentation

Credit(s): 1.00 to 3.00. Repeatable for credit.

Justification: Currently students sign up for HORT 49100 which is more appropriate for upper-division students. In addition, there are occasions when HLA faculty wish to provide new lower-division courses but have no special topics course from which to develop these classes. We have a need for the lower-division number for posting a newly developed or temporary course in the Schedule of Classes when trying to attract students to take the course.

Applicability to University Core Curriculum: (check all that apply) NONE.

University Embedded Outcomes addressed by this course: (check all that apply) NONE.

Learning Outcomes and Method of Evaluation or Assessment:
Variable by offering.

Course Instructor(s):
Various.

Course Outline:
Variable by offering.

Reading List (including course text):
Variable by offering.

Library Resources:
Variable by offering.

Course Syllabus:
Variable by offering.
Semesters Offered: Fall

Lecture/Lab Hours: Lec W 10:30-11:20

Credit(s): 1

Justification:
This course provides needed exposure to the issues connecting earth science with culture and technology. For students in the landscape architecture major, the course will advance their understanding of topics briefly touched on in LA 10100 and form the foundation for further application of ecological principles in advanced design courses. For non-landscape architecture majors, the course provides a background that helps with decision-making and judgment about land issues that will be useful in other facets of their personal life and professional careers. This course will be nominated to satisfy the University Core Curriculum requirement for Science, Technology, and Society foundational learning outcomes.

Will the course be nominated for inclusion on a University Foundational Core or COA Core course list?
Yes.

Applicability to University Core Curriculum (check all that apply)

- __Human Cultures: Behavioral/Social Sciences
- __Human Cultures: Humanities
- __Information Literacy
- __Oral Communication
- __Quantitative Reasoning
- __Science
- X Science, Technology, & Society
- __Written Communication

Outcomes: Mapping of course outcomes to University Embedded or Departmental learning outcomes. This course helps satisfy the following outcomes:
Please refer to Syllabus for course learning outcomes.

University Embedded Outcomes addressed by this course (check all that apply)

- __Communication
- X Ways of Thinking
- __Interpersonal Skills and Intercultural Knowledge

Description (should be different than description above): How will this course accomplish the previous outcomes?

While remaining a traditional “lecture” course, I employ a teaching method that is more active and engaged than basic lecturing. Presentations incorporate hand drawing and note taking by instructor and students and include multi-media segments to encourage further attentiveness. Active learning methods, such as Socratic questioning that seeks to engage critical thinking, are a daily part of the course.
The following types of class activities will be assessed: a final exam, a take-home project, and short reports/reading responses. The final exam will constitute 20% of the grade; the take-home project 20% and reading responses 60% (6 at 10% each).

Ways of Thinking: Satisfactory completion of take-home project involved application of gained knowledge to solve basic design problem as a function of real-world variables and processes.
Course Contact Information:

Name: Sean Rotar  
Phone Number: 494-6007  
E-mail Address: srotar@purdue.edu  
Campus Address: HORT 311

Example of a Course Syllabus:

COURSE SYLLABUS  
LA 16100. LAND AND SOCIETY  
FALL SEMESTER 20XX  
MONDAY 9:30-10:20  117 HORT  
COURSE PREREQUISITES: None  
CREDITS: 1

Instructor: Sean Rotar, PLA, ASLA, Assistant Professor  
Office: 311 HORT  
Office Phone: 765 / 49-46007  
E-mail: srotar@purdue.edu  
Office hours: MW 10:30 am -12:00 pm; Th 9:30-11:00; By appt.

COURSE DESCRIPTION

An introduction to human interaction with the landscape with emphasis on the science of ecology and the technological advancements that form the response to contemporary social and environmental issues. Specific topics include: shifting cultural views of nature, climate change, land development patterns, green infrastructure and building technologies, and the role of design in shaping responses.

LEARNING OUTCOMES

At the conclusion of the course the student shall be able to:

1. Describe social and cultural views of nature and land leading to the shape of American settlement patterns, cities, rural areas, and suburbs.
2. Define the four ecological systems and describe the interrelationship of their components.
3. Describe the human response to these 4 ecological systems in settlement patterns.
4. Apply an understanding of ecological sciences in making judgments about landscapes and their relationship to the cultures who created them.
5. Evaluate the impact of climate change on US landscapes and describe the design response to these present and future changes.
6. Describe the impact of technological changes in measuring and recording land on the cultural understanding of natural and built systems.
7. Apply the understanding of complex interrelationships of ecological sciences to make judgements on the potential of green infrastructure technologies to make beneficial changes.

COURSE REQUIREMENTS/ TEXTS
All students are expected to demonstrate understanding and application of skills taught in the course. It is the student’s responsibility to practice and develop these skills and meet the requirements of the course.

There is no assigned text for the course. A series of brief readings will be supplied through Blackboard. This course relies on an extensive program of in-class learning. Therefore, class attendance and notetaking is extremely important.

GENERAL POLICIES
OFFICE HOURS
The office location and telephone number of the instructor is listed above. While the office hour period allows ample opportunity for interaction, the instructor will be delighted to accommodate student requests for meetings at mutually convenient times.

EMAIL POLICY
Students may email the instructor with questions, concerns, etc. if they desire. However, face-to-face interaction in class, immediately after class, or during office hours and/or communication by telephone will result in a richer experience for the student and a happier student/professor interaction.

PARTICIPATION POLICY
Students are expected to arrive on time for class and to remain until the scheduled class time is over. Any students needing to be excused from class early must discuss with the instructor before the class begins. While in attendance, students are expected to be attentive and to participate in all course activity and discussion.

ELECTRONICS POLICY
This course emphasizes personal interaction, hand note-taking and hand sketching. As a result, cell phones and computers are to be turned off during class. In general, no uses requiring personal electronics (telephone, telegraph, teletype, “twitter” “Facebook”, instant-gram, etc.) are permitted.

GRADING
ASSIGNMENTS AND EVALUATION
Grades will be derived from the following types of class activities: a final exam, a take-home project, and short reports/reading responses. The final grade will be determined by a weighted average of assigned class work. The final exam will constitute 20% of the grade; the take home project 20% and reading responses 60% (6 at 10% each).

Dates for tests are announced on the attached course schedule. There will be a final exam (test #3) in the course, scheduled during Exam Week. Specific exam date and time will be announced.

Outdoor exercises are planned for the class. Field trips will be announced in advance. It is important that you be present on time and dress for the appropriate weather. All sites to be visited will be on or near campus.

LATE PROJECT SUBMITTAL
Assignments must be turned in on time to assure full credit. Late work will be accepted at the discretion of the instructor and may be penalized as much as one grade letter per
day. Missed work may be made up at the discretion of the instructor; however, some course work, especially that taking place during the class session, cannot be made up.

SYLLABUS CHANGES
The instructor reserves the right to change the syllabus at any time due to our depth of discussions, university scheduling, guest speaker schedules, or weather. In the event of a major campus emergency, course requirements, deadlines and grading percentages are subject to changes that may be necessitated by a revised semester calendar or other circumstances beyond the instructor’s control. Information concerning changes in the course will be available by phone or email as indicated above.

GRADING
Grading in this course will employ the “plus-minus” system as follows:

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ATTENDANCE
Attendance to lectures and work in class is critical to interaction with the instructor and the demonstration of skill development. Material covered in lectures and class discussion is the responsibility of the student. Some elements of this course will consist of in-class exercises for which there may be no make-up opportunity.

Students are expected to be present for every meeting of the classes in which they are enrolled. Only the instructor can excuse a student from a course requirement or responsibility. When conflicts or absences can be anticipated, such as for many University sponsored activities and religious observations, the student should inform the instructor of the situation as far in advance as possible…For unanticipated or emergency absences when advance notification to an instructor is not possible, the student should contact the instructor as soon as possible by email, or by contacting the main office that offers the course. When the student is unable to make direct contact with the instructor and is unable to leave word with the instructor’s department because of circumstances beyond the student’s control, and in cases of bereavement, the student or the student’s representative should contact the Office of the Dean of Students,
The link to the complete policy and implications can be found at http://www.purdue.edu/odos/services/classabsence.php

ACADEMIC DISHONESTY
Purdue prohibits "dishonesty in connection with any University activity. Cheating, plagiarism, or knowingly furnishing false information to the University are examples of dishonesty." [Part 5, Section III-B-2-a, University Regulations] Furthermore, the University Senate has stipulated that "the commission of acts of cheating, lying, and deceit in any of their diverse forms (such as the use of substitutes for taking examinations, the use of illegal cribs, plagiarism, and copying during examinations) is dishonest and must not be tolerated. Moreover, knowingly to aid and abet, directly or indirectly, other parties in committing dishonest acts is in itself dishonest." [University Senate Document 72-18, December 15, 1972]

UNIVERSITY POLICIES
Purdue University has standard policies regarding the requirements associated with being a student. These standards are in addition to the ones listed above in this syllabus. Please familiarize yourself with these policies. They include: Academic Dishonesty, Grief Absence Policy, Violent Behavior Policy, Students with Disabilities, Campus Emergencies, Weather Emergencies, Local News, Cell Phones emergency texting, Influenza Outbreak, and Nondiscrimination. They can be found on the Office of the Dean of Students website at http://www.purdue.edu/odos/welcome.php.

BEREAVEMENT STATEMENT
Purdue University recognizes that a time of bereavement is very difficult for a student. The University therefore provides the following rights to students facing the loss of a family member through the Grief Absence Policy for Students (GAPS). GAPS Policy: Students will be excused for funeral leave and given the opportunity to earn equivalent credit and to demonstrate evidence of meeting the learning outcomes for missed assignments or assessments in the event of the death of a member of the student’s family.

