COURSE DESCRIPTION

Taxonomy, biology and pathogenic mechanisms of plant pathogenic bacteria, and control of bacterial plant diseases.

CREDIT- 4 credit hours

PREREQUISITE - PLHL 4000, MBIO 2051, or consent of the instructor.

INSTRUCTOR

Dr. Jong Hyun Ham, 460 Life Sciences Building, 8-6798. (jham@agcenter.lsu.edu)

OFFICE HOURS

Preferred times to visit my office (460 LSB) are 10 am to noon & 1 to 3 pm on Monday, Wednesday, or Friday.

COURSE OBJECTIVES

1. To become familiar with current taxonomy of plant pathogenic prokaryotes and important bacterial diseases.

2. To become familiar with techniques for manipulating bacteria such as isolation, identification and inoculation of pathogens.

3. To gain the knowledge of different pathogenic mechanisms used by different groups of major bacterial pathogens.

4. To understand the ecology of various plant pathogenic bacteria and current disease management strategies for bacterial diseases.

By completion of the course, students should become able to critically interpret current research articles on phytobacteriology and plant-bacterial interactions, and to independently identify causal agents of bacterial plant diseases.

SCHEDULE

Lectures: Tuesday and Thursday at 9:00-10:20 AM in room A465 Life Sciences Annex Building.

Laboratories: Tuesday at 1:10 – 4:00 PM in room 308 Life Sciences Building. For many lab
exercises, some extra follow-up works should be at appropriate non-class hours in order to observe results and transfer bacterial cultures.

RECOMMENDED BOOKS TO READ


LABORATORY GUIDE BOOKS TO BE FREQUENTLY USED


LABORATORY

Students must attend all the lab sessions and be present from the beginning of each session for hearing introductory remarks and instructions. Each student is expected to keep a laboratory notebook. There is no required format for the lab notebook but it should contain the protocols and results of each experiment and the discussion section addressing “Discussion Points”.

ASSIGNMENTS:

1. Laboratory notebook

2. Report on the identification of unknown bacteria

3. Pre-proposal on a research topic of phytobacteriology and plant-bacterial interactions. Minimal length of pre-proposal should be 5 pages (with Times Roman 12 font size, double spaced) with the following format: 1) Background, 2) Rationale, 3) Goals and Specific Objectives, and 4) Experimental Plan. References cited should also be included on a separate page(s). (DUE DATE for 1, 2 and 3: April 9, 2013 (T) 1:00 PM)

4. At the end of the semester, each student should give a 20 - 30 min presentation about the identification of unknown bacteria and write a summary of review comments (~ 300 – 500 words) on one proposal by another classmate.
5. Research articles on current topics of phytobacteriology will be selected and discussed. Each student will take turns to present a selected article and lead discussion on it. Every student should write up a brief review comment and at least two questions on each article to be discussed before the discussion session.

### GRADING

<table>
<thead>
<tr>
<th>A. Four in-class exams</th>
<th>60%</th>
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<tbody>
<tr>
<td>(Quiz 1 (5%) / Midterm (20%) / Quiz 3 (5%) / Final (30%))</td>
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<tr>
<td>B. Lab report for identification</td>
<td>10%</td>
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<td>C. Lab notebook</td>
<td>5%</td>
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<tr>
<td>D. Pre-proposal</td>
<td>10%</td>
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<td>E. Oral presentation I (on journal articles)</td>
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<tr>
<td>F. Review comments and questions on journal articles</td>
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<tr>
<td>G. Evaluation of pre-proposal</td>
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<td>H. Positive influence on laboratory and discussion sessions</td>
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Total 105%

There will be no makeup exams without an official University excuse (i.e. documented serious illness, University-approved travel, special curricular requirements, court-imposed legal obligations, military obligations, University athletic participation and University musical event participation). Absence of class without the official University excuse will cause one-point (%) deduction for each lecture and two-point deduction for each lab session. Final grades will be given as follows: 105 - 90 = A, 89 - 75 = B, 74 - 60 = C, 59 - 45 = D.

### FOR STUDENTS WITH DISABILITIES

If you have a hidden or visible disability that may require classroom or test accommodations, please see me as soon as possible during scheduled office hours. If you have not already done so, please register with the Office of Disability Services, 112 Johnston Hall, 225/578-5919, which is the department responsible for coordinating accommodations and services for students with disabilities.

### ACADEMIC INTEGRITY

Any academic misconduct (e.g. copying and plagiarism) will be reported to the Office of the Dean of Students. It is strongly recommended to visit the Student Advocacy Accountability website (http://saa.lsu.edu/code-student-conduct) and read ‘8.0. Misconduct’ as well as ‘7.0. Accountability Procedures’ and ‘9.0. Disciplinary Sanctions’ in ‘the Code of Student Conduct’ for more information about academic misconducts and the corresponding actions for them.
<table>
<thead>
<tr>
<th>Lecture</th>
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<th>Topic</th>
<th>Lab</th>
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<td>Introduction to the course, General features of bacteria I</td>
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<td>Aseptic techniques Enumeration</td>
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<td>General features of bacteria II</td>
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<td>Isolation of bacteria from plant samples</td>
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<td>Taxonomy I</td>
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<td>Identification I: Grow isolated bacteria on KBA and NA plates JA 1 and 2</td>
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<td>Identification IV: Bacterial movement, flagella JA 6</td>
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### Journal Articles To Be Discussed


