**Washington State University**

**MAJOR CURRICULAR CHANGE FORM -- COURSE**

(Submit original signed form and ten copies to the Registrar's Office, zip 1035.)

See [https://www.ronet.wsu.edu/ROPubs/Apps/HomePage.ASP](https://www.ronet.wsu.edu/ROPubs/Apps/HomePage.ASP) for this form.

**Required Effective Date:** 05/01/2014  
(Effective date cannot be retroactive)

- [ ] New course  
- [x] Temporary course  
- [ ] Drop service course

- [ ] There is a course fee associated with this course

[http://www.schedules.wsu.edu/Schedules/Apps/CourseFees.ASP](http://www.schedules.wsu.edu/Schedules/Apps/CourseFees.ASP)

- [ ] Variable credit  
- [x] Increase credit (former credit 14/2)

- [ ] Repeat credit (cumulative maximum 4 hours)

- [ ] Lecture-lab ratio (former ratio )

- [ ] Prefix (former prefix )

- [ ] Cooperative listing (UI prefix and number )

- [ ] Conjoint listing (400/500)

- [ ] Request to meet Writing in the Major [M] requirement (Must have All-University Writing Committee Approval)

- [ ] Request to meet GER in (Must have GenEd Committee Approval)

- [ ] Professional course (Pharmacy & Vet Med only)

- [ ] Graduate credit (professional programs only)

- [x] Other (please list request)  

**P I P**  
course prefix  525  field plant pathology and mycology

course no.

- [ ] Introductory plant pathology (PI P 429) or mycology (PI P 521)

**Description (20 words or less):** Learn diverse plant diseases, disease diagnosis and management in fields, orchards, nurseries, etc.; interact directly with diverse agricultural stakeholders.

**Instructor:** Lindsey du Toit  
**Contact:** Deb Marsh

**Phone number:** (360) 848-8140  
**Phone number:** (509) 335-2615

**Email:** dutoit@wsu.edu  
**Email:** marshdj@wsu.edu

- Please attach rationale for your request, a detailed course outline/syllabus and explain how this impacts other units in Pullman and other branches (if applicable).

- Secure all required signatures and provide 10 copies to the Registrar's Office.

**Chair/date:** 12/17/13  
**Dean/date:** 12/17/13

**General Education Com/date:**

**Chair (if crosslisted/interdisciplinary):**

**Dean (if crosslisted/interdisciplinary):**

**Graduate Studies Com/date:**

**All-University Writing Com/date**  
**Academic Affairs Com/date**  
**Senate/date**

*If the proposed change impacts or involves collaboration with other units, use the additional signature lines provided for each impacted unit and college.*
8 November 2013

Lisa Devine
WSU Registrar's Office
French 346
Pullman, WA 99164-1035

Dear Lisa Devine:

This letter provides the rationale for submitting a Major Curricular Change Form requesting an changing the credits assigned to Field Plant Pathology (PI P 525) from 'variable credits of 1-2 with a maximum accumulation of 4', to '3 credits' without the option of graduate students repeating the course for cumulative credits. Enclosed is a copy of the revised syllabus I developed in 2011-12, and the completed Major Curricular Change Form. I participated as a guest speaker in PI P 525 in 2002, 2004, 2006, and 2008; co-taught PI P 525 with Dr. Gary Grove in 2010; and then took full responsibility for the course in 2012. In preparing for the latter, I revised the course syllabus and expanded significantly on student expectations, as detailed below and in the attached syllabus. The revisions were based on feedback I received from graduate students I interviewed who had taken the course, and discussions with faculty in the WSU Department of Plant Pathology as well as Extension Specialists regarding how to use this course to provide learning experiences not typically a component of traditional lecture and lab courses offered in Pullman.

This is not a lecture-style course. I travel with the students on a bus for 5 days in June and 5 days in July, visiting WSU Research and Extension Centers, the WSDA Seed Certification Lab, the USDA APHIS Plant Protection & Quarantine facility at the Port of Seattle, farms, orchards, forestry nurseries, non-profit agricultural development groups, crop consultant groups, WSU Extension Educators and Extension Specialists, private research operations, and other pertinent venues. The course exposes students to the incredible diversity of agriculture and related industries, employment opportunities, stakeholders in Washington State, the array of plant diseases that affect these crops, and the critical role of applied plant pathology in sustainable agriculture. To enhance the learning experience and require active engagement of students in the learning experience, I implemented the following additions to the syllabus in 2012:

1) A course journal (30% of the grade) in which students document their personal learning experiences across the diversity of sites, guest and facilities visited. The students also record in the journals their perspectives on about 12 papers they are required to read during the course that cover key themes or aspects of field plant pathology. I read and grade each student's journal.

2) Active engagement in discussions with guests and other students to emphasize the role of intellectual curiosity and professional verbal communication skills (30% of the grade). In addition to students being required to engage verbally with guests at each site, we use a microphone while traveling on the bus to discuss the sites visited, topics addressed by the guest speakers, reading assignments, and diverse aspects of field plant pathology and professional development. These discussions build rapport among the students and are invaluable for
helping students overcome the fear of ignorance by encouraging them to ask questions and engage in discussions.