VIOLENT BEHAVIOR
Purdue University is committed to providing a safe and secure campus environment for members of the university community. Purdue strives to create an educational environment for students and a work environment for employees that promote educational and career goals. Violent Behavior impedes such goals. Therefore, Violent Behavior is prohibited in or on any University Facility or while participating in any university activity.

STUDENTS WITH DISABILITIES
Purdue University is required to respond to the needs of the students with disabilities as outlined in both the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990 through the provision of auxiliary aids and services that allow a student with a disability to fully access and participate in the programs, services, and activities at Purdue University.
If you have a disability that requires special academic accommodation, please make an appointment to speak with me as soon as possible in the semester in order to discuss any adjustments. It is the student's responsibility to notify the Disability Resource Center (http://www.purdue.edu/drc) of an impairment/condition that may require accommodations and/or classroom modifications.

EMERGENCIES
In the event of a personal emergency, please let the instructor know as soon as possible; likewise, should an emergency arise, the instructor will inform you through email about course modifications that may be necessary.

In the event of a major campus emergency, course requirements, deadlines and grading percentages are subject to changes that may be necessitated by a revised semester calendar or other circumstances beyond the instructor’s control. Relevant changes to this course will be announced through email or in-class announcement. You are expected to read your @purdue.edu email on a frequent basis.

NONDISCRIMINATION
Purdue University is committed to maintaining a community which recognizes and values the inherent worth and dignity of every person; fosters tolerance, sensitivity, understanding, and mutual respect among its members; and encourages each individual to strive to reach his or her own potential. In pursuit of its goal of academic excellence, the University seeks to develop and nurture diversity. The University believes that diversity among its many members strengthens the institution, stimulates creativity, promotes the exchange of ideas, and enriches campus life.

Purdue University prohibits discrimination against any member of the University community on the basis of race, religion, color, sex, age, national origin or ancestry, marital status, parental status, sexual orientation, disability, or status as a veteran. The University will conduct its programs, services and activities consistent with applicable federal, state and local laws, regulations and orders and in conformance with the procedures and limitations as set forth in Executive Memorandum No. D-1, which provides specific contractual rights and remedies.

READING LIST
Selections from Leopold, Aldo. A Sand County Almanac. 188-202; 238-264.
COURSE SCHEDULE
LA 16100 LAND and SOCIETY

FALL SEMESTER 20XX

WEEK 1
  Introduction
  Nature as Resource: Stewardship

WEEK 2
  Nature as Science: Ecological Systems- overview

WEEK 3
  Culture and nature
  World Gardens

  Reading 1 reflection due

WEEK 4
  American Vernacular Landscape

WEEK 5
  Car Culture: Development patterns, sprawl, and effects

  Reading 2 reflection due

WEEK 6
  Economics, culture, and land

WEEK 7
  Seeing land: Mapping, digital information, and Geographic Information Systems

  Reading 3 reflection due

WEEK 8
  Land and water as ecological system- Indiana

WEEK 9
  Understanding Ecologically Sustainable water systems

  Reading 4 reflection due

WEEK 10
  Climate and Microclimate: Responses for Human health and well being

WEEK 11
  American Environmental History

  Reading 5 reflection due

WEEK 12
  Plants basics

WEEK 13
  Plant Systems- Ecology, biodiversity, native systems and non-natives

  Reading 6 reflection due

WEEK 14
  Cohesive Sustainable Solutions

  Term Project due

WEEK 15
  Bioengineering

WEEK 16
  The Designers’ role

WEEK 17
  FINAL EXAM
Natural Resources and Environmental Science (NRES) Program
Proposed Course and Curricular Changes

A. COURSES TO BE DELETED

None

B. COURSES TO BE ADDED

None

C. COURSES TO BE CHANGED

None

D. CURRICULAR CHANGES

Land Resources Concentration

Remove AGRY 33700 (Environmental Hydrology) as a Land Resources required class and add it to the Land Resources selective list.

Remove AGRY 45000 (Soil Conservation & Water Management) as a Land Resources selective list and add it as a Land Resources required class.

Natural Resources and Environmental Science Minor

Policy and Economics Emphasis
Remove FNR 36500 (Natural Resources Issues, Policy and Administration) and replace with FNR 37500 (Human Dimensions of Natural Resource Management). Pre-requisite: POL 22300.

**FNR 36500 is no longer being taught.

Sustainability Emphasis
Remove BCM 41900 (Sustainable Construction) and replace
With BCM 51000 (Topics in Environmentally Sustainable Construction, Design, and Development).
Pre-requisite: Permission from instructor

**BCM 41900 is no longer being taught.

Water Quality Emphasis
Add AGRY 12000 (Water and Food Security) to the list of selectives.

*No pre-requisite for AGRY 12000
Sustainable Environments Minor

Selectives:
Remove BCM 41900 (Sustainable Construction) and replace with BCM 51000 (Topics in Environmentally Sustainable Construction, Design, and Development).
Pre-requisite: Permission from instructor
**BCM 41900 is no longer being taught.

Remove FNR 40800 (Natural Resources Planning)
**No longer being taught.

Add the following courses as selectives:
EAPS 30100 (Oil!) Pre-requisite: ENGL 10100, 10200, 10600, or 10800
EAPS 32700 (Climate, Science & Society) Pre-requisite: Jr status or higher
EAPS 37500 (Great Issues-Fossil Fuels, Energy & Society) No pre-requisite
FNR 47000 (Fundamentals of Planning) No pre-requisite
FNR 48800 (Global Environmental Issues) No pre-requisite
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120 semester credits required for Bachelor of Science degree.
2.0 GPA required for Bachelor of Science degree.

The highlighted course is considered critical; timely progress toward the degree depends upon steady progress through each course in the plan of study, but this course, in particular, should be completed by the semester indicated.

Consultation with an advisor may result in an altered plan customized for an individual student.
# Natural Resources and Environmental Science: Land Resources

**https://ag.purdue.edu/oap/pages/major.aspx**

<table>
<thead>
<tr>
<th>Credits</th>
<th>Course number</th>
<th>Course Title</th>
<th>Prerequisites</th>
<th>Credits</th>
<th>Course number</th>
<th>Course Title</th>
<th>Prerequisites</th>
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<tbody>
<tr>
<td><strong>Fall 1st Year</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>Spring 1st Year</strong></td>
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<tr>
<td>0.5</td>
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<td>BIOL 11000</td>
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<td>Introduction to Natural Resources and Environmental Science Academic Programs</td>
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<td>3</td>
<td>CHM 11200</td>
<td>General Chemistry</td>
<td>CHM 11000</td>
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<tr>
<td>3</td>
<td>CHM 11100</td>
<td>General Chemistry</td>
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<td>3</td>
<td>COM 11400 or COM 21700</td>
<td>Fundamentals of Speech or Science Writing and Presentation</td>
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<td>4</td>
<td>ENGL 10600</td>
<td>First-Year Composition</td>
<td>ALEKS 75+</td>
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<td>MA 16020</td>
<td>Applied Calculus II</td>
<td>MA 16010</td>
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<td>MA 16020</td>
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| **Fall 2nd Year** | | | | **Spring 2nd Year** | | | |
| 4 | BIOL 11000 or BTNY 11000 | Fundamentals of Biology II or Introduction to Plant Science | | 3 | NRES 23000 or AGRY 33500 | Survey of Meteorology or Weather and Climate | |
| 4 | CHM 25700 | Organic Chemistry | CHM 11200 | 1 | NRES 20000 | Introduction to Environmental Careers or Science: Fundamentals I | |
| 3 | NRES 25500 | Soil Science | CHM 11100 | 3 | POL 22300 | Introduction to Environmental Policy | Ecology Selective |
| 3 | STAT 30100 | Elementary Statistical Methods | | 3 | MA 16020 | Applied Calculus II | Elective |
| 3 | STAT 11010 | Microeconomics | Selective | | **Total** | 17 | 15 |

| **Fall 3rd Year** | | | | **Spring 3rd Year** | | | |
| 3 | AGRY 45000 | Soil Conservation & Water Quality | AGRY 25500 | 3 | FNR 21000 | Natural Resource Information Management | POL 22300 |
| 6 | | Biochemistry, Biology, Chemistry, Mathematics, Physics, or Statistics Selective | | 3 | FNR 37500 | Natural Resource Management | |
| 3 | | Ecology Selective | | 3 | UCC Humanities | UCC Humanities Selective | |
| 3 | | Land Resources Selective | | 3 | Land Resources | Land Resources Selective | |
| 3 | | Humanities or Social Science Selective | | 3 | Written or Oral Communication | Written or Oral Communication Selective | |
| **Total** | 15 | 15 |

| **Fall 4th Year** | | | | **Spring 4th Year** | | | |
| 3 | AGRY 40600 | Natural Resource and Environmental Economics | AGRY 20300 | 6 | | Land Resources Selective | |
| 4 | AGRY 38500 | Environmental Soil Chemistry | NRES 25500 | 3 | | Humanities or Social Science Selective (30000+ level) | |
| 3 | | Biochemistry, Biology, Chemistry, Mathematics, Physics, or Statistics Selective | | 3 | | Elective | |
| 3 | | Humanities or Social Science Selective | | | | Elective | |
| 3 | | Elective | | **Total** | 13 | 12 |

120 semester credits required for Bachelor of Science degree. 2.0 GPA required for Bachelor of Science degree.

The highlighted course is considered critical; timely progress toward the degree depends upon steady progress through each course in the plan of study, but this course, in particular, should be completed by the semester indicated.

