## Washington State University
### MAJOR CURRICULAR CHANGE FORM - - COURSE REVISION

- Please attach rationale for your request, a complete syllabus, and explain how this impacts other units in Pullman and other campuses (if applicable).
- Obtain all required signatures with dates.
- Provide original stapled packet of signed form/rationale statement/syllabus PLUS 10 stapled copies of complete packet to the Registrar's Office, campus mail code 1035.
- Submit one electronic copy of complete packet to wsu.curriculum@wsu.edu.

**Requested Future Effective Date:** Fall, 2016  
**Term/year** Course Typically Offered: a/y odd S

**DEADLINES:** For fall term effective date: October 1st; for spring or summer term effective date: February 1st. See instructions.

**NOTE:** Items received after deadlines may be put to the back of the line or forwarded to the following year. Please submit on time.

<table>
<thead>
<tr>
<th>Current course [List course as it currently appears in the catalog]:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PL</strong></td>
</tr>
<tr>
<td><strong>Virus and Virus Diseases of Plants</strong></td>
</tr>
<tr>
<td><strong>MBIOS 503 or 504</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Credit hrs</th>
<th>Lecture hrs</th>
<th>Lab or Studio hrs</th>
<th>Per week</th>
<th>Hrs per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Requested Change(s):** Check all that apply and list proposed change.

- □ Change subject:______________  
  □ Change course number:_______  
  □ Change credit to:_______

- □ Change lecture-lab ratio to: (3 - 0)  
  □ Variable credit:______________  
  □ Repeat credit (cum. max. hrs):______

- □ New/change crosslisting*:________________________  
  □ Conjoint listing (400/500):________________________

**Special Grading:** □ S, F; □ A, S, F (PEACT only); □ S, M, F (VET MED only); □ H, S, F (PHARMACY, PHARDSCI only)

**Other (please list request):**

**NOTE:** If only requesting a change to title, prerequisite, and/or description, please use a Minor Curriculum Change form.

- □ Title change:________________________  
  □ Prerequisite change:________________________ None required

- □ Change catalog description to:________________________

**The following items require prior submission to other committees/depts. (SEE INSTRUCTIONS.)**

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

- □ Request to meet UCORE in ______________________ (Must have UCORE Committee Approval > See instructions.)

- □ Special Course Fee________________________ (Must submit request to University Receivables)

- **Contact:** Scot Hulbert  
  **Phone number:** 335-4504  
  **Campus mail code:** 6430

- **Email:** scot_hulbert@wsu.edu  
  **Instructor, if different:** Hanu Pappu

- **Scot Hulbert**  
  **Chair/date:**  
  **Dean/date:**  
  **All-University Writing Committee date:**

- **Chair (if crosslisted/interdisciplinary):**  
  **Dean (if crosslisted/interdisciplinary):**  
  **UCORE Committee Approval Date:**

- **Catalog Subcommittee Approval Date:**  
  **GSC or AAC Approval Date:**  
  **Faculty Senate Approval Date:**

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

DATE: September 1, 2015

TO: Kim Kidwell, Acting Dean, CAHNRS

FROM: Scot Hulbert, Chair, Plant Pathology

SUBJECT: PL_P 511, Plant Virology

We are proposing a new graduate level course entitled ‘Plant Virology’ listed as PL_P 511. It would be offered for 3 credits. It will be taught in Pullman, with simultaneous delivery to all enrolled students on and off-campus using AMS services. It is designed to be an elective course for graduate students in Plant Pathology or other life sciences/biological science programs with students interested in fundamental and advanced aspects of plant viruses. The main revision is that it will no longer have a laboratory component and it will be offered for three credits, instead of four. The essential components of the laboratory will now be offered in a new course we are proposing, PL_P 570, Techniques in Plant Pathology.

The Department of Plant Pathology has graduate faculty located on the Pullman campus and at four Research & Extension Centers around the state (Mt. Vernon, Prosser, Puyallup and Wenatchee). Graduate students working with faculty located at the R & E Centers typically spend one to three semesters on the Pullman campus in order to take courses, and the remainder of their program is spent at the R & E Center. The R & E students are often unable to take one or more of the Plant Pathology courses they need because these courses are offered on an alternate year basis that does not correspond with the semesters they are on the Pullman campus. The department is able to deliver several non-lab courses by distance to accommodate the needs of the students and faculty at R & E Centers, but we have not been able to deliver four of our key, lab-based, organismal courses by distance: General Mycology (PL_P 521), Phytophthora (PL_P 514), Nematology (PL_P 521) and the previous version of this course Plant Virology (PL_P 511). As part of a Plant Pathology graduate curriculum revision that was discussed at a statewide plant pathology faculty retreat in June, 2015, we agreed to revise these courses so they can be delivered by distance, and to create a new 3-credit laboratory course, “Techniques in Plant Pathology” (PL_P 570) that will incorporate the essential lab components of the four organismal courses and will be offered on the Pullman campus every fall semester. We are therefore proposing to drop the labs and reduce the number of credits for Virology (PL_P 511), Nematology (PL_P 513), Phytophthora (PL_P 514), and General Mycology (PL_P 521) from four credits to three credits.