3) Agricultural stakeholder interviews (40% of the grade) in which students assign themselves into teams, each team interviews a grower and an extension educator from a list I organize to represent a diversity of crops and diseases, and each team then writes a disease management report that is submitted to me, the grower, and the extension educator. Feedback is provided to the students in each team by me, the grower, and the extension educator. I do a detailed edit of the written reports, and provide constructive critique of their interviews (each interview lasts 2 to 3 hours). The team interviews and reports were a tremendous success in 2012 based on student evaluations, including detailed comments received in a post-course survey I developed that students completed after their grades were assigned. Most students taking the course in 2012 indicated they never/seldom have the opportunity to interact directly with agricultural stakeholders such as growers, crop consultants, regulatory agents, etc. at the level provided by this course, and that this was one of the most valuable aspects of the course.

In addition to two full weeks of travel, the students work on at least a dozen reading assignments relevant to the course, and their team reports and interviews between and after the two weeks of travel. Given the time and commitment expected from students for the course, as documented in the revised syllabus, and offering this course every other summer following the same format/syllabus, I believe the assigned credits for PL P 525 should be set at three (3) without the option of students repeating the course for accumulation of up to 4 credits over multiple years. I would be pleased to address any questions you may have regarding this request.

Sincerely,

[Signature]

Lindsey du Toit
Associate Professor/Extension Specialist

Copy: Scot Hulbert, Chair, Dept. of Plant Pathology
Steve Jones, Director, WSU Mount Vernon NWREC
1. Syllabus for the proposed course (or the courses in the degree program) in the Catalog Sub-Committee approved format (see guide/template). This syllabus should be approved by faculty in the department in which the course will be housed prior to submitting it to Academic Programs for approval. Course requirements of programs of study for degree programs should have faculty approval before being submitted to this committee for review.

See attached.

2. Justification of how the proposed course or degree program aligns with the intentions of the academic program for the department in which it is housed, and how it aligns with the strategic plan for CAHNRS.

This is not a proposed course. It is an existing course that has been revised since there has been a change in instructors as of 2011.

3. A management plan, including name of the program manager, must be provided for degree programs.

This is not a degree program, but a revision (expansion) of the syllabus for an existing course that is taught in the Dept. of Plant Pathology every other summer.

4. Course delivery schedule: Identify who will teach the course, how often the course be offered and what delivery cycle (semester, odd year/even year) the course will be offered in.

This is a long-standing field trip course, non-lecture style, offered every other summer, as outlined in the syllabus. Dr. Lindsey du Toit is the instructor for the course, with guest topics from various faculty, extension educators, state and federal regulatory agents, crop consultants, growers, etc. at numerous locations throughout the state. Details are provided in the attached syllabus. In 2010, Dr. du Toit and Dr. Grove co-taught the course. Prior to 2010, Dr. Grove was the primary course instructor. In 2012, du Toit took full responsibility for the course.

5. A marketing plan for the course/program, including target audience, programs of study it will support, expected student numbers, and methods of advertising the course must be provided.

This is an existing course in the Dept. of Plant Pathology that has been taught every other summer for many years. In 2012, 19 graduate students enrolled (16 plant pathology students, two weed science students, and one soil science student), which is the highest enrollment in the history of the course. The course supports MS and PhD degrees in agriculture. The course was advertised in spring 2012 with a flier posted at strategic locations in Johnson Hall, email announcements, and information on the Department of Plant Pathology website. This will be done again in spring 2014.
6. Will the new course/program require redeployment of existing resources? If so, what will be the impact on existing courses and/or programs, teaching loads, research productivity, and service and outreach?

This is an existing course in the Dept. of Plant Pathology that has been taught every other summer for many years.

7. Describe the funding model for the course if an instructor on permanent budget is not assigned to the course.

Funding is provided by the Dept. of Plant Pathology. Dr. Lindsey du Toit has a 0.10 teaching FTE for this course.
Field Plant Pathology (PI P 525), 3 credits
Summer 2014 Course Outline

Prof. Lindsey J. du Toit, Course Coordinator/Instructor
WSU Mount Vernon NWREC
16650 State Route 536
Mount Vernon, WA 98273-4768
Office: 360-848-6140, Fax: 360-848-6159, dutoit@wsu.edu

In case of emergency:
360-391-2407 (Lindsey du Toit) or 509-335-4852 (Cheryl Hagelganz)

Course Objectives:
The objective of this course is to familiarize students with the diversity of fruit, vegetable, grain, forestry, and ornamental crops grown in Washington State, the nature and diagnosis of diseases affecting these crops, and diverse aspects of field plant pathology and extension. Students will observe a wide variety of cropping systems and agro-ecosystems, and will interact directly with faculty, extension personnel, growers, consultants, regulatory agents, and other stakeholders involved in plant disease research, extension, consulting, and regulation. Refer to the ‘Specific Learning Objectives’ detailed below.

The course includes 2 separate weeks of travel across Washington State by bus.

Week 1: 9-13 June 2014
WSU Othello Potato Cultivar Trial Evaluations: 24 June 2014
Week 2: 14-18 July 2014

Students travel together in the same bus, except as approved in advance by the instructor. It is very difficult to accommodate students missing components of the course because of travel across the state for the duration of the course. In addition, the bus is equipped with a microphone, which is used to engage in discussions with the instructor and other students while traveling between sites. Accommodation will be provided the nights that students are not in Pullman.