Consultation with an advisor may result in an altered plan customized for an individual student.
Current NREV minor

Natural Resources and Environmental Science Minor – 15 Credits

**REQUIRED COURSES (3 hr)**

<table>
<thead>
<tr>
<th>Dept.</th>
<th>Number</th>
<th>Hrs</th>
<th>Title</th>
<th>Semester</th>
<th>Prerequisites</th>
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</thead>
<tbody>
<tr>
<td>NRES</td>
<td>290000</td>
<td>3</td>
<td>Introduction to Environmental Science</td>
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**SELECTIVES (12 hr)**

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<tr>
<th>Dept.</th>
<th>Number</th>
<th>Hrs</th>
<th>Title</th>
<th>Semester</th>
<th>Prerequisites</th>
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<tr>
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<tr>
<td>FNR</td>
<td>21000</td>
<td>3</td>
<td>Natural Resource Information Management</td>
<td>S</td>
<td>(CHM 11000 or CHM 11600 or CHM 12400 or CHM 12600)</td>
</tr>
<tr>
<td>NRES</td>
<td>25500</td>
<td>3</td>
<td>Soil Science</td>
<td>F, S</td>
<td>(CHM 11000 or CHM 12600 or CHM 13600) or (CHEM C1020 and CHEM C1220)</td>
</tr>
<tr>
<td>NRES</td>
<td>23000</td>
<td>3</td>
<td>Survey of Meterology</td>
<td>S</td>
<td>(CHM 11000 or CHM 11600 or CHM 12400 or CHM 12600)</td>
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<tr>
<td>POL</td>
<td>22300</td>
<td>3</td>
<td>Introduction to Environmental Policy</td>
<td>F, S</td>
<td>(CHM 11000 or CHM 11600 or CHM 12400 or CHM 12600)</td>
</tr>
</tbody>
</table>

| **Ecology Emphasis** | | | | | |
| AGRY  | 34900  | 3   | Soil Ecology                               | F        | (BIOL 11000 or BIOL 11100) or (BIOL 22500 or BIOL 22600 and BTNY 21000) |
| BIOL  | 48300  | 3   | Environmental and Conservation Biology     | F        | (BIOL 11000 or BIOL 11100 or BIOL 13100 or BTNF 21000 and HORT 30100) |
| ENTMT | 31100  | 3   | Insect Ecology                             | S        |                                                             |

| **Policy and Economics Emphasis** | | | | | |
| AGEC  | 40600  | 3   | Nat’l Resource & Environmental Economics   | F, S     | AGEC 10000 or AGEC 20300 or ECON 25100 or ECON E1030 or ECON E2010 |
| FNR   | 36500  | 3   | Nat’l Resources Issues, Policy, Admin      | F        | AGEC 20400 or AGEC 20300 |
| POL   | 32700  | 3   | Global Green Politics                      | F, S, Su | AGEC 10000 or AGEC 20300 or ECON 25100 or ECON E1030 or ECON E2010 |

| **Land Resources Emphasis** | | | | | |
| ABE   | 32500  | 4   | Soil and Water Resource Engineering        | F        | NRES 25500 and (ME 20900 or (CE 34000 and 34300)) |
| AGRY  | 33700  | 3   | Environmental Hydrology                    | S        | (AGRY 25500 or NRES 25500 or AGRY 27000) or (CHM 11200 or CHM 11400 or CHM 12400 or CHM 11000 or CHM 12600 or CHM 13600) |
| NRES  | 38500  | 4   | Environmental Soil Chemistry               | F        | (AGRY 25500 or NRES 25500 or AGRY 27000) or (CHM 11200 or CHM 11400 or CHM 12400 or CHM 11000 or CHM 12600 or CHM 13600) or (CHEM C1020 and CHEM C1220) or (CHEM C1060 and CHEM C1260) |
| ASM   | 33600  | 3   | Environmental Systems Management           | F        | ASM 10500 or ASM 23100 or ASM 49100 or (ASM 10400 and AGEC 20200) |

| **Sustainability Emphasis** | | | | | |
| AD    | 39700  | 3   | Sustainability in the Built Environment    | F, S     | (AGRY 25500 or NRES 25500 or AGRY 27000) or (CHM 11200 or CHM 11400 or CHM 12400 or CHM 11000 or CHM 12600 or CHM 13600) |
| BCM   | 41900  | 3   | Sustainable Construction                    | F, S, Su | (AGRY 25500 or NRES 25500 or AGRY 27000) or (CHM 11200 or CHM 11400 or CHM 12400 or CHM 11000 or CHM 12600 or CHM 13600) |
| CE    | 35500  | 3   | Engineering Environmental Sustainability    | S        | (AGRY 25500 or NRES 25500 or AGRY 27000) or (CHM 11200 or CHM 11400 or CHM 12400 or CHM 11000 or CHM 12600 or CHM 13600) |

| **Water Quality Emphasis** | | | | | |
| ABE   | 32500  | 3   | Soil and Water Resource Engineering        | F        | (AGRY 25500 or NRES 25500 or AGRY 27000) or (CHM 11200 or CHM 11400 or CHM 12400 or CHM 11000 or CHM 12600 or CHM 13600) |
| AGRY  | 33700  | 3   | Environmental Hydrology                    | S        | (AGRY 25500 or NRES 25500 or AGRY 27000) or (CHM 11200 or CHM 11400 or CHM 12400 or CHM 11000 or CHM 12600 or CHM 13600) |
| FNR   | 20100  | 3   | Marine Biology                             | F        | BIOL 11000 or BIOL 12100 |

* At least one course must be selected from a minimum of 4 emphasis areas
## Proposed NREV minor

**Natural Resources and Environmental Science Minor – 15 Credits**

### REQUIRED COURSES (3 hr)

<table>
<thead>
<tr>
<th>Dept.</th>
<th>Number</th>
<th>Hrs</th>
<th>Title</th>
<th>Semester</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>NRES</td>
<td>290000</td>
<td>3</td>
<td>Introduction to Environmental Science</td>
<td>F</td>
<td></td>
</tr>
</tbody>
</table>

### SELECTIVES (12 hr)*

#### General Environmental Science

<table>
<thead>
<tr>
<th>Dept.</th>
<th>Number</th>
<th>Hrs</th>
<th>Title</th>
<th>Semester</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>FNR</td>
<td>21000</td>
<td>3</td>
<td>Natural Resource Information Management</td>
<td>S</td>
<td>CHM 10901 or CHM 11100 or CHM 11500 or CHM 12500 or CHM 12300 or CHM 12901 or CHM 13500 (CHEM C1010 and CHEM C1210) or (CHEM C1050 and CHEM C1250)</td>
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<tr>
<td>NRES</td>
<td>25500</td>
<td>3</td>
<td>Soil Science</td>
<td>F, S</td>
<td></td>
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<tr>
<td>NRES</td>
<td>23000</td>
<td>3</td>
<td>Survey of Meterology</td>
<td>S</td>
<td></td>
</tr>
<tr>
<td>POL</td>
<td>22300</td>
<td>3</td>
<td>Introduction to Environmental Policy</td>
<td>F, S</td>
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#### Ecology Emphasis

<table>
<thead>
<tr>
<th>Dept.</th>
<th>Number</th>
<th>Hrs</th>
<th>Title</th>
<th>Semester</th>
<th>Prerequisites</th>
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<tbody>
<tr>
<td>AGRY</td>
<td>34900</td>
<td>3</td>
<td>Soil Ecology</td>
<td>F</td>
<td>(BIOL 11000 and BIOL 11100) or (BIOL 11000 and BTNY 11000) or (BIOL 11100 and BTNY 11000) or (BIOL 12100 and BIOL 13100) or (BTNY 11000 and HORT 30100)</td>
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<tr>
<td>BIOL</td>
<td>48300</td>
<td>3</td>
<td>Environmental and Conservation Biology</td>
<td>F</td>
<td>BIOL 11000 or BIOL 11100 or BIOL 12100 or BIOL 28600 or BIOL 58500 or BIOL 24100 or BIOL 28000</td>
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<tr>
<td>ENTM</td>
<td>31100</td>
<td>3</td>
<td>Insect Ecology</td>
<td>S</td>
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#### Policy and Economics Emphasis

<table>
<thead>
<tr>
<th>Dept.</th>
<th>Number</th>
<th>Hrs</th>
<th>Title</th>
<th>Semester</th>
<th>Prerequisites</th>
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<tbody>
<tr>
<td>AGEC</td>
<td>40600</td>
<td>3</td>
<td>Nat’l Resource &amp; Environmental Economics</td>
<td>F, S</td>
<td>AGEC 20300 or AGEC 20400 or ECON 25100 or ECON E1030 or ECON E2010</td>
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<tr>
<td>FNR</td>
<td>37500</td>
<td>3</td>
<td>Human Dimensions of Nat’l Res. Mgmt.</td>
<td>S</td>
<td>FNR 22310 or AGEC 32500 or POL 22300 or POL Y3130 or POL 32300 or POL 42300 or POL 52300</td>
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<tr>
<td>POL</td>
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<td>3</td>
<td>Global Green Politics</td>
<td>F, S, Su</td>
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#### Land Resources Emphasis

<table>
<thead>
<tr>
<th>Dept.</th>
<th>Number</th>
<th>Hrs</th>
<th>Title</th>
<th>Semester</th>
<th>Prerequisites</th>
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</thead>
<tbody>
<tr>
<td>ABE</td>
<td>32500</td>
<td>4</td>
<td>Soil and Water Resource Engineering</td>
<td>F</td>
<td>(AGRY 25500 or NRES 25500) and (ME 30900) or (CE 24400 and CE 34300)</td>
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<tr>
<td>AGRY</td>
<td>33700</td>
<td>3</td>
<td>Environmental Hydrology</td>
<td>S</td>
<td>(AGRY 25500 or NRES 25500 or AGRY 27000) and (CHM 11200 or CHM 11600 or CHM 12600 or CHM 11000 or CHM 13600 or CHM 12400) or (CHEM C1200 and CHEM C1220) or (CHEM C1060 and CHEM C1260)</td>
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<td>38500</td>
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<td>Environmental Soil Chemistry</td>
<td>F</td>
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<tr>
<td>ASM</td>
<td>33600</td>
<td>3</td>
<td>Environmental Systems Management</td>
<td>F</td>
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#### Sustainability Emphasis

