Micro 471/671

Immunology and Serology Lab Syllabus

Fall 2011

Tues. Meeting Time: 11:30am – 12:20pm

or

2:30pm – 3:20pm

Thurs. Meeting Time:

Sec. 1: 2:00pm – 4:50pm
Sec. 2: 5:00pm – 7:50pm

Van Es 105/107
<table>
<thead>
<tr>
<th>Course#</th>
<th>Section</th>
<th>Call#</th>
<th>Meets Tues.</th>
<th>Meets Thurs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>471</td>
<td>1</td>
<td>2692</td>
<td>11:30a-12:20p or 2:30p-3:20p</td>
<td>2:00p-4:50p</td>
</tr>
<tr>
<td>471</td>
<td>2</td>
<td>2708</td>
<td>11:30a-12:20p or 2:30p-3:20p</td>
<td>5:00p-7:50p</td>
</tr>
<tr>
<td>671</td>
<td>1</td>
<td>2709</td>
<td>2:30p-3:20p</td>
<td>2:00p-4:50p</td>
</tr>
</tbody>
</table>

**Instructor:** Mr. Tom Gustad  
Room 125, Van Es Hall,  
phone: 231-8126  
Office Hours: By Appointment  
e-mail: T.Gustad@ndsu.edu

**Organization**

The laboratory exercises have been compiled into a lab manual (available at the bookstore). In addition to the information in the manual, students will be required to download materials from the course website (https://bb.ndsu.nodak.edu/webapps/portal/frameset.jsp).

Students will work in groups of two or four, unless otherwise directed, and will remain within this group and in the same seat in the class throughout the semester.

Any student having difficulty understanding any feature of the course content, or organization, may contact the instructor and help will be given, or a help session arranged.

This is a practical class and laboratory coats should be worn (students may bring their own lab coats or lab coats will be provided). Lab coats will be collected, sterilized, and returned at the completion of the semester. Eating and drinking is not permitted in the laboratory.

To avoid class disruptions, students are asked to turn off cell phones while in the lab (unless an extremely important call is expected). In addition, students should respect their classmates by minimizing extraneous chatter while the instructor is speaking.

Any accidents should be reported to the instructor immediately. It is recommended that students have their tetanus immunizations up to date.

**Course Goal**

The goal of this laboratory course is to provide students with experience in a variety of immunological techniques.

**Assessment**

Students will be assessed via quizzes, lab write-ups, a homework assignment, and a final examination. There will be a total of 500 points to be gained from the above, which will be designated as indicated on the following page. **Students will be expected to have read the pertinent section(s) of their laboratory manual prior to the beginning of class.** The ten on line quizzes are designed to ensure compliance with this requirement. On line quizzes will be posted in the Course Information section of the Blackboard website. The schedule for the on line quizzes can be found on the next page (**no extensions on dates of availability**).
Dilution Homework Assignment…………………………25pts…………due – 9/6/11 (T)
Lab Write-up #1(Ex. 3 or 5)………………………………….15pts…………due – 9/20/11 (T)
Lab Write-up #2(Ex. 6 or 8)………………………………….15pts…………due – 10/11/11 (T)
Lab Write-up #3(Ex. 7 or 9)………………………………….15pts…………due – 11/1/11 (T)
Lab Write-up #4(Ex. 11 or 12)…………………………….15pts…………due – 11/15/11 (T)
Lab Write-up #5(Ex. 2 or 4)………………………………….15pts…………due – 12/6/11 (T)
On Line Quizzes…………………………………………………………….100pts…..(10pts each)….see dates below* 
^aQuiz #1 (Ex. 1,2,3,4,5)………………………………….50pts…………due – 9/13/11 (T)
^aQuiz #2 (Ex. 6,7,8,9,10)………………………………….50pts…………due – 10/25/11 (T)
^aQuiz #3 (Ex. 2,4,11,12,13)………………………………….50pts…………due – 12/1/11 (Th)
^aComprehensive Final (Practical) Exam  ……………….150pts…………due – 12/8/11 (Th)
^aQuiz/Exam Rules:  No talking/whispering, no sharing of calculators, no wandering eyes

Due to past abuses, I am forced to announce that there will be no flexibility in the scheduling of examinations. Therefore, the examinations must be taken at the scheduled times (with exceptions allowed only in extreme situations). Please plan your test preparation accordingly.