2014 Course Itinerary:

<table>
<thead>
<tr>
<th>Date</th>
<th>Location</th>
<th>Start time</th>
<th>Disease subject</th>
<th>Instructors &amp; guests (direct contact hours)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>June 9</td>
<td>Pullman</td>
<td>9 am</td>
<td>Course introduction</td>
<td>Lindsey du Toit (1.5 hours)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>10:30 am</td>
<td>Diseases of grains</td>
<td>Tim Murray (3 hours)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2:30 pm</td>
<td>Plant diagnostics, first detector training</td>
<td>Karen Ward (1.5 hours)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Drive to Prosser</td>
<td>4 pm</td>
<td></td>
<td></td>
<td>Stay in</td>
</tr>
<tr>
<td>Date</td>
<td>Location</td>
<td>Time</td>
<td>Activity</td>
<td>Presenter(s)</td>
<td></td>
</tr>
<tr>
<td>------------</td>
<td>---------------------------</td>
<td>--------</td>
<td>--------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>June 10</td>
<td>Prosser</td>
<td>8 am</td>
<td>IAREC welcome</td>
<td>Gary Grove (0.5 hours)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>8:35 am</td>
<td>Hop downy mildew, grape virus diseases, apple diseases</td>
<td>Mark Nelson, Naidu Rayapati, Gary Grove (5.5 hours)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 pm</td>
<td>Drive to Puyallup</td>
<td></td>
<td></td>
</tr>
<tr>
<td>June 11</td>
<td>Puyallup</td>
<td>8 am</td>
<td>Molecular Biosciences Lab, Biosafety Level II containment facility tour</td>
<td>Katie Coats, Gary Chastagner, Marianne Elliott, Anna Leon, Katie McKeever (2 hours)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>10 am</td>
<td>Plant &amp; Insect Diagnostic Lab, extension training; Christmas tree, bulb,</td>
<td>Jenny Glass; Gary Chastagner (2 hours)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>&amp; ornamental diseases</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Noon</td>
<td>Field tour of Christmas tree, bulb, &amp; ornamental disease trials</td>
<td>Gary Chastagner, Marianne Elliott, Anna Leon, Katie McKeever (4 hours)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 pm</td>
<td>Drive to Olympia</td>
<td>Stay in Olympia</td>
<td></td>
</tr>
<tr>
<td>June 12</td>
<td>Drive to Mima Nursery,</td>
<td>8 am</td>
<td>Weyerhaeuser Mima Nursery (forestry)</td>
<td>John Browning (3 hours)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Olympia</td>
<td>11 am</td>
<td>Drive to SeaTac</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>SeaTac Airport</td>
<td>1 pm</td>
<td>USDA-APHIS PPQ Plant Inspection Station</td>
<td>Clinton Campbell, Tim St. Germain (3 hours)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 pm</td>
<td>Drive to Mount Vernon</td>
<td>Stay in Mount Vernon</td>
<td></td>
</tr>
<tr>
<td>June 13</td>
<td>Mount Vernon</td>
<td>8 am</td>
<td>Vegetable, seed, small fruit, &amp; cereal diseases in western WA; VIVA Farms</td>
<td>Lindsey du Toit, Debra Inglis, Carol Miles, Steve Jones; Chris Elder &amp;</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(Burlington)</td>
<td>Shannon Carmody (7 hours)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 pm</td>
<td>Drive to Pullman</td>
<td></td>
<td></td>
</tr>
<tr>
<td>June 24</td>
<td>Drive to Othello from</td>
<td>8:30 am</td>
<td>WSU Othello Potato Cultivar Trial</td>
<td>Dennis Johnson, Tom Cummings (4 hours)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pullman</td>
<td></td>
<td></td>
<td>2 pm: Leave for Pullman</td>
<td></td>
</tr>
<tr>
<td>July 14</td>
<td>Drive to Prosser from</td>
<td>7 am</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pullman</td>
<td>10:30 am</td>
<td>Hop powdery mildew, grape diseases, tree fruit diseases, tree fruit</td>
<td>Mark Nelson, Gary Grove, Ken Eastwell (6 hours)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>quarantine facility</td>
<td>Stay in Prosser</td>
<td></td>
</tr>
<tr>
<td>July 15</td>
<td>Drive to Yakima</td>
<td>7 am</td>
<td>WSDA Seed Lab</td>
<td>Victor Shaul (2.5 hours)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>10:30 am</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Drive to Wenatchee</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date</td>
<td>Location</td>
<td>Time</td>
<td>Activity</td>
<td>Instructor(s)</td>
<td>Stay In</td>
</tr>
<tr>
<td>----------</td>
<td>-------------------</td>
<td>-------</td>
<td>--------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------</td>
<td>---------------</td>
</tr>
<tr>
<td>July 16</td>
<td>Drive to Columbia Basin</td>
<td>8 am</td>
<td>Vegetable &amp; seed crop diseases, Qualls Ag Lab (contract research lab), WA Assoc. of Professional Crop Consultants, Precision Seed Production, Trout Lake Farms</td>
<td>Lindsey du Toit, Carrie Wohleb, Tim Waters, Mick Qualls, Crop consultants (Monte Spence), Bill Wirth, Ole Anderson, Jessica Corcorran (7 hours)</td>
<td>Stay in Wenatchee</td>
</tr>
<tr>
<td>July 17</td>
<td>Prosser</td>
<td>8 am</td>
<td>Pea &amp; bean diseases, ELISA Lab</td>
<td>Lyndon Porter, Ken Eastwell (3 hours)</td>
<td>Stay in Prosser</td>
</tr>
<tr>
<td></td>
<td></td>
<td>11 am</td>
<td>Field and experimental design session</td>
<td>Lindsey du Toit (3 hours)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 pm</td>
<td>Review interviews, course assignment, &amp; journals; course evaluation &amp; wrap-up</td>
<td>Lindsey du Toit (1 hour)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Drive to Pullman</td>
<td>4 pm</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Total direct contact hours of students with instructor/guests: ~66 hours** (excluding the 3-hour interview that each team of students completes with a grower, extension educator, and the course instructor for preparing their final disease management report; and excluding time spent on the bus discussing various sites visited and related field pathology topics, as described below).