<table>
<thead>
<tr>
<th>Dept.</th>
<th>Number</th>
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<th>Title</th>
<th>Semester</th>
<th>Prerequisites</th>
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<td>F, S</td>
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<tr>
<td>BCM</td>
<td>51000</td>
<td>3</td>
<td>Topics in Environmentally Sustainability Construction, Design &amp; Development</td>
<td>F, S, Su</td>
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<tr>
<td>CE</td>
<td>35500</td>
<td>3</td>
<td>Engineering Environmental Sustainability</td>
<td>S</td>
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#### Water Quality Emphasis

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<th>Number</th>
<th>Hrs</th>
<th>Title</th>
<th>Semester</th>
<th>Prerequisites</th>
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</thead>
<tbody>
<tr>
<td>ABE</td>
<td>32500</td>
<td>3</td>
<td>Soil and Water Resource Engineering</td>
<td>F</td>
<td>(AGRY 25500 or NRES 25500) and (ME 30900) or (CE 24400 and CE 34300)</td>
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<tr>
<td>AGRY</td>
<td>12000</td>
<td>3</td>
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<td>F</td>
<td>BIOL 11000 or BIOL 12100 or BTNY 11000</td>
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<tr>
<td>AGRY</td>
<td>33700</td>
<td>3</td>
<td>Environmental Hydrology</td>
<td>S</td>
<td></td>
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<tr>
<td>FNR</td>
<td>20100</td>
<td>3</td>
<td>Marine Biology</td>
<td>F</td>
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</tbody>
</table>

* At least one course must be selected from a minimum of 4 emphasis areas
Sustainable Environments Minor

REQUIRED COURSES (3 hr)

<table>
<thead>
<tr>
<th>Dept.</th>
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<th>Hrs</th>
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<th>Semester</th>
<th>Prerequisites</th>
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<tbody>
<tr>
<td>NRES</td>
<td>290000</td>
<td>3</td>
<td>Introduction to Environmental Science</td>
<td>F</td>
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SELECTIVES (12 hr)*

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<tr>
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<th>Semester</th>
<th>Prerequisites</th>
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<tbody>
<tr>
<td>AD</td>
<td>39700</td>
<td>3</td>
<td>Sustainability in the Built Environment</td>
<td>F, S</td>
<td>AGRY 25500/NRES 25500</td>
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<tr>
<td>AGRY</td>
<td>57500</td>
<td>3</td>
<td>Soil and Nutrient Management</td>
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<td>ASM 10500 or ASM 23100 or ASM 49100 or (ASM 10400 and AGEC 20200)</td>
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<tr>
<td>ASM</td>
<td>33600</td>
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<td>BCM</td>
<td>41900</td>
<td>3</td>
<td>Sustainable Construction</td>
<td>F, S, Su</td>
<td>BIOL 11000 or BIOL 22600 or BIOL 11100 or BIOL 22500 or BIOL 12100 or BIOL 28600 or BIOL 28000 or BIOL 58500 or BIOL 24100</td>
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<tr>
<td>BIOL</td>
<td>48300</td>
<td>3</td>
<td>Environmental And Conservation Biology</td>
<td>F</td>
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<tr>
<td>CE</td>
<td>35500</td>
<td>3</td>
<td>Engineering Environmental Sustainability</td>
<td>S</td>
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<table>
<thead>
<tr>
<th>Dept.</th>
<th>Number</th>
<th>Hrs</th>
<th>Title</th>
<th>Semester</th>
<th>Prerequisites</th>
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<tbody>
<tr>
<td>FNR</td>
<td>37500</td>
<td>3</td>
<td>Human Dimensions of Natural Resource Mgmt</td>
<td>S</td>
<td>FNR 36500 or AGEC 52500 or POL 22300 or POLS Y3130 or OPL 32300 POL 42300 or POPL 52300 (FNR 40600 or AGEC 40600) and (FNR 34100 or FNR 40900 or FNR 54500 or FNR 54700) and FNR 37500</td>
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<tr>
<td>FNR</td>
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<td>3</td>
<td>Natural Resources Planning</td>
<td>S</td>
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<tr>
<td>HORT</td>
<td>44200</td>
<td>1</td>
<td>Sustainability In The Managed Landscape</td>
<td>S</td>
<td>HORT 21700 or HORT 21800 or FNR 22500</td>
</tr>
<tr>
<td>POL</td>
<td>32700</td>
<td>3</td>
<td>Global Green Politics</td>
<td>F, S, Su</td>
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</tbody>
</table>
# Proposed Sustainable Environments minor

## Sustainable Environments Minor-15 Credits

### REQUIRED COURSES (3 hr)

<table>
<thead>
<tr>
<th>Dept.</th>
<th>Number</th>
<th>Hrs</th>
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<th>Semester</th>
<th>Prerequisites</th>
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</thead>
<tbody>
<tr>
<td>NRES</td>
<td>290000</td>
<td>3</td>
<td>Introduction to Environmental Science</td>
<td>F</td>
<td></td>
</tr>
</tbody>
</table>

### SELECTIVES (12 hr)*

| Dept. | Number | Hrs | Title                                                        | Semester | Prerequisites                                                   |
|-------|--------|-----|--------------------------------------------------------------|----------|                                                               |
| AD    | 39700  | 3   | Sustainability in the Built Environment                     | F, S     | AGRY 25500 or AGRY 27000                                        |
| AGRY  | 57500  | 3   | Soil and Nutrient Management                                 | F        | ASM 10500 or ASM 23100 or ASM 49100 or (ASM 10400 and AGEC 20200) |
| ASM   | 33600  | 3   | Environmental Systems Management                             | F        | Graduate level but will give overrides                         |
| BCM   | 51000  | 3   | Topics in Environmentally Sustainable Construction, Design & Development | F, S, Su | BIOL 11000 or BIOL 11100 or BIOL 12100 or BIOL 28600 or BIOL 58500 or BIOL 24100 or BIOL 28000 + sophomore status |
| BIOL  | 48300  | 3   | Environmental And Conservation Biology                      | F        | ENGL 10100, 10200, 10600, 10800...                               |
| CE    | 35500  | 3   | Engineering Environmental Sustainability                     | S        | JR status or higher                                             |
| EAPS  | 30100  | 3   | Oil!                                                         | F,S      | POL 22300                                                      |
| EAPS  | 32700  | 3   | Climate, Science & Society                                   | F/S      | FNR 36000 or AGEC 52500 or POL 22300 or POLS Y1130 or POL 52300 or POL 42300 or POL 52000 |
| EAPS  | 37500  | 3   | Great Issues-Fossil Fuels, Energy & Society                 | F/S      | POL 22300                                                      |
| FNR   | 37500  | 3   | Human Dimensions of Nat’l Resource Management               | S        | FNR 21700 or HORT 21800 or FNR 22500                             |
| FNR   | 47000  | 1   | Fundamentals of Planning                                    | F        | BTNY 11000                                                     |
| FNR   | 48800  | 3   | Global Environmental Issues                                  | F        | HORT 21700 or HORT 21800 or FNR 22500                            |
| HORT  | 44200  | 1   | Sustainability In The Managed Landscape                      | S        |                                                               |
| POL   | 32700  | 3   | Global Green Politics                                       | F, S, Su |                                                               |
| SFS   | 30100  | 3   | Agroecology                                                  | F        |                                                               |
| SFS   | 30200  | 3   | Principles of Sustainability                                 | S        |                                                               |
| SFS   | 31100  | 1   | Aquaponics                                                   | F        |                                                               |
| SFS   | 31200  | 1   | Urban Agriculture                                            | F        |                                                               |
| SFS   | 31300  | 1   | Farm to Fork                                                 | F        |                                                               |
Department of Youth Development and Agricultural Education
Proposed Course and Curricular Changes

A. COURSES TO BE DELETED

B. COURSES TO BE ADDED

Prefix and Course Number: YDAE 18500

Title: Introduction to Agricultural Publication Design (Sem. 2)

Course Description: Credit Hours: 3.00. Introduction to pre-press production of professional-quality publications. Emphasis on computer applications for publication layout, design, production and troubleshooting. Typically offered Spring.

Prefix and Course Number: YDAE 25100

Title: Writing About Science and Agriculture (Sem. 1)

Course Description: Credit Hours: 1.00. Introduction to techniques and writing genres appropriate for communicating scientific and agricultural information to general audiences. Emphasis on developing professional skills in writing and editing. Typically offered Fall.

C. COURSES TO BE CHANGED

None

D. CURRICULAR CHANGES

Our placement experience and feedback from alumni indicate that AGCM students need graphic design skills and experience with industry-standard software to be competitive for internships and full-time positions in the communication field. There is not a course we’re aware of that addresses this need and is available to AGCM majors. The proposed course has been developed and taught under a temporary course number (YDAE 49100-0XX) in previous semesters.
Supporting Document

YDAE 18500 Introduction to Agricultural Publication Design

Semesters Offered: Spring

Lecture/Lab Hours: Lec T R 3:30 – 4:45 p.m.

Credit(s): 3.00

Prerequisites: None (Enrollment Priority: AGCM majors)

Outcomes: Will the course be nominated for inclusion on a University Foundational Core or COA Core course list?

We are open to possibilities. There are courses in drawing, design and photography (visual communication) that fulfill Humanities requirements. These courses are offered by Art & Design.