*Availability of On Line Quizzes (note- no on line quiz weeks 5, 12-16; on line quiz #1 is available for 2 days, all remaining on line quizzes available 2pm Monday – 2pm Thursday):
Quiz #1: 2pm 8/23 – 2pm 8/25  (Syllabus + Ex.1)  Quiz #6: 2pm 10/3 – 2pm 10/6  (Ex.7 + 8)
Quiz #2: 2pm 8/29 – 2pm 9/1  (Ex.2 + 3)  Quiz #7: 2pm 10/10 – 2pm 10/13  (Ex.7 + 9)
Quiz #3: 2pm 9/5 – 2pm 9/8  (Ex.4 + 5)  Quiz #8: 2pm 10/17 – 2pm 10/20  (Ex.10)
Quiz #4: 2pm 9/12 – 2pm 9/15  (Ex.6)  Quiz #9: 2pm 10/24 – 2pm 10/27 (Ex.11)
Quiz #5: 2pm 9/26 – 2pm 9/29 (Ex. 8)  Quiz #10: 2pm 10/30 – 2pm 11/3 (Ex.11+12)

Assignments/lab write-ups will be collected at the beginning of the class period on the dates indicated above. Electronic submissions of lab reports will not be accepted. Assignments/lab write-ups received late will be accepted but will be penalized 1 point for each day they are late.

Lab Write-Ups should be written as formal scientific reports, using the format below. Each section of the report should be labeled (e.g. Summary, Introduction, Materials and Methods, etc.) Refer to the sample lab write-up and rubric in the lab manual (Appendix 3 & 4) for guidance.

Title (1 point): be succinct, but descriptive
Summary (3 points): a 1 paragraph summation of your report, typically written after the other sections of the report have been completed, the summary should include:
- a concise statement of the experiment's purpose (a synopsis of the introduction)
- a brief overview of the procedure (1-2 sentences)
- a brief, yet specific, mention of the results
- 1-3 sentences regarding the significance of the results (sum up the discussion)
Introduction (2 points): explain why you did the experiment (purpose/goal of exercise)
Materials and Methods (2 points): list the materials and briefly outline the procedure (a step by step regurgitation of the protocol is not necessary)
Results (2 points): present the data or describe what you saw (no commentary)
Discussion (2 points): discuss the experiment and the significance of the results
References (1 point): cite any references used (including lab manual)
Additional information regarding lab write-ups:
- this is a formal lab report, so please avoid comments such as: "I really liked this experiment." or "This experiment was really fun."
- use the discussion section to explain and comment on the results, the discussion should include an in-depth elaboration regarding the significance of the exercise in general, and of the results in particular (outside research is recommended)
- spelling and neatness are important
- the results section should contain only results, no discussion/interpretation
- lab reports should be no less than 2, and no more than 6, pages long

Two common deficiencies in lab reports:
- failure to include a brief mention of experimental results in the summary
- omission of one or more parts of an experiment (several experiments have >1 part, e.g. ex. 3- report should include both typing + differential, ex. 5- report should include both lymphoprep + hemocytometer, ex. 6 report should include both pecs + immunodisssect.)

Graduate students (MICR 671) must submit two additional lab reports (total of 7). These reports will be for exercises 1 and 10. These reports will be due by 12/6/11 and must conform to the same standards as the other five lab reports.

Lab reports are a very important component of this course. Students who do not turn in all the required lab reports will fail the course.

Grading

<table>
<thead>
<tr>
<th>Total Points</th>
<th>Percentage</th>
<th>Grade</th>
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<tbody>
<tr>
<td>450-500</td>
<td>90-100%</td>
<td>A</td>
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<tr>
<td>400-449</td>
<td>80-89%</td>
<td>B</td>
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<tr>
<td>350-399</td>
<td>70-79%</td>
<td>C</td>
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<tr>
<td>300-349</td>
<td>60-69%</td>
<td>D</td>
</tr>
<tr>
<td>&lt;300</td>
<td>&lt;60%</td>
<td>F</td>
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This is an upper level laboratory course; therefore expect some fairly strenuous assessments.

Honor System

All students who are enrolled in CAFSNR courses are expected to practice academic honesty. The CAFSNR Honor Code can be reviewed at the following sites: http://www.ndsu.nodak.edu/policy/335.htm; http://www.ag.ndsu.edu/academics/honor.htm

Students with Special Needs and Disabilities

Any student who needs special considerations or accommodations during this course should contact the course instructor as soon as possible.