Participating WSU faculty and areas of expertise:

<table>
<thead>
<tr>
<th>Faculty</th>
<th>Location</th>
<th>Crops</th>
<th>Contact Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Katie Coats</td>
<td>WSU Puyallup Molecular Biosciences Lab</td>
<td>Molecular Biosciences Lab</td>
<td>(253) 445-4601, <a href="mailto:kpcoats@wsu.edu">kpcoats@wsu.edu</a></td>
</tr>
<tr>
<td>Tom Cummings</td>
<td>WSU Pullman, WSU Othello REU</td>
<td>Mint diseases, potato diseases</td>
<td>(509) 335-1998, <a href="mailto:tfc@wsu.edu">tfc@wsu.edu</a></td>
</tr>
<tr>
<td>Lindsey du Toit</td>
<td>WSU Mount Vernon NWREC</td>
<td>Vegetables, seed crops</td>
<td>(360) 848-6140, <a href="mailto:dutoit@wsu.edu">dutoit@wsu.edu</a></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><a href="http://www.mount">http://www.mount</a> vernon.wsu.edu/VSP/VSP_team.htm <a href="http://mtvernion.wsu.edu/path_team/vegpath_team.htm">http://mtvernion.wsu.edu/path_team/vegpath_team.htm</a></td>
</tr>
<tr>
<td>Ken Eastwell</td>
<td>WSU Prosser IAREC</td>
<td>Grape, hop, stone fruit viruses, Clean Plant Center Northwest</td>
<td>(509) 786-9385, <a href="mailto:keastw@wsu.edu">keastw@wsu.edu</a></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><a href="http://healthyplants.wsu.edu/research/dr-ken-eastwell/">http://healthyplants.wsu.edu/research/dr-ken-eastwell/</a> <a href="http://healthyplants.wsu.edu/">http://healthyplants.wsu.edu/</a></td>
</tr>
<tr>
<td>Jenny Glass</td>
<td>WSU Puyallup REC</td>
<td>Plant &amp; Insect Diagnostic Lab</td>
<td><a href="http://puyallup.wsu.edu/plantclinic/index2.html">http://puyallup.wsu.edu/plantclinic/index2.html</a></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(253) 445-4582, <a href="mailto:glass@puyallup.wsu.edu">glass@puyallup.wsu.edu</a></td>
</tr>
<tr>
<td>Gary Grove</td>
<td>WSU Prosser IAREC</td>
<td>Grape, hop, tree fruit diseases</td>
<td>(509) 786-9283, <a href="mailto:grove@wsu.edu">grove@wsu.edu</a></td>
</tr>
<tr>
<td>Name</td>
<td>Location/Program</td>
<td>Crops/expertise</td>
<td></td>
</tr>
<tr>
<td>--------------------</td>
<td>---------------------------</td>
<td>--------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Debra Inglis</td>
<td>WSU Mount Vernon NWREC</td>
<td>Vegetable diseases (360) 848-6134, <a href="mailto:dainglis@wsu.edu">dainglis@wsu.edu</a>, <a href="http://mountvernnon.wsu.edu/plant_pathology/plant_path.htm">http://mountvernnon.wsu.edu/plant_pathology/plant_path.htm</a></td>
<td></td>
</tr>
<tr>
<td>Dennis Johnson</td>
<td>WSU Pullman</td>
<td>Potato and mint diseases (509) 335-3753, <a href="mailto:dajohn@wsu.edu">dajohn@wsu.edu</a>, <a href="http://classes.plantpath.wsu.edu/dajohn/">http://classes.plantpath.wsu.edu/dajohn/</a></td>
<td></td>
</tr>
<tr>
<td>Steve Jones</td>
<td>WSU Mount Vernon NWREC</td>
<td>Cereal breeding, bread lab (360) 848-6144, <a href="mailto:joness@wsu.edu">joness@wsu.edu</a>, <a href="http://plantbreeding.wsu.edu/index.html">http://plantbreeding.wsu.edu/index.html</a></td>
<td></td>
</tr>
<tr>
<td>Don McMoran</td>
<td>WSU Skagit Co.</td>
<td>Potato, vegetables, vegetable seed (360) 428-4270, <a href="http://skagit.wsu.edu/Agriculture/index.htm">http://skagit.wsu.edu/Agriculture/index.htm</a></td>
<td></td>
</tr>
<tr>
<td>Carol Miles</td>
<td>WSU Mount Vernon NWREC</td>
<td>Vegetables, hard cider (360) 848-6150, <a href="mailto:milesc@wsu.edu">milesc@wsu.edu</a>, <a href="http://vegetables.wsu.edu/">http://vegetables.wsu.edu/</a></td>
<td></td>
</tr>
<tr>
<td>Tim Murray</td>
<td>WSU Pullman</td>
<td>Wheat/grains (509) 335-7515, <a href="mailto:tim.murray@wsu.edu">tim.murray@wsu.edu</a>, <a href="http://plantpath.wsu.edu/people/faculty/murray/">http://plantpath.wsu.edu/people/faculty/murray/</a></td>
<td></td>
</tr>
<tr>
<td>Mark Nelson</td>
<td>WSU Prosser IAREC</td>
<td>Hops (509) 786-9254, <a href="mailto:mark_nelson@wsu.edu">mark_nelson@wsu.edu</a></td>
<td></td>
</tr>
<tr>
<td>Naidu Rayapati</td>
<td>WSU Prosser IAREC</td>
<td>Grape virology (509) 786-9215, <a href="mailto:naidu@wsu.edu">naidu@wsu.edu</a>, <a href="http://wine.wsu.edu/research-extension/plant-health/virology/">http://wine.wsu.edu/research-extension/plant-health/virology/</a></td>
<td></td>
</tr>
<tr>
<td>Tim Smith</td>
<td>WSU Wenatchee Extension</td>
<td>Tree fruits (509) 667-6540, <a href="mailto:smithtj@wsu.edu">smithtj@wsu.edu</a>, <a href="http://www.tfrec.wsu.edu/">http://www.tfrec.wsu.edu/</a></td>
<td></td>
</tr>
<tr>
<td>Karen Ward</td>
<td>WSU Pullman</td>
<td>WSU Pullman Plant Diagnostic Lab (509) 335-3292, <a href="mailto:plant.clinic@wsu.edu">plant.clinic@wsu.edu</a>, <a href="http://plantpath.wsu.edu/diagnostics/">http://plantpath.wsu.edu/diagnostics/</a></td>
<td></td>
</tr>
<tr>
<td>Tim Waters</td>
<td>WSU Franklin/Benton Counties</td>
<td>Vegetables, seed crops: <a href="http://county.wsu.edu/benton-franklin/agriculture/plants/Pages/default.aspx">http://county.wsu.edu/benton-franklin/agriculture/plants/Pages/default.aspx</a>, 509-545-3511, <a href="mailto:twaters@wsu.edu">twaters@wsu.edu</a></td>
<td></td>
</tr>
<tr>
<td>Carrie Wohleb</td>
<td>WSU Grant/Adams Counties</td>
<td>Potato, vegetables, vegetable seed: <a href="http://county.wsu.edu/grant-adsams/Pages/default.aspx">http://county.wsu.edu/grant-adsams/Pages/default.aspx</a>, (509) 754-2011 x 413, <a href="mailto:cwohleb@wsu.edu">cwohleb@wsu.edu</a></td>
<td></td>
</tr>
</tbody>
</table>