Outcomes: Mapping of course outcomes to University Embedded or Departmental learning outcomes. This course helps satisfy the following outcomes:

Applicability to University Core Curriculum (check all that apply)

__Human Cultures: Behavioral/Social Sciences
__Human Cultures: Humanities
__Information Literacy
__Oral Communication
__Quantitative Reasoning
__Science
__Science, Technology, & Society
__X_Written Communication

University Embedded Outcomes addressed by this course (check all that apply)

__X_Communication
__Ways of Thinking
__Interpersonal Skills and Intercultural Knowledge

Learning Outcomes and Method of Evaluation or Assessment:
Creative Thinking (Ways of Thinking): Satisfactory completion of a professional quality publication in the course major project.

Description: How will this course accomplish the previous outcomes?
Students must think creatively to conceptualize and produce a publication that incorporates accepted principles of design and visual composition. The creative challenge is to combine graphic elements (display text, body text, photos, artwork, etc.) so that the final product is attractive, readable, compatible with communication
goals, and within budget. Students must have created all visual elements themselves or secured copyright permission for any elements they wish to use in the final publication.

Course Contact Information:
Name: Dr. Mark Tucker
Phone Number: 494-8429
E-mail Address: matucker@purdue.edu
Campus Address: AGAD 205

F. Course Syllabus:

YDAE 18500
Introduction to Agricultural Publication Design
Undergraduate, 3 Credit Hours

Course Description and Objectives
This course provides an overview of principles involved in design and production of professional-quality publications for agricultural and general audiences. The theoretical and applied concepts emphasized in the course will be of value in the communication workplace.

After completing this course, students should be able to perform the following tasks:
1. Apply established layout and design principles when producing a publication.
2. Use professional-quality computer software and hardware to complete basic and advanced pre-press publication design and production tasks.
3. Solve common design and production problems encountered in the communication workplace, including those related to readability, resolution, color and composition.
4. Use appropriate professional terminology when communicating with editors, designers, printers and other vendors on particular projects.
5. Seek bids that result in reliable cost estimates from printers and other vendors.
6. Consider ethical implications and professional responsibilities when making editorial and design decisions.

Materials
Students should purchase a flash drive specifically for use in the course. This drive should be brought to each class and have at least 1 GB memory. A standard ruler or pica ruler also will be needed throughout the semester, and a three-ring binder is recommended to store all class handouts and materials.

Recommended Online Resources
http://www.purdue.edu/marketing/index.html (Purdue University Office of Marketing & Media)

Diversity Welcome
In this course, each voice in the classroom has something of value to contribute. Please take care to respect the different experiences, beliefs, and values expressed by students and staff involved in this course. We support Purdue's commitment to diversity, and welcome individuals of all ages, backgrounds, citizenships, disabilities, sex, education, ethnicities, family statuses, genders, gender identities, geographical locations, languages, military experience, political views, races, religions, sexual orientations, socioeconomic statuses, and work experiences.

Notice for Students with Special Needs
Students with disabilities must be registered with Disability Resource Center in the Office of the Dean of Students before classroom accommodations can be provided. If you are eligible for academic accommodations because you have a documented disability that will impact your work in this class, please schedule an appointment with the instructor as soon as possible to discuss your needs.

**Grading Scale and Policies**

This course provides an introduction to publication design principles and practices. Students should expect to spend a considerable amount of time outside of class to master concepts and techniques discussed in the course. The instructor will consider the following criteria when grading assignments:

- Professional editing to ensure accuracy in fact, grammar and spelling;
- Use of correct communication and design terminology when discussing assignments;
- Demonstrated mastery of software when formatting text, designing pages, composing documents, and preparing electronic files for vendors; and
- Effective design that incorporates concepts and techniques discussed in class.

All materials submitted for a grade will be evaluated according to the following 300-point scale:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Points</th>
<th>Percentage of Course Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>282 – 300</td>
<td>94 – 100%</td>
</tr>
<tr>
<td>A-</td>
<td>270 – 281</td>
<td>90 – 93.9%</td>
</tr>
<tr>
<td>B+</td>
<td>261 – 269</td>
<td>87 – 89.9%</td>
</tr>
<tr>
<td>B</td>
<td>249 – 260</td>
<td>83 – 86.9%</td>
</tr>
<tr>
<td>B-</td>
<td>240 – 248</td>
<td>80 – 82.9%</td>
</tr>
<tr>
<td>C+</td>
<td>231 – 239</td>
<td>77 – 79.9%</td>
</tr>
<tr>
<td>C</td>
<td>219 – 230</td>
<td>73 – 76.9%</td>
</tr>
<tr>
<td>C-</td>
<td>210 – 218</td>
<td>70 – 72.9%</td>
</tr>
<tr>
<td>D+</td>
<td>201 – 209</td>
<td>67 – 69.9%</td>
</tr>
<tr>
<td>D</td>
<td>189 – 200</td>
<td>63 – 66.9%</td>
</tr>
<tr>
<td>D-</td>
<td>180 – 188</td>
<td>60 – 62.9%</td>
</tr>
<tr>
<td>F</td>
<td>&lt; 180</td>
<td>less than 60%</td>
</tr>
</tbody>
</table>

Announced deadlines are firm for all graded work unless the student receives advance permission from the instructor. Exemptions are granted only for legitimate university functions or other unavoidable situations that warrant an excused absence as judged by the instructor. If you must miss class and are unable to speak with the instructor in person, leave a voice message or send an e-mail in advance of the missed class or as soon thereafter as possible.

Unless otherwise stated, materials are due during class on the announced deadline date. Computer, disk or printer problems are not justification for missed deadlines. Late materials will not be accepted unless the student has received prior permission from the instructor.

**Professionalism**

Punctuality and attention to deadlines are among the basic requirements expected of professionals. Regular attendance is expected. To receive full credit for class attendance and quality of participation, students are expected to be attentive, prepared for class and considerate of others. Please make sure all cell phones are turned off before class starts.

**Course Activities**

Course grades will be calculated from student performance on several quizzes and exercises, two course exams, a major project and overall professionalism. These items are described in this syllabus and on the class Blackboard site. See the instructor immediately if you have questions about deadlines or expectations.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Points Possible</th>
<th>Percentage of Course Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. In-class exercises and quizzes</td>
<td>45*</td>
<td>15%</td>
</tr>
</tbody>
</table>
2. Ad replication assignment 60 20%
3. Midterm 60 20%
4. Major project 75 25%
5. Final exam 45 15%
6. Professionalism and quality of participation 15 5%
**Total** 300 100%

* If the total points in this category do not equal 45, the sum will be adjusted to equal 15% of the course grade.

**Tentative Course Schedule**

**Week 1**
Course introduction.
Basic computer operating system features and text-formatting options.

**Week 2**
Indents, tabs and paragraph spacing for tables, bulleted lists and other specialized formats.
In-class word-processing assignment.

**Week 3**
Adobe InDesign® tools and menu options.
Introduction to composition.
Page layout and design principles – examples and applications.

**Week 4**
Screens, tints and strokes.
Discussion of major projects.
**Assignment:** Ad replication assignment.

**Week 5**
Complex formats in layout and design. Reverses, overprints and gradients.
Introduction to typography – type as a design element.

**Week 6**
Advertising replication labs.

**Week 7**
Digital and film photography principles.
Original and stock photographs and artwork. Introduction to Adobe Bridge®.
Grayscale, mezzotints, duotones and four-color imaging. Resolution issues.

**Week 8**
Deadline: Ad replication assignment.
Midterm.

**Week 9**
Spot and process color. CMYK and Pantone® color systems.

**Week 10**
Spring Vacation – no classes.
Week 11
Special printing items (die cuts, scoring, foil stamping, embossing).
Layout and design lab.

Week 12
Introduction to Adobe Photoshop®. Selected tools and art, photographic and typographic enhancements (transparency, layer masks, color adjustment, Pantone color conversion, filter gallery, text warp).

Week 13
Avoiding printing problems: moirés, pixilation, lost links, missing fonts.
Using Adobe InDesign’s Package function.

Week 14
Infographics.
Copyright and ethics.

Week 15
Working with printers and other production vendors; requesting reliable printing cost estimates.
Major project lab.

Week 16
Major project lab.
Prepare for final examination.
Deadline: Major project.

Final Examination:
Date to be announced.

Description of Course Activities

Exercises and quizzes. Several exercises and quizzes, some unannounced, will be administered throughout the semester to gauge students’ knowledge of course concepts. In-class exercises and quizzes are due in class on the day assigned; make-ups are granted only for excused absences.

Ad replication assignment. Students will use Adobe InDesign software to replicate one to two print advertisements supplied by the instructor. This assignment requires close attention to advanced formatting commands, color, and proper measurement and alignment techniques. The instructor will discuss this assignment early in the semester.

Major project. Students will complete a major project worth 25 percent of the course grade. Projects must include text and photographs or artwork and should incorporate design principles discussed in the course. This is assignment that will require a substantial time commitment. Students should start work on the project as soon as possible after receiving instructor approval. Graded projects will be available for students to pick up during finals week.

Midterm and final exams. This course includes a midterm and a comprehensive final exam that total to 35 percent of the course grade. The exams may include a number of conventional test items (multiple choice, short answer, etc.) as well as a computer design component.

Campus Emergency
In the event of a major campus emergency, course requirements, deadlines and grading percentages are subject to changes that may be necessitated by a revised semester calendar or other circumstances. Should such changes be necessary, contact your instructor for information and instructions. Instructor contact information is provided on the first page of this
syllabus. When possible, your instructor will send class cancellation information to you through e-mail.

Academic Misconduct
Students are responsible for knowing and observing the policies and regulations of this university. This information is available from the instructor or from the Office of the Dean of Students. Plagiarism and other forms of academic dishonesty are justification for failure on any assignment or the course. Materials turned in for a grade are assumed to be the student’s original work prepared specifically for this course during this semester. Students wishing to submit material that has been used for other classes must get permission from the instructor beforehand.
YDAE 25100 Writing About Science and Agriculture

Semesters Offered: Fall

Lecture/Lab Hours: Lec M 3:30 – 4:20 p.m.