1. Syllabus for the proposed course.

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.

‘Plant Virology’ would align very well with the CAHNRS Strategic Plan. The course would support several aspects of the mission statement including contributing to the development of agricultural production and post-harvest systems as well as contributing to natural resource and environmental sustainability. Along with the other revised courses we are proposing, we believe it will make it easier for faculty at RECs to train graduate students and therefore contribute to goal 6 of the CAHNRS Strategic Plan. Additionally, we believe it would support Goals 4, 5, 7, 8, 10, 17 and 18 of the Strategic Plan.

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

Not Applicable

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.

‘Plant Virology’ would be offered by Dr. Hanu R. Pappu, professor of plant pathology during spring semester of odd years (beginning Spring 2017). The format will be two lectures a week (1:25 pm to 2:40 pm, Tuesday and Thursday) offered in spring semester of odd years. This is the same sequence as the previous version of 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.

Details about the new course will be distributed to Plant Pathology graduate students and any other graduate students advised or co-advised by Plant Pathology faculty. The Johnson Hall Graduate Center will distribute Syllabii to all graduate students in Horticulture, Crop and Soil Sciences and other graduate student list serves will be used to contact student in Entomology, Molecular Plant Sciences and other departments in Vet School and CAS as appropriate.

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?

Existing departmental FTE will be used to teach this course.

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

Not applicable
COURSE: Pl_P 511 Plant Virology

Lectures: Tue and Thurs 1:25-2:40 PM

Location: 343 Johnson Hall, WSU campus, Pullman, WA

Recommended: Introductory Plant Pathology and at least one course in biochemistry or genetics

Instructor: Dr. Hanu Pappu, 335-3752; 353 Johnson Hall; E-mail: hrp@wsu.edu
Web page: http://plantpath.wsu.edu/people/faculty/pappu.htm


Source: The WSU Bookie will be requested to carry several copies.

OBJECTIVES OF THE COURSE

1. To appreciate the breadth of viruses infecting plants and their economic impact.
2. To know and apply principles of identification, physical/chemical/genetic characteristics and virus taxonomy to problems of diagnosis, etiology, epidemiology and control of plant disease.
3. To be able to understand and use virological literature and databases.
4. To ask appropriate questions of trained plant pathologists who may possess the needed knowledge and skills.
5. To know and converse with others the key questions concerning virology today.

Grading

*Critical writing assignments 50%
One mid-term exam (100 points) 20%
One final exam (100 points) 20%
Class room participation 10%

*Critical reading and writing assignments:
Each week one or two papers from the primary literature will be given for critical reading and writing. You will have one week to submit your critique (no more than two type-written pages). Details on how to prepare the critique are on the following page. These are due in ONE WEEK (if given during Tuesday lecture; it is due the following Tuesday by 5 pm).

Details on how to prepare the critique are on the follow page.
Critical reading and writing

This will be on primary literature: either classical or contemporary papers

NO more than two type-written pages
Use one inch margins on all sides
Use Times New Roman font size 12
Single-spaced
No line numbers; number the pages
Send it by email as a Word or Pdf attachment
Subject line of the e-mail: PlP 511: Assignment submission

Depending on the assignment, have these sections:

**Introduction** (10% of the space)
What was the paper about and why the study was undertaken?
What was/were the hypotheses? If none stated, what would be YOUR hypotheses for this work?

**Methodology** (20% of the space)
Briefly describe what methods were used and WHY they were used. Suggest you have any better/more efficient methods that they could have used. If none, say so.

**Results** (30% of the space)
Summarize what they found. Do you agree with the conclusions made? Did the data support the conclusions? Why do you think so?

**Your summary** (20% of the space):
Provide your evaluation of the work presented: its originality, contribution to the field of virology, and impact and future direction of this work

**Take home message** (20% of the space):
What have you learned from this study give an instance where you might use it in the future.
**Student Learning Outcomes and Assessment**

<table>
<thead>
<tr>
<th>At the end of this course, students should be able to:</th>
<th>The following will address this outcome:</th>
<th>This outcome will be evaluated primarily by:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have a clear understanding of the nature of plant viruses and the diseases they cause and the principles of virus detection, diagnosis, epidemiology, gene expression and disease control.</td>
<td>Lectures and assigned readings</td>
<td>Midterm and final written exams, Written responses in assignments, critical evaluation of primary literature, class room participation.</td>
</tr>
<tr>
<td>Understand the principles and concepts that govern the virus evolution, virus spread, virus transmission, and virus resistance.</td>
<td>Assignments and lectures</td>
<td>Midterm and final exams, Written responses in assignments, critical evaluation of primary literature</td>
</tr>
</tbody>
</table>