Other guests:

- **Ole Anderson**: Rijk Zwaan, Quincy
- **Clinton Campbell & Tim St. Germain**: USDA APHIS PPQ, Plant Inspection Station, SeaTac Airport, 835 S. 192nd St., Suite 1600m, SeaTac. Tel: (206) 878-6658, http://www.aphis.usda.gov/
- **John Browning**: Weyerhaeuser forestry nursery, Forestry. Tel: (360) 330-1721 or (360) 561-5531 (cell), http://www.weyerhaeuser.com/
- **Mick Qualls**: Qualls Ag Lab, Ephrata, Private agricultural research: http://qal-lab.com/
- **Chris Elder & Shannon Carmody**: Viva Farms, Skagit Co., WSU Latino Farming Program: www.vivafarms.org, 360-840-3064, Chris@vivafarms.org or Shannon@vivafarms.org
Victor Shaul  |  WA State Dept. of Agric. Seed Program Manager  |  Seed crops (seed certification, testing, etc.)  |  http://smallfarms.wsu.edu/immigrant-farmers/  
Bill Wirth/Troy Hesse  |  Precision Seed Production, LLC, Ephrata  |  Seed crops (vegetable, sunflower, canola, sugar beet, etc.)  |  http://precisionseed.com/  
WA Assoc. of Professional Crop Consultants  |  Contact: Monte Spence  
(509) 932-4685  |  Diversity of crops in WA State:  |  http://www.wapcc.org/  
Jessica Corcorran, Darwin Hintz  |  Trout Lake Farms, Ephrata  |  Diverse organic medicinal herb farm  
http://www.troutlakefarm.com/  
jessica.corcorran@amway.com  
dghintz@msn.com  
Various farmers/farm managers  |  Various farms in Washington State  |  Diverse crops. Students will choose a farmer to interview in groups, from a list of farmers selected by Lindsey du Toit, as detailed below.

Accommodation:
- Prosser Best Western: 509-786-7977. 259 Merlot Drive, Prosser, WA 99350 (nights of 9 June, 14 July, 16 July)
- Puyallup Best Western: (253) 848-1500. 620 South Hill Park Drive, Puyallup, WA 98373 (10 June)
- Olympia Best Western: (360) 956-1235. 5188 Capitol Blvd SE, Tumwater, WA 98501 (11 June)
- Mount Vernon Best Western: 360-428-5678. 2300 Market Street, Mount Vernon, WA 98273 (12 June)
- Wenatchee Springhill Suites by Marriott: (509) 667-2775. 1730 North Wenatchee Avenue, Wenatchee, WA 98801 (15 July)

WSU Research & Extension Centers:
- WSU Mount Vernon NWREC: 360-848-6120. 16650 State Route 536, Mount Vernon, WA 98273. http://mtvernon.wsu.edu/

Expenses:
Hotel expenses (6/09-6/12 and 7/14-7/17) will be covered by the Dept. of Plant Pathology. Each student is responsible for their own meal expenses, although some meals may be provided by hosts visited at particular facilities.