Punctual attendance is required in a Laboratory Class

2 points will be deducted from your total score for an unexcused absence from a Tuesday lab. 10 points will be deducted from your total score for an unexcused absence from a Thursday lab. Habitual tardiness is unacceptable and will result in the forfeiture of points.

Note- students should monitor their NDSU email account and Blackboard for important information.
<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Tuesday</th>
<th>Date</th>
<th>Thursday</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>8/23</td>
<td>Introduction</td>
<td>8/25</td>
<td>Ex. 1 Reagents &amp; Dilutions</td>
</tr>
<tr>
<td>2</td>
<td>8/30</td>
<td>Ex. 2 JPA/Lab Mouse- Inject SRBC</td>
<td>9/1</td>
<td>Ex. 3 Blood Typing &amp; Differential</td>
</tr>
<tr>
<td>3</td>
<td>9/6</td>
<td>Ex. 4 Protective Immunization- Inject Mice</td>
<td>9/8</td>
<td>Ex. 5 Lymphoprep &amp; Hemocytometer</td>
</tr>
<tr>
<td>4</td>
<td>9/13</td>
<td>Quiz One (Ex. 1,2,3,4,5)</td>
<td>9/15</td>
<td>Ex. 6 PEC, Cytospin &amp; Dissection</td>
</tr>
<tr>
<td>5</td>
<td>9/20</td>
<td>Ex. 2 JPA- Inj. SRBC</td>
<td>9/22</td>
<td>No Lab</td>
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<tr>
<td>6</td>
<td>9/27</td>
<td>Ex. 8 Coat ELISA; Ex. 4 Prot. Imm.- Inject Mice</td>
<td>9/29</td>
<td>Ex. 8 ELISA</td>
</tr>
<tr>
<td>7</td>
<td>10/4</td>
<td>Ex. 8 ELISA Interpretation</td>
<td>10/6</td>
<td>Ex. 7 DRID, SRID, &amp; IE</td>
</tr>
<tr>
<td>8</td>
<td>10/11</td>
<td>Ex. 7 Read DRID, SRID &amp; IE</td>
<td>10/13</td>
<td>Ex. 9 Lymphocyte Proliferation</td>
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<tr>
<td>9</td>
<td>10/18</td>
<td>Ex. 2 JPA- Inject SRBC</td>
<td>10/20</td>
<td>Ex. 9 Add MTT (AM), Solub. &amp; Read Plates (PM); Ex. 10 Comm. Card Tests</td>
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<td>10</td>
<td>10/25</td>
<td>Quiz Two (Ex. 6,7,8,9,10)</td>
<td>10/27</td>
<td>Ex. 11 SDS-PAGE</td>
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<tr>
<td>11</td>
<td>11/1</td>
<td>Ex. 11 Examine SDS-PAGE Gels</td>
<td>11/3</td>
<td>Ex. 12 Antibody Mediated Cytolysis</td>
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<tr>
<td>12</td>
<td>11/8</td>
<td>Ex. 12 Interpretation; Ex. 2 JPA- Inj. SRBC</td>
<td>11/10</td>
<td>No Lab</td>
</tr>
<tr>
<td>13</td>
<td>11/15</td>
<td>Ex. 4 Prot. Immunization- Challenge (+SROI)</td>
<td>11/17</td>
<td>Ex. 2 JPA; Ex. 4 Prot. Imm.- Inoc. API</td>
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<tr>
<td>14</td>
<td>11/22</td>
<td>Ex. 2 Read JPA; Ex. 4 Prot. Imm.- Read API</td>
<td>11/24</td>
<td>No Class: Thanksgiving</td>
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<tr>
<td>15</td>
<td>11/29</td>
<td>Ex. 2&amp;4 results; Ex. 13 Murder Hunt (turn in lab coats)</td>
<td>12/1</td>
<td>Quiz Three (Ex. 2, 4, 11, 12, 13)</td>
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<tr>
<td>16</td>
<td>12/6</td>
<td>Review Session for Final Exam</td>
<td>12/8</td>
<td>Practical Final Exam</td>
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**LAB SCHEDULE – MICR 471 Fall 2011**

9/6- Dilution homework due
9/20- Lab Report #1 due (ex. 3 or 5)
10/11- Lab Report #2 due (ex. 6 or 8)
10/20- Lab Report #3 due (ex. 7 or 9)
11/15- Lab Report #4 due (ex. 11 or 12)
12/6- Lab Report #5 due (ex. 2 or 4)