Credit(s): 1.00

Prerequisites: ENGL 10600 or 3 credits of English composition; COM 11400 or equivalent
(Course will not count in AGCM program of study)

Outcomes: Will the course be nominated for inclusion on a University Foundational Core or COA Core course list?
Yes – we propose the course count toward the UCC Written Communication Requirement.

Outcomes: Mapping of course outcomes to University Embedded or Departmental learning outcomes. This course helps satisfy the following outcomes:

Applicability to University Core Curriculum (check all that apply)
- Human Cultures: Behavioral/Social Sciences
- Human Cultures: Humanities
- Information Literacy
- Oral Communication
- Quantitative Reasoning
- Science
- Science, Technology, & Society
  X Written Communication

University Embedded Outcomes addressed by this course (check all that apply)

  X Communication

  Ways of Thinking

  Interpersonal Skills and Intercultural Knowledge

Learning Outcomes and Method of Evaluation or Assessment:
Written Communication: Minimum grade of “C” in the course, including completion of a comprehensive editing exam.

Description: How will this course accomplish the previous outcomes?
Students will gain experience across a variety of nonfiction writing genres appropriate for lay audiences. They will also gain experience editing their own work as well as providing editorial feedback to other student writers. Special emphasis will be placed on accuracy and conciseness.

Course Contact Information:
Name: Dr. Mark Tucker
Phone Number: 494-8429
Email Address: matucker@purdue.edu
Campus Address: AGAD 205

F. Course Syllabus:

YDAE 25100
Writing About Science and Agriculture
Undergraduate, 1 cr.

Course Description and Objectives
This course provides a condensed, intensive introduction to various techniques and writing genres appropriate for communicating agricultural and scientific information. A major focus will be on higher-order tasks in writing — learning more about yourself as a writer, finding your voice and developing confidence. Also emphasized are writing and editing techniques appropriate for communicating technical concepts to lay audiences.

Through this course, students will meet the following learning objectives:
1. Identify recommended practices for communicating technical concepts to the public.
2. Gain an introduction to conveying science-based information clearly and concisely through writing.
3. Recognize and appreciate effective nonfiction writing in various forms.
4. Gain confidence and experience in writing and editing by exploring styles and genres appropriate for communicating with specific audiences.
5. Gain awareness of techniques for using and giving constructive editorial criticism to peers.
6. Gain experience in using a developmental rubric to improve their writing in this course and beyond.

Text and Materials

Diversity Welcome
In this course, each voice in the classroom has something of value to contribute. Please take care to respect the different experiences, beliefs, and values expressed by students and staff involved in this course. We support Purdue's commitment to diversity, and welcome individuals of all ages, backgrounds, citizenships, disabilities, sex, education, ethnicities, family statuses, genders, gender identities, geographical locations, languages, military experience, political views, races, religions, sexual orientations, socioeconomic statuses, and work experiences.

Grading Scale and Policies
This course provides an advanced treatment of methods for preparing and communicating consumer and agricultural information to various audiences. A high premium is placed upon writing that is correct in spelling, grammar, and fact. While some class time will be devoted to writing and editing labs, students should expect to spend comparable time outside of class to master concepts and fine-tune assignments.

Materials submitted for a grade will be evaluated according to the following scale:

<table>
<thead>
<tr>
<th>Grading Scale (%)</th>
<th>Letter Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+ = 94-100</td>
<td>A = 90-93</td>
</tr>
<tr>
<td>B+ = 86-89</td>
<td>B = 83-85</td>
</tr>
<tr>
<td>C+ = 76-79</td>
<td>C = 73-75</td>
</tr>
<tr>
<td></td>
<td>B- = 80-82</td>
</tr>
<tr>
<td></td>
<td>C- = 70-72</td>
</tr>
</tbody>
</table>
Announced deadlines are firm for all graded work unless the student receives advance permission from the instructor. Exemptions are granted only for legitimate university functions or other unavoidable situations that warrant an excused absence as judged by the instructor. If you must miss class and are unable to speak with the instructor in person, leave a voice message or send an email in advance of the missed class or as soon thereafter as possible.

Unless otherwise stated, materials are due during class on the announced deadline date. Computer, disk or printer problems are not justification for missed deadlines. Late materials will not be accepted unless the student has received prior permission from the instructor.

**Course Activities**

Course grades will be calculated from student performance on several writing and editing exercises, an editorial or blog post, an in-class news story and a communication portfolio that documents the semester's work. In addition, each student will propose a writing assignment on a topic and genre appropriate to his or her discipline. Some of these activities are described below; additional details will be provided early in the semester. See the instructor immediately if you have questions about requirements or deadlines.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Points Possible</th>
<th>Percentage of Course Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. In-class writing and editing exercises</td>
<td>100*</td>
<td>25%</td>
</tr>
<tr>
<td>2. Editorial or blog post (two drafts)</td>
<td>60</td>
<td>15%</td>
</tr>
<tr>
<td>3. News story</td>
<td>60</td>
<td>15%</td>
</tr>
<tr>
<td>4. Writing in your discipline (two drafts)</td>
<td>100</td>
<td>25%</td>
</tr>
<tr>
<td>5. Communication portfolio</td>
<td>40</td>
<td>10%</td>
</tr>
<tr>
<td>6. Professionalism and quality of participation</td>
<td>40</td>
<td>10%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>400</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

* If the total points in this category do not equal 100, the sum will be adjusted to equal 25% of the course grade.

**Tentative Course Schedule**

**Week 1**
Course introduction.
Recognizing "good" writing. Influences on your writing. The instructor as coach.

**Week 2**
Using writing rubrics. Knowing your audience(s).
Introduction to opinion writing: Editorials; letters to the editor; columns; blogs.

**Week 3**
Labor Day (no classes)
Online review of parts of speech: Nouns, verbs, adjectives, determiners, adverbs, pronouns, prepositions, conjunctions, interjections.

**Week 4**
Writing lab.
Basic editing: Conciseness; word selection; sentence and paragraph structure; verb voice.

**Week 5**
News genres. The news story and news release. Leads; news determinants; attribution.
Deadline: First draft of editorial/blog post (submit two copies).

**Week 6**
Peer editing. Recommended practices for providing and receiving editorial criticism.
Introduction to science communication — challenges and benefits.
Pronoun case, number and agreement.

**Week 7**
Rhythm, cadence and creativity. Gerunds and participles.
Deadline: News story (in-class assignment).
Deadline: Final draft of editorial/blog post and photo or visual.

**Week 8**
October Break (no classes)
Online practice editing quiz.

**Week 9**
Explore a genre.
Writing and editing lab.

**Week 10**
Writing and editing lab.
Deadline: Instructor approval for disciplinary writing assignment.

**Week 11**
Comprehensive editing quiz.

**Week 12**
Deadline: First draft of disciplinary writing assignment (submit two copies).
Tentative Course Schedule (continued)

**Week 13**
Peer editing.

**Week 14**
Deadline: Final draft of disciplinary writing assignment.

**Week 15**
Deadline: Communication portfolio.
Final deadline for all written work.

**Week 16**
Instructor-student conferences.
Description of Course Activities

In-class writing and editing. A number of writing and editing exercises, some unannounced, will be administered throughout the semester to gauge students’ knowledge of course concepts. In-class exercises and quizzes are due in class on the day they are assigned; make-ups are granted only for excused absences.

Editorial or blog post. Each student will write an editorial or blog post in which they provide their opinion on a contemporary issue in their field or discipline. Arguments must be based on documented facts and science-based information and follow the format discussed in class. An original photograph or visual must be submitted with the final draft.

News story. Much of what the public knows about science and agriculture comes from mass media. To develop a greater understanding of media, each student will write a news story in class using facts supplied by the instructor. Stories will be graded on accuracy, news judgment and completeness.

Writing in your discipline. Each student will propose a genre from which they will develop a major writing assignment that will be worth one-fourth of the course grade. Acceptable assignments may include grant proposals, curricula, or publications intended for the public. Students are encouraged to work with a faculty member from their home department to identify relevant topics and genres in their field.

Communication portfolio. To document their work and progress in the course, each student will assemble a communication portfolio that will be due during the 15th week of the semester. Portfolios will be evaluated on their completeness and professionalism; recommended formats will be discussed early in the semester. The instructor will meet with each student during the final week of the semester to discuss and return the portfolio.

Professionalism

Punctuality and attention to deadlines are among the basic requirements expected of professionals. Regular attendance is expected. To receive full credit for professionalism and quality of participation, students are also expected to be attentive, well-prepared for class, and considerate of others. Please make sure all cell phones are turned off before class starts.

Feedback on Written Work

Constructive criticism is necessary to improve writing skills. Students in this course will receive both oral and written feedback from the instructor throughout the semester. Oral feedback is available from the instructor upon request; written feedback is provided directly on students’ assignments during grading. Multiple drafts on some assignments will allow students to incorporate the feedback they have received, improving their writing and their grades.

Students will also be asked to provide written editorial feedback to classmates on particular assignments this semester. The purpose of peer review is to allow students to assist and learn from each other in improving their writing. During this process, students are expected to provide candid feedback using the writing and editing techniques discussed in class.

Finally, students are encouraged to seek feedback and advice while preparing their assignments. Such advice is intended to clarify instructions and to help identify editorial and creative strategies to meet objectives of the assignment. Seeking advice does not guarantee a higher grade on an assignment. Students should request advice well in advance of the assignment deadline to allow the instructor to give thoughtful help and also to allow time to incorporate the suggestions. Writing is a creative activity, and grading of written work has a subjective element. Students may occasionally have questions about how an assignment was graded. In such cases, they should schedule an appointment with the instructor as soon as possible. While such discussions can be uncomfortable for some writers, they provide additional opportunities for learning about the professionalism and the writing process.