Course Requirements:
1. **Attendance:** Attendance is required for the entire course unless alternative arrangements are made in advance with approval of the instructor. However, as noted above, it is very difficult to accommodate students missing components of the
course because of traveling in a bus across the state for almost the entire duration of the course. Students that have to miss one or two days of the course will be required to make up for the missed component with additional assigned readings relevant to the topics of the sites visited on the days missed. Students are expected to be punctual, prepared, and courteous of the time commitment and effort of the various guests involved in the course.

2. **Readings:** No textbook is assigned for the course. However, students will receive plant pathology-related papers (refer to the list of required reading below) to read during the course that cover various aspects of field plant pathology. Students are expected to read these papers as they are assigned over the duration of the course, and discuss the papers while traveling on the bus. In addition, each student will write at least 1 paragraph in their journal (see below) on each of the assigned readings. The journal entry should describe the student's personal interpretation of each paper, including their perceived value/understanding of the information presented in relation to the sites visited and information presented by the course guests.

**Required reading for Pl P 525:**

**Extension and the Land Grant mission:**


**Field plant pathology, education and careers in plant pathology:**


Disease assessment:

Plant diagnostics:
m. Washington State University Extension Commercial Plant Disease Identification Form; also, various documents on plant diagnoses provided by WSU Plant Diagnosticians, Karen Ward and Jenny Glass, at their respective site visits.

Practical aspects of experimental design:
q. du Toit, L. J. 2014. Why worry about experimental design. Handout for Pl P 525 on practical aspects of selecting appropriate experimental designs for field and greenhouse research trials. 5 pp. This handout accompanies a field exercise in which students lay out an experiment in teams of 4-5 students, and then the teams provide constructive critique of each others’ trials based on factors covered in the experimental design handout and discussion.

Case studies in field plant pathology:
American Seed Trade Association following detection in 2013 of CGMMV in cucurbit seed crops in California, the first documentation of this virus in the USA that led to intense collaboration between USDA Animal & Plant Health Inspection Service Plant Protection Quarantine and the CA Dept. of Food & Agriculture to prevent spread of the virus and develop methods to intercept potential future introductions on cucurbit seed and other material.

**Course journal (30% of the final grade):** Each student will receive a journal at the start of the course, in which they will keep notes during the course. For each site visited and each guest speaker, students are expected to write a brief summary of what they learned – their overall impression of the visit, topic covered, speaker, etc. **Students are encouraged to be creative**, e.g., press plant samples in their journal, draw or illustrate, track photos taken at each site, etc. Journal entries are not meant to be detailed, technical summaries (although students are welcome to do so), but **constructive, reflective, candid summaries** of important aspects (technical, professional, behavioral) learned at each visit. Journals should be reflective of a student’s intellectual curiosity. Students are encouraged to bring a camera to document symptoms, crops, various cropping systems, guest speakers, etc.

In addition, for each of the assigned readings, students are expected to write at least a paragraph in their journal that describes their interpretation and perceived value of each reading in relation to field plant pathology.

On 17 July, each student will submit their journal to the course instructor. A grade will be assigned to each student for their journal kept during the two weeks of travel. Journals will be returned to students approximately 2 weeks after the last week of travel. **Journal grading:**

- 1/3 of journal grade (10% of total grade) = documentation of learning experiences and impressions from the 18-20 sites/guests visited during the first week of the course.
- 1/3 of journal grade (10% of total grade) = documentation of learning experiences and impressions from the ~16 sites/guests visited during the second week of the course.
- 1/3 of journal grade (10% of total grade) = perception and interpretation of reading assignments. 0.5% for each of 20 readings assigned.

3. **Discussion and participation (30% of the final grade):** Students are expected to participate actively in constructive discussions during the course with other students, the instructor, and participating stakeholders (researchers, extension educators, extension specialists, consultants, regulatory agents). **When traveling on the bus, students are expected to discuss with each other and the instructor the assigned readings, their learning experiences at each site, and questions that arise in relation to topics discussed at each site visited.** A microphone is provided on the bus to facilitate such discussion. This expectation is to facilitate constructive, intellectually-
stimulating discussion that builds on the diversity of experiences, technical backgrounds, and perspectives of students taking the course. The duration of bus travel facilitates establishment of a rapport among students, which is promoted and utilized by the instructor to help students become comfortable asking questions and contributing their comments and opinions relative to field plant pathology issues covered in the course. Discussion grading:

- 1/3 of discussion grade (10% of total grade): student asks at least one question or otherwise engages in discussion with guests/instructor at each of the sites visited during the first week of the course. The instructor will keep track of which students engage in questions/discussions at each site.
- 1/3 of discussion grade (10% of total grade): student asks a question or engages in discussion with guests/instructor at each of the sites visited during the second week of the course.
- 1/3 of discussion grade (10% of total grade): student engages actively in the team conference call when interviewing the assigned grower and extension educator in preparation for writing their team disease management report. The instructor attends each team conference call with a grower and extension educator (~3 hours/call) to document individual student’s participation.