**Grading System**

<table>
<thead>
<tr>
<th>Grade Assignment</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>94.0 – 100%</td>
<td>A</td>
</tr>
<tr>
<td>90.0 – 93.9</td>
<td>A-</td>
</tr>
<tr>
<td>87.0 – 89.9</td>
<td>B+</td>
</tr>
<tr>
<td>83.0 – 86.9</td>
<td>B</td>
</tr>
<tr>
<td>80.0 – 82.9</td>
<td>B-</td>
</tr>
<tr>
<td>77.0 – 79.9</td>
<td>C+</td>
</tr>
<tr>
<td>73.0 – 76.9</td>
<td>C</td>
</tr>
<tr>
<td>70.0 – 72.9</td>
<td>C-</td>
</tr>
<tr>
<td>60.0 – 69.9</td>
<td>D</td>
</tr>
<tr>
<td>&lt; 59.9</td>
<td>F</td>
</tr>
</tbody>
</table>

**Cell phone users:**
Out of respect for myself and your colleagues please turn off your cell phones during class. Please do not make outgoing calls or accept calls during the lectures.

**Policy on Attendance, Participation and Late Assignments**
Attendance and active participation in discussions are required. Students will receive a 10-point penalty for each unexcused absence. Exams will only be given on the designated dates unless prior arrangements are made.
<table>
<thead>
<tr>
<th>Date</th>
<th>TOPIC</th>
<th>Textbook# chapters/pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/10</td>
<td>General overview of the course. Historical perspectives.</td>
<td>pages 1-12</td>
</tr>
<tr>
<td>1/12-1/17</td>
<td>Classification and taxonomy. Groups of plant viruses.</td>
<td>chapt. 2; chapt. 4</td>
</tr>
<tr>
<td>1/19</td>
<td>Biochemical components. Morphology, and life cycle</td>
<td></td>
</tr>
<tr>
<td>1/24</td>
<td>Types of plant virus diseases and symptomatology. Potato virus slide set.</td>
<td></td>
</tr>
<tr>
<td>1/26</td>
<td>The structure of plant viruses</td>
<td>chapt. 5</td>
</tr>
<tr>
<td>1/31</td>
<td>Assembly of plant viruses. The infection process. How viruses enter host cells. The early events.</td>
<td>chapt. 5; pages 225-232</td>
</tr>
<tr>
<td>2/2 – 2/9</td>
<td>Replication and translation of viruses: General overview of nucleic acid replication and translation strategies as they apply to plant virus ss(+) RNA genomes.</td>
<td>pages 293-333; pages 171-174; 189-221; 253-289</td>
</tr>
<tr>
<td>2/14 – 2/16</td>
<td>ss(+)RNA viruses. Detailed examples: Tobamoviruses Potyviruses Closteroviruses</td>
<td>pages 225-244</td>
</tr>
<tr>
<td>2/14 – 2/23</td>
<td>ss(-)RNA and dsRNA viruses: Detailed examples: Rhabdoviruses and reoviruses Tosposviruses and tenuiviruses</td>
<td>pages 183-189; 244-246; 333-339</td>
</tr>
<tr>
<td>2/28 or 3/2</td>
<td>ssDNA and dsDNA viruses: Detailed examples: Geminiviruses and nanoviruses Caulimoviruses</td>
<td>pages 174-183; 246-253;339-352</td>
</tr>
<tr>
<td>3/7</td>
<td>EXAM 1</td>
<td></td>
</tr>
<tr>
<td>3/14-3/18</td>
<td>SPRING BREAK</td>
<td></td>
</tr>
<tr>
<td>3/21</td>
<td>Satellite viruses, satellite RNAs, and viroids.</td>
<td>chapt. 14</td>
</tr>
<tr>
<td>3/23</td>
<td>Variability of plant viruses and strains. Evolution of plant viruses</td>
<td>pages 352-371; chapt. 17</td>
</tr>
</tbody>
</table>
Transmission of plant viruses: Seed, pollen, soil, water and vegetative materials. Vector transmission by organisms other than arthropods. Orthropod transmission - types and characteristics; mechanisms and accessory factors.


Control of plant virus diseases.

Biotechnology, genetic engineering and plant viruses.
**Recommended Additional Texts:**

**Useful Other Books:**
WSU Disability Statement

Students with Disabilities: Reasonable accommodations are available for students with a documented disability. If you have a disability and need accommodations to fully participate in this class, please either visit or call the Access Center (Washington Building 217; 509-335-3417) to schedule an appointment with an Access Advisor. All accommodations MUST be approved through the Access Center. For more information contact a Disability Specialist: 509-335-3417  http://accesscenter.wsu.edu, Access.Center@wsu.edu

WSU Safety and Emergency Notification

Washington State University is committed to enhancing the safety of the students, faculty, staff, and visitors. It is highly recommended that you review the Campus Safety Plan (http://safetyplan.wsu.edu/) and visit the Office of Emergency Management web site (http://oem.wsu.edu/) for a comprehensive listing of university policies, procedures, statistics, and information related to campus safety, emergency management, and the health and welfare of the campus community.

Academic integrity

Academic integrity will be strongly enforced in this course. Any student caught cheating on any assignment will be given an F grade for the course and will be reported to the Office Student Standards and Accountability. Cheating is defined in the Standards for Student Conduct WAC 504-26-010 (3). It is strongly suggested that you read and understand these definitions.