PHC 6561: Public Health Laboratory Techniques

Summer A 2013
Section 1: May 6-10 2013
Section 2: May 13 - 17, 2012 (certificate students only)
1:30pm--5:00pm
Location: CGRC 184

Instructor Information

Gary L Heil PhD
Emerging Pathogens Institute
Room 475
2055 Mowry Road
PO Box 100009
Gainesville, FL 32611
(352) 273-9418
E-mail: glheil@phhp.ufl.edu

Office hours: arranged

Course Description

Introduction to common laboratory techniques used in emerging infectious respiratory disease research and surveillance laboratories; emphasis on techniques for culturing, characterization, and serological surveillance of exposure to influenza viruses.

One semester credit hour class.

Course Objectives and/or Goals

At the end of the course the student will be able to:

1. Understand the laboratory skills used in identifying, culturing and characterizing infectious agents;
2. Describe the serological procedures involved in detecting previous infection with infectious agents;
3. Apply above laboratory techniques with a special emphasis on influenza A viruses; and
4. Understand the methods described above as well as the analysis and reporting of data resulting from their use.
Course Materials

There is no specific textbook for this course. Students will be provided with handouts and laboratory exercises that correspond to classroom activities.

Course pre-requisite

Before reporting to class students must complete the online courses Basic Biological Safety and Blood Borne Pathogens for College of Public Health. Certification of completed courses must be brought to class.

Course Requirements/Evaluation/Grading

Students will be graded on a standard letter scale of A to F. Students will be evaluated by their class participation (50%) and a final open-note, short answer/essay exam (50%). Students who fully participate and attend every session will earn at least a B for the class participation portion of the overall grade. To earn an A in class participation, students must attend each session and demonstrate that they prepared for lectures beforehand (through familiarity with assigned readings, interacting with the lecturers, and actively participating in group exercises).

<table>
<thead>
<tr>
<th>Percentage or points earned in class</th>
<th>93% - 100%</th>
<th>90% - 92%</th>
<th>87% - 89%</th>
<th>83% - 86%</th>
<th>80% - 82%</th>
<th>77% - 79%</th>
<th>73% - 76%</th>
<th>70% - 72%</th>
<th>67% - 69%</th>
<th>63% - 66%</th>
<th>60% - 62%</th>
<th>Below 60%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Letter Grade equivalent</td>
<td>A</td>
<td>A-</td>
<td>B+</td>
<td>B</td>
<td>B-</td>
<td>C+</td>
<td>C</td>
<td>C-</td>
<td>D+</td>
<td>D</td>
<td>D-</td>
<td>F</td>
</tr>
<tr>
<td>Letter Grade Points</td>
<td>4.0</td>
<td>3.67</td>
<td>3.33</td>
<td>3.0</td>
<td>2.67</td>
<td>2.33</td>
<td>2.0</td>
<td>1.67</td>
<td>1.33</td>
<td>1.0</td>
<td>0.67</td>
<td>0.0</td>
</tr>
</tbody>
</table>

For greater detail on the meaning of letter grades and university policies related to them, see the Registrar’s Grade Policy regulations at [http://www.registrar.ufl.edu/catalog/policies/regulationgrades.html](http://www.registrar.ufl.edu/catalog/policies/regulationgrades.html)
**Topical Outline**

<table>
<thead>
<tr>
<th>Day</th>
<th>Title</th>
<th>comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Biosafety / laboratory skills primer, Introduction to viral culturing methods, Influenza viral RNA (vRNA) isolation from clinical samples, inoculation of embryonated chicken eggs</td>
<td>~ 4hrs</td>
</tr>
<tr>
<td>2</td>
<td>Reverse Transcription (RT) to make cDNA from vRNA, Gene segment specific PCR from RT products, Detection of influenza A in tissue culture direct fluorescent antibody staining, Hemagglutination of influenza viral antigens</td>
<td>~4 hrs</td>
</tr>
<tr>
<td>3</td>
<td>Agarose gel electrophoresis of gene segment specific PCR, Real-time RT-PCR ID and subtyping of influenza A specimens from humans, Standardization of influenza A antigen for use in Hemagglutination Inhibition</td>
<td>~4 hrs</td>
</tr>
<tr>
<td>4</td>
<td>Analysis of Real-time PCR, Harvest of infected Eggs, Hemagglutination Inhibition Assays (HI), Rapid tests for identification of influenza A virus in clinical specimens</td>
<td>~4 hrs</td>
</tr>
<tr>
<td>5</td>
<td>Lecture on viral-neutralization procedure for influenza, Review, Open-notes, multiple choice examination</td>
<td>~3.5 hrs</td>
</tr>
</tbody>
</table>

**Statement of University’s Honesty Policy (cheating and use of copyrighted materials)**

Each student is bound by the academic honesty guidelines of the University and the student conduct code printed in the Student Guide and on the University website. The Honor Code states: “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.” Cheating or plagiarism in any form is unacceptable and inexcusable behavior.

**Attendance Policy**

Attendance is mandatory.

**Policy Related to Make-up Exams or Other Work**

*Attendance and Make-up Work* – I expect you to attend and be prepared to participate in all class sessions. Personal issues with respect to class attendance or fulfillment of course requirements will be handled on an individual basis.

**Statement Related to Accommodations for Students with Disabilities**

*Accommodations for Students with Disabilities*  
If you require classroom accommodation because of a disability, you must first register with the Dean of Students Office (http://www.dso.ufl.edu/). The Dean of Students Office will provide documentation to you, which you then give to the instructor when requesting accommodation.
The College is committed to providing reasonable accommodations to assist students in their coursework.

**Counseling and Student Health**

Students may occasionally have personal issues that arise in the course of pursuing higher education or that may interfere with their academic performance. If you find yourself facing problems affecting your coursework, you are encouraged to talk with an instructor and to seek confidential assistance at the University of Florida Counseling Center, 352-392-1575, or Student Mental Health Services, 352-392-1171. Visit their web sites for more information: [http://www.counsel.ufl.edu/](http://www.counsel.ufl.edu/) or [http://www.health.ufl.edu/shcc/smhs/index.htm#urgent](http://www.health.ufl.edu/shcc/smhs/index.htm#urgent)

The Student Health Care Center at Shands is a satellite clinic of the main Student Health Care Center located on Fletcher Drive on campus. Student Health at Shands offers a variety of clinical services, including primary care, women's health care, immunizations, mental health care, and pharmacy services. The clinic is located on the second floor of the Dental Tower in the Health Science Center. For more information, contact the clinic at 392-0627 or check out the web site at: [www.health.ufl.edu/shcc](http://www.health.ufl.edu/shcc)

Crisis intervention is always available 24/7 from:
Alachua County Crisis Center: (352) 264-6789.

BUT – *Do not wait until you reach a crisis to come in and talk with us. We have helped many students through stressful situations impacting their academic performance. You are not alone so do not be afraid to ask for assistance.*