NOTE: Inappropriate use of cell phones and other electronic devices, and/or lack of professional behavior interacting with stakeholders, guests, other students, or the instructor will result in a non-passing grade after the first warning.

4. Disease management report (40% of the final grade):
   a. Students will be placed in groups of 3 to 4 (depending on final enrollment), selected among themselves based on rules provided by the course instructor. The team will work together to prepare a report on management of a disease observed or discussed during the course.
   
   b. Each group must select a crop and disease from a list provided by the instructor in coordination with plant pathologists, growers, consultants, and extension personnel involved in the course. Each group should finalize their selection by 13 June. The crop and disease selected by each group may not be a crop or disease that any student in that group is working on as part of their MS or PhD research projects. Preferentially (depending on the students enrolled), each group will include at least one MS student and one PhD student, at least one native English speaker and one non-native English speaker (to facilitate the 3-hour conference call with a grower, some of whom are not used to non-American accents), and at least one student with field research experience and one with molecular expertise (to ensure diversity of student backgrounds and expertise in each group).
   
   c. Students in each group will use conventional resources (scientific literature, books, internet, etc.) as well as human resources (growers, researchers, extension specialists and educators) identified during the course to gather information and prepare their reports. For the latter, students in each group
will complete an interview by phone, videoconference, and/or in person with a grower and extension educator selected for their report. The students are expected to work together on their report. Information from conventional resources should be gathered between the first and second weeks of travel. Each group will develop their interview questions during the second week of travel (14-18 July), during which time the instructor will meet individually with each group over lunch or dinner to help review and refine the interview questions and preparing the final report.

d. Each group must prepare a final report on a comprehensive, integrated management program for the disease selected. The report must include recommendations for the specific grower interviewed, as the report will be sent to the grower for their review and feedback.

e. Each report should be no longer than 10 pages, not including figures or photos and references, which should be placed at the end of the report. Use single line spacing, 1” margins, size 10 or 12 font. The report must include the sections listed below (additional sections are welcome, but the main text must not exceed 10 pages). Total points = 100.

i. Title/cover page (1 page): 5 points
   • Common and Latin binomial of the crop.
   • Common name of the disease.
   • Latin binomial of the pathogen.
   • Cover photos or drawings are welcome.

ii. Group information (1 page): 15 points
   • Names and email addresses of all students in that group.
   • Specific role(s) of each student in preparing the report, e.g.: information gathered by each student, development of interview questions, when interviews were completed, who integrated information from the interviews into the report, each student’s contribution to writing the sections of the report, who edited the final report, etc. NOTE: The grade assigned to individual students in a group will be influenced strongly by this information and the quality of the final report, so the group should be certain to define the roles of their team members clearly.

iii. Introduction (1 to 2 pages): 20 points
   • Background on the crop, including acreage in Washington State or the Pacific Northwest (WA, OR, ID), economic value, production methods, etc. Photos of the crop are encouraged. (10 points)
   • Background on the pathogen and disease, including biology, epidemiology, and estimated economic impact of the disease. Photos of symptoms are encouraged. (10 points)
iv. **Interviews (1 to 2 pages): 20 points**
   - Format of the interview.
   - Method of interview (phone, videoconference, in-person).
   - Names of those interviewed, and when the interview occurred.
   
   Each group must review their interview questions with the course instructor and other teams during the second week of the course **(14-18 July)**. The instructor and students will provide feedback on content, professionalism, comprehensiveness, etc. of the interview questions. **Each group will arrange the interview with the grower and extension educator selected, and the interview must be completed by 25 July.** All students in a group must participate in the interview. The instructor will attend each interview to monitor student participation and ensure professional interaction with the grower and extension educator, but the students will be responsible for directing each interview.

v. **Management practices currently used by the grower interviewed and other growers in Washington State (1-2 pages): 20 points**

   Detailed description of what growers in Washington or the Pacific Northwest are doing to manage the disease, including details of the management practices used by the specific grower interviewed.

vi. **Additional management options (1-2 pages): 15 points**

   Recommendations for improving management of the disease by the grower interviewed, including possible research projects that might lead to identifying more effective management practices or optimizing management of the disease, particularly for the specific grower interviewed.

vii. **List of supporting references (1 page): 5 points**

   Journal articles, websites, photographs, interview dates and interviewee names, etc. **References must be cited using formatting for the journal Plant Disease**, including internet URL’s. If figures or photos are included in the report, indicate who took each photo or the source of each photo or figure, and include a caption with each figure/photo.

f. The report must be submitted electronically in Word or PDF format to the instructor **by 28 July**. **If a report is submitted after this date, each member of that group will receive a 0 report grade.** The instructor will give each report to the grower and extension educator interviewed for their feedback.

g. **40% of each student’s final grade** will be based on the report. The final grade for the report will be assigned by 31 July. Students will receive feedback on their reports by the end of August from growers and extension educators interviewed.
Specific Learning Objectives (and relevant course assignments for each objective):
At the end of this course, a student should:

1. Understand first-hand the diversity of fruit, vegetable, grain, forestry, and ornamental crops produced in Washington State, and the complexity of cropping systems, particularly in relation to how this affects the nature and management of diseases of these crops. (Sites visited across Washington State and diverse guest speakers with expertise on various crops and diseases; journal assignment.)

