Course Report: Microbiology

MSEC Meeting
April 5, 2011
Organization

• Basic Science Faculty:
  - Dr. Russ Hayman  Course Director, Block-3 Director, Lecturer
  - Dr. Mike Kruppa  Block 1 Director, Lecturer
  - Dr. Sara Davis-Hayman  Block 2 Director, Lecturer
  - Dr. Rob Schoborg  Block 4 Director, Lecturer
  - Dr. Don Ferguson  Lecturer
  - Dr. Jenny Hall  Lecturer
  - Mr. Jerry Keplinger  Laboratory Coordinator
Organization

• Clinical Faculty:
  – Dr. Steve Loyd
  – Dr. Rob Clemons
  – Dr. Jay Mehta
  – Dr. Jon Moorman
1. Objectives

Topics include, but are not limited to:

- Growth characteristics of microorganisms
- Molecular, structural and genetic characteristics of microorganisms
- Cellular interactions (protective and destructive) of microorganisms within the host
- Virulence factors and mechanisms used by microorganisms to cause disease
- Epidemiological aspects and modes of acquisition of microorganisms
- Techniques used for identifying microorganisms as part of the diagnostic procedure
- Fundamental concepts of treatment modalities (antimicrobial