Notice for Students with Special Needs

Students with disabilities must be registered with Disability Resource Center in the Office of the Dean of Students before classroom accommodations can be provided. If you are eligible for academic accommodations because you have a
documented disability that will impact your work in this class, please schedule an appointment with the instructor as soon as possible to discuss your needs.

**Campus Emergency**
In the event of a major campus emergency, course requirements, deadlines and grading percentages are subject to changes that may be necessitated by a revised semester calendar or other circumstances. Should such changes be necessary, contact your instructor for information and instructions. Instructor contact information is provided on the first page of this syllabus. When possible, your instructor will send any class cancellation information to you through email.

**Academic Misconduct**
Students are responsible for knowing and observing the policies and regulations of this university. This information is available from the instructor or from the Office of the Dean of Students. Plagiarism and other forms of academic dishonesty are justification for failure on any assignment or the course. Materials turned in for a grade are assumed to be the student’s original work prepared specifically for this course during this semester. Students wishing to submit material that has been used for other classes or purposes must get permission from the instructor beforehand.
Curriculum and Student Relations Committee
Proposed Curricular Changes

PART A

College of Agriculture
Core Graduation Requirements

I. Proposal to Alter College Mathematics Requirement

The College of Agriculture voted many years ago to require a minimum of one semester of college calculus for all majors in the College. Since this decision, the University Core Curriculum has been implemented, which requires one course in Math/Quantitative Reasoning with college algebra being the minimum needed to fulfill this requirement. More recently, the Math Department has decided to no longer teach Math 15910. Therefore, based on what is listed on the College of Agriculture website, available calculus courses for our majors will be limited to MA 16010, 16020, 16100 and 16500.

Under the current requirements, several majors in the college, which currently require MA 15910 will now have no choice but to require MA 16010, which requires a higher ALEKS score for admission.

Current Requirement:

*Calculus (3 credits)*
- (3) MA 15910 (Introduction to Calculus)
- (3) MA 16010 (Applied Calculus I)
- (3) MA 16020 (Applied Calculus II)
- (5) MA 16100 (Plane Analytic Geometry and Calculus I)
- (4) MA 16500 (Analytic Geometry and Calculus I)
- (3) MA 22000 (Introduction to Calculus)
- (3) MA 22300 (Introductory Analysis I)
- (3) MA 23100 (Calculus for Life Science I)

Proposed Requirement:

Alter the College core requirement to read: “College of Agriculture students must take a minimum of one semester of mathematics. The following courses are acceptable: MA 16010 (Applied Calculus I) (3 Cr.), 16100 (Plane Analytic Geometry and Calculus I) (5 cr.), or MA 16500 (Analytic Geometry and Calculus I) (4 cr.); or an approved mathematics course/sequence for a particular major. Departments wishing to use courses not listed above for their majors would need to obtain approval from the College of Agriculture Faculty.”
Calculus (3 credits)
- (3) MA 15910 (Introduction to Calculus)
- (3) MA 16010 (Applied Calculus I)
- (3) MA 16020 (Applied Calculus II)
- (5) MA 16100 (Plane Analytic Geometry and Calculus I)
- (4) MA 16500 (Analytic Geometry and Calculus I)
- (3) MA 22000 (Introduction to Calculus)
- (3) MA 22300 (Introductory Analysis I)
- (3) MA 23100 (Calculus for Life Science I)
- Or an approved mathematics course/sequence for a particular major

II. Proposal to alter the College Written and Oral Communication Requirement

The College of Agriculture currently requires 10 credits of Written and Oral Communication. However, the reality is that there are many exceptions to this requirement and functionally we require 9-12 credits depending on the course taken. Current options include:

<table>
<thead>
<tr>
<th>Academic Category</th>
<th>B.S.</th>
<th>B.S.A.E.</th>
<th>B.S.B.E.</th>
<th>B.S.F.</th>
<th>B.S.L.A.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semester Credits</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Written and Oral Communication</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>First Year Composition</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Fundamental of Speech Communication</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Additional Written and/or Oral Communication</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Minimum Total</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
</tbody>
</table>

Written and Oral Communication (10 credits)
The written and oral communication component of the core curriculum will enhance students' abilities to communicate with clarity in formal, informal, and technical contexts,
to develop and convey logical arguments when discussing problems or ideas, and to evaluate critically the arguments of others. Written and Oral Communication requirements of both the College of Agriculture and Purdue University’s Core Curriculum may be fulfilled by completing one of the following options below. Occasionally, students meet the international understanding or multicultural awareness requirement with the Additional Written or Oral Communications selection, so wise selection is recommended.

Option 1 (Beginning Freshmen – Regular Credentials)
- (3) COM 11400 (Fundamentals of Speech Communication) or (3) COM 21700 (Science Writing and Presentation)
- (4) ENGL 10600 (First-Year Composition)
- (3) Additional Written and/or Oral Communications Selection (see Ag Core list – hyperlinked below)

Option 2 (Beginning Freshmen – Advanced Credentials)
- (3) COM 11400 (Fundamentals of Speech Communication) or (3) COM 21700 (Science Writing and Presentation)
- (3) ENGL 10800 (Accelerated First-Year Composition) * or (3) HONR 19903 (Interdisciplinary Approaches in Writing)*
- (3) Additional Written and/or Oral Communications Selection (see Ag Core list – hyperlinked below)

Option 3 (Transfer Students - Three Credits of English Completed)†
- (3) COM 11400 (Fundamentals of Speech Communication) or (3) COM 21700 (Science Writing and Presentation)
- Transfer credits in freshmen English composition which appear on a Purdue transcript as ENGL 10100, ENGL 10200, ENGL 10300, ENGL 10400, or ENG W131
- (6) Additional Written and/or Oral Communications Selection (see Ag Core list – hyperlinked below)

Option 4 (Transfer Students – Six Credits of English Completed)†
- (3) COM 11400 (Fundamentals of Speech Communication) or (3) COM 21700 (Science Writing and Presentation)
- (6) Transfer credits in freshmen English composition which appear on a Purdue transcript as ENGL 10600 + 2 additional credits of ENGL 1XXXX, ENGL 10100+10200, or ENGL 10400+10500
• (3) Additional Written or Oral Communications Selection (see Ag Core list – hyperlinked below)

Option 5 (Transfer Students – Three Credits of Undistributed English Completed)†
• (3) COM 11400 (Fundamentals of Speech Communication) or (3) COM 21700 (Science Writing and Presentation)
• (3) Transfer credits in freshmen English composition (non-remedial) which appear on a Purdue transcript as ENGL 1XXXX
• (3) UCC Approved Written Communication credits which are not duplicative of other course credits
• (3) Additional Written and/or Oral Communications Selection (see Ag Core list – hyperlinked below)

* Students who earn an "A" or "B" in ENGL 10800 or HONR 19903 are exempt one credit of Written and Oral Communication requirements and total graduation requirements. Those who do not earn an "A" or "B" in ENGL 10800 or HONR 19903 must complete six credits of American Sign Language (ASL), Communication (COM 20000+), English (ENGL 20000+), (3) AGR 20100 (Communicating Across Culture), or (3) YDAE 44000 (Methods of Teaching Agricultural Education)
† Ten credits are required to fulfill Written and Oral Communication requirements for the baccalaureate degree. The additional two credits may be used in the plan of study at the discretion of the department offering the major.

Proposed options include:

Students in Option 1 above take 10 credits. Students in Option 2 only take 9 credits provided they receive a “B” or better in ENGL 10800 or HONR 19903. Students in options 3-5 end up with 12 credits. Therefore, we propose to reduce the Written and Oral Communications requirement to 9 credits. We believe that most students starting at Purdue will still end up with 10 credits as they will still most likely take ENGL 10600, but this will simplify scheduling for students who transfer in with 3 credits on English.

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Additional Written and/or Oral Communication

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Written and Oral Communication (9-12 credits)
The written and oral communication component of the core curriculum will enhance students' abilities to communicate with clarity in formal, informal, and technical contexts, to develop and convey logical arguments when discussing problems or ideas, and to evaluate critically the arguments of others. Written and Oral Communication requirements of both the College of Agriculture and Purdue University’s Core Curriculum may be fulfilled by completing one of the following options below. All students, new beginners or transfers, must meet the University’s Core Curriculum requirement for Written Communication and Oral Communication. Occasionally, students meet the international understanding or multicultural awareness requirement with the Additional Written or Oral Communications selection, so wise selection is recommended.