2. Appreciate the history and significance of the Morrill Act that was responsible for establishment of a Land Grant University in every state (including Washington State University), and the Smith-Lever Act that created Cooperative Extension in the USA. Know the types of research and extension programs developed to fulfill these acts, particularly in relation to helping stakeholders manage plant diseases effectively, and the various roles of extension educators, extension specialists, diagnosticians, and researchers to address disease diagnosis and management needs of stakeholders. (4 assigned readings; discussion and engagement with diverse guest speakers with expertise on various crops and diseases; interviews with growers and extension educators.)

3. Have observed and be able to recognize a range in types of plant diseases in Washington State, including fungal, bacterial, viral, nematode, and phytoplasma diseases, as well as various abiotic plant problems; be familiar with a systematic approach to diagnosing plant problems, including the resources, technical skills, and professional communication necessary for diagnoses and professional communication with clientele. (Sites visited across Washington State and diverse guest speakers with expertise on various crops and diseases; 5 assigned readings.)

4. Recognize the diversity of career opportunities and options in plant pathology, particularly applied/field plant pathology, and the types of skills (technical and soft skills) needed to be effective in these careers. (Diverse guest speakers with expertise on various crops and diseases, including discussion with individual crop consultants during the second week of the course; 4 assigned readings.)

5. Learned different methods of disease assessment, including the use of disease rating scales, selecting units of measure and different scales of measuring disease to fulfill specific objectives of projects, avoiding confounding factors in disease ratings such as subjectivity/variation among raters, etc. (Field and greenhouse disease rating exercises at the WSU Puyallup REC and the WSU Mount Vernon NWREC by individual researchers; 3 assigned readings.)

6. Understand practical aspects of selecting appropriate experimental designs, and assigning and carrying out treatments in research; recognize and minimize potential confounding factors that weaken statistical robustness of experiments; learn how to critique experimental designs effectively; recognize how to address confounding
issues such as interplot interference; gain awareness of approaches to removing as much bias as possible in carrying out research and assessing diseases. (2 assigned readings; field exercise on the last day of the course in which students set up research plots in teams in a field, and provide constructive critique of each team’s trial design; journal.)

7. Acquire first-hand experience and exposure to professional communication verbally and in writing by interacting directly with stakeholders (growers, consultants, extension educators, regulatory agents, etc.). Appreciate the degree to which professional communication, combined with technical expertise, facilitates effective careers in field plant pathology. Overcome the fear of ignorance and, instead, gain a perspective of ignorance serving as an opportunity to learn when communicated professionally. Learn how to collate and evaluate resources critically for addressing issues, and how to communicate scholarly activities professionally both verbally and in writing. (Direct verbal engagement with diverse guest speakers; conference call interviews with growers and extension educators; discussions with crop consultants during the second week of the course; preparation and writing of disease management reports; journal.)

8. Learn to utilize diverse skills and personalities by working in groups to collate information from various resources, coordinate the interview of growers and extension educators, and prepare a disease management report with a group of students. (Group interviews of growers and extension educators; preparation of group disease management reports that are edited in detail by the instructor and reviewed by the grower and extension educator interviewed; journal.)

Final grade:
Final grades will be assigned by 1 August. Requirements to earn specific grades:
A  = 90% or greater
A- = 87%
B+ = 83%
B  = 80%
B- = 77%
C+ = 73%
C  = 70%
C- = 67%
D+ = 63%
D  = 60%

WSU Disability Statement:
Reasonable accommodations are available for students with a documented disability (http://drc.wsu.edu). If you have a disability and may need accommodations to fully participate in this course, please visit the Access Center (Washington Building 217) to schedule an appointment with an Access Advisor. All accommodations MUST be approved through the Access Center.
**WSU Academic Honesty:**
Please visit the WSU website on academic integrity expectations of WSU students and employees ([http://conduct.wsu.edu/](http://conduct.wsu.edu/)). Academic integrity is the cornerstone of higher education and violations can disrupt the educational process for faculty and students. Academic dishonesty is any act of deception in which a student claims credit for the work or effort of another person or uses unauthorized materials or fabricated information in any academic work. The definitions of dishonesty can be found under WAC 504-26-010(3). You will be held responsible for knowing and understanding what is considered academic dishonesty. Whether intentional or unintentional, you can still be found responsible for violating university policies. “I didn’t know” is NOT an excuse and will not be considered grounds for appeal.

**Inappropriate Student Behavior:**
Behavior that persistently or flagrantly interferes with course activities (e.g., inappropriate use of cell phones during structured course time, consistently arriving late for scheduled activities, uncivil verbal and/or behavioral interaction with other students, instructors, or guests) is disruptive behavior and may be subject to disciplinary action. Such behavior inhibits other students’ ability to learn and an instructor’s ability to teach. A student responsible for disruptive behavior may be asked to leave the course pending discussion and resolution of the problem, and may be reported to the Office of Student Standards and Accountability.

**WSU Safety:**
WSU is committed to maintaining a safe environment for faculty, staff, and students. Safety is the responsibility of every member of the campus community. Individuals should know appropriate actions to take when an emergency arises. In support of our commitment to the safety of the campus community, WSU has developed a Campus Safety Plan: [http://safetyplan.wsu.edu](http://safetyplan.wsu.edu). It is recommended you visit this web site as well as the WSU emergency management web site: [http://oem.wsu.edu/emergencies](http://oem.wsu.edu/emergencies). In case of emergency while traveling, call 360-391-2407 (instructor’s cell) or 911.