Option 1 (Beginning Freshmen – Regular Credentials)
• (3) COM 11400 (Fundamentals of Speech Communication) or (3) COM 21700 (Science Writing and Presentation)
• (4) ENGL 10600 (First-Year Composition)
• (3) Additional Written and/or Oral Communications Selection (see Ag Core list – hyperlinked below)

Option 2 (Beginning Freshmen – Advanced Credentials)
• (3) COM 11400 (Fundamentals of Speech Communication) or (3) COM 21700 (Science Writing and Presentation)
• (3) ENGL 10800 (Accelerated First-Year Composition) * or (3) HONR 19903 (Interdisciplinary Approaches in Writing)*
• (3) Additional Written and/or Oral Communications Selection (see Ag Core list – hyperlinked below)

Option 3 (Transfer Students - Three Credits of English Completed)
• (3) COM 11400 (Fundamentals of Speech Communication) or (3) COM 21700 (Science Writing and Presentation)
• Transfer credits in freshmen English composition which appear on a Purdue transcript as ENGL 10100, ENGL 10200, ENGL 10300, ENGL 10400, or ENG W131
• (3) Additional Written and/or Oral Communications Selection (see Ag Core list – hyperlinked below)

Option 4 (Transfer Students – Six Credits of English Completed)†
• (3) COM 11400 (Fundamentals of Speech Communication) or (3) COM 21700 (Science Writing and Presentation)
• (6) Transfer credits in freshmen English composition which appear on a Purdue transcript as ENGL 10600 + 2 additional credits of ENGL 1XXXX, ENGL 10100+10200, or ENGL 10400+10500
• (3) Additional Written or Oral Communications Selection (see Ag Core list – hyperlinked below)

Option 5 (Transfer Students – Three Credits of Undistributed English Completed)†
• (3) COM 11400 (Fundamentals of Speech Communication) or (3) COM 21700 (Science Writing and Presentation)
• (3) Transfer credits in freshmen English composition (non-remedial) which appear on a Purdue transcript as ENGL 1XXXX
• (3) UCC Approved Written Communication credits which are not duplicative of other course credits*
• (3) Additional Written and/or Oral Communications Selection (see Ag Core list – hyperlinked below)

Will no longer be applicable: * Students who earn an "A" or "B" in ENGL 10800 or HONR 19903 are exempt one credit of Written and Oral Communication requirements and total graduation requirements. Those who do not earn an "A" or "B" in ENGL 10800 or HONR 19903 must complete six credits of American Sign Language (ASL), Communication (COM 20000+), English (ENGL 20000+), (3) AGR 20100 (Communicating Across Culture), or (3) YDAE 44000 (Methods of Teaching Agricultural Education)

† Nine credits are required to fulfill Written and Oral Communication requirements for the baccalaureate degree. The additional three credits may be used in the plan of study at the discretion of the department offering the major.

* If ENGL 1XXXX has not been approved and does not appear on the UCC list of options for Written Communication.

PART B

Curricular Changes

Department of Agronomy

a. Proposed changes to Agronomic Business and Marketing Option:

FROM (3) MA 15910 (Introduction to Calculus) or MA 16010 (Applied Calculus I)
TO (3) MA 15800 (Precalculus) or MA 16010 (Applied Calculus)
Justification: Math needs for each of our major concentrations were reviewed by our faculty and was voted on that MA 15800 would serve our students better in this concentration.

b. Proposed changes to Crop and Soil Management Option:

FROM (3) MA 15910 (Introduction to Calculus) or MA 16010 (Applied Calculus)
TO (3) MA 15800 (Precalculus) or MA 16010 (Applied Calculus)

Justification: Math needs for each of our major concentrations were reviewed by our faculty and was voted on that MA 15800 would serve our students better in this concentration.

c. Proposed changes to International Agronomy Option:

FROM (3) MA 15910 (Introduction to Calculus) or MA 16010 (Applied Calculus)
TO (3) MA 15800 (Precalculus) or MA 16010 (Applied Calculus)

Justification: Math needs for each of our major concentrations were reviewed by our faculty and was voted on that MA 15800 would serve our students better in this concentration.

Department of Horticulture and Landscape Architecture

Horticulture
The HORT faculty propose that MA15800 Precalculus- Functions and Trigonometry serve as the minimum required mathematics course for these concentrations.

Students earning a Bachelor of Science in one of the five concentrations listed above in the Horticulture major at Purdue University require a solid foundation of basic sciences, basic quantitative skills and fundamental technical course content. They become professionals working in horticultural businesses and non-commercial institutions such as public gardens. Quantitative skills are essential. However, what is required include arithmetic and geometric skills, and occasionally algebraic and trigonometric applications. These come in such activities as land measurement, calculation of quantities for agri-chemicals, application rates, timing of production schedules, and a wide range of basic financial computations (wages, fees, taxes), etc.

MA15800 Precalculus- Functions and Trigonometry will allow our students to be successful in their professional careers. It covers functions, trigonometry, and algebra of calculus; all quantitative and problem solving skills that enhance our students potential for achieving excellence in their professional workplace. In addition, generally students wishing to continue on to graduate education within the disciplines are not normally required to have taken calculus as a requirement for acceptance into a graduate degree
program (e.g. Master of Science). Instead, students are accepted based on their overall GPA and standardized test scores (e.g. The GRE). Furthermore, advisors in the curriculum will assess the individual needs of each student and continue to recommend the study of calculus when appropriate to meet the student’s goals.

**Landscape Architecture**

Students in landscape architecture are critical thinkers and artists working in the design and construction industries. As such, trigonometry is an essential mathematics skill regularly used by a practicing landscape architect. The daily life of a designer might see them calculating the allowable speed and associated turning radii for vehicles on a proposed road system, slope stabilization and drainage at multiple scales, load bearing and deflection on materials or retention structures, pathways and viewshed systems that must meet ADA guidelines, or calculating precise areas from complex land surveys, all of which necessitates a keen understanding of trigonometric functions. We must rely on coursework provided by the Purdue Mathematics department to deliver these requisite math skills to our students.

Students wishing to continue on to secondary education within the field are not required to have taken calculus as a standard for acceptance. Instead, students are accepted based on their portfolio of works and overall GPA.

The Landscape Architecture Program proposes that MA15800 would better serve students in their professional careers. MA15800 covers functions, trigonometry, and algebra of calculus; all skills that enhance our students potential for success in the professional workplace.

**Sustainable Food and Farming Systems**

The HORT and SFS faculty propose that MA15800 Precalculus- Functions and Trigonometry serve as the minimum required mathematics course for these concentrations.

Students earning a Bachelor of Science in one of the five concentrations listed above in the Horticulture major at Purdue University require a solid foundation of basic sciences, basic quantitative skills and fundamental technical course content. They become professionals working on small farms and in horticultural businesses and non-commercial institutions such as public gardens. Quantitative skills are essential. However, what is required include arithmetic and geometric skills, and occasionally algebraic and trigonometric applications. These come in such activities as land measurement, calculation of quantities for agri-chemicals, application rates, timing of production schedules, and a wide range of basic financial computations (wages, fees, taxes), etc.

MA15800 Precalculus- Functions and Trigonometry will allow our students to be successful in their professional careers. It covers functions, trigonometry, and algebra of calculus; all quantitative and problem solving skills that enhance our students potential for achieving excellence in their professional workplace. In addition, generally students wishing to continue on to graduate education within the disciplines are not normally
required to have taken calculus as a requirement for acceptance into a graduate degree
program (e.g. Master of Science). Instead, students are accepted based on their overall
GPA and standardized test scores (e.g. The GRE). Furthermore, advisors in the
curriculum will assess the individual needs of each student and continue to recommend
the study of calculus when appropriate to meet the student’s goals.

**Turf Management and Science**

Students earning a Bachelor of Science in the Turf Management and Science major at
Purdue University require a solid foundation of basic sciences, quantitative skills (e.g.
Math/Stat) and fundamental technical course content. Our program relies on the courses
and instruction provided by the Purdue Mathematics department to deliver the requisite
math skills to our students. Based on our student’s progression of upper-level coursework
and the planned discontinuation of MA 15910 (Pre-Calculus) a change in the math
requirement is being proposed.

The faculty associated with delivering the Turf Management and Science major propose
that MA15800 would serve as a minimum advanced foundational math course while
continuing to allow students to be successful in their professional careers. MA15800
covers functions, trigonometry, and algebra of calculus; all quantitative and problem
solving skills that enhance our students potential for success in their professional
workplace. Most students wishing to continue on to secondary education within the
discipline are not normally required to have taken calculus as a standard for acceptance
for an initial graduate degree (e.g. Master of Science). Instead, students are accepted
based on their overall GPA and standardized test scores (e.g. The GRE). Furthermore,
advisors in the curriculum will assess the individual needs of each student and continue to
recommend MA 16010 when it is appropriate.

**Youth Development and Agricultural Education**

Change College of Agriculture Mathematics requirement for the Agricultural
Communication and Agricultural Education majors from Calculus (3 credits) and
Statistics (3 credits) to Mathematics (3 credits) and Statistics (3 credits). The
Mathematics requirements may be met by MA 15800 (Pre-calculus – Functions and
Trigonometry) or any other mathematics course included in the College of Agriculture
Mathematics Core Requirement.

Justification/Rationale:
MA 15800 has the same required ALEKS score or pre-requisite as the previously
approved MA 15910. Calculus is not a pre-requisite for any later coursework in either
major. We are aware of no peer institutions that require calculus for its Agricultural
Communication/Agricultural Education majors. Professions the graduates of both majors
enter do not require calculus skills. This change does not affect learning outcomes as MA
15800 meets the UCC Quantitative Reasoning foundational learning outcome.
PART C

Update to Core Curriculum Lists (For Information Only)

Previously, the Agricultural Faculty authorized the Curriculum and Student Relations Committee to make adjustments to the lists of courses that may fulfill core curriculum requirements in undergraduate plans of study and to report changes to the total faculty. The Curriculum and Student Relations Committee has adopted the following modifications to the core curriculum lists.

Biological Sciences and Additional Mathematics and/or Sciences

Additions
(4) BTNY 11100 (Principles of Plant Biology)

Social Science and Humanities

Additions
(3) AGEC 33000 (Food Distribution – A Retailing Perspective)

International Understanding

Additions
(2) FNR 30200 – (Global Sustainability Issues)
Subject to the approval of the Agricultural Faculty, the following graduation candidates who complete degree requirements during the current semester will be recommended to the Board of Trustees to receive their degrees as of May 14, 2016, and the candidates who complete degree requirements during the Summer Session will be recommended for degrees as of August 6, 2016. Also, the Dean of Agriculture, or his designee shall be authorized to act for the faculty regarding the certification of qualified candidates.

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| F       | Hirschinger, Tyler C. | BSFOR  | FORS   |         |         |         |         |        |
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| F       | McCann, Clayton E.    | BSFOR  | FORS   |         |         |         |         |        |
| F       | McGuckin, Jordan K.   | BSFOR  | FORS   |         |         |         |         |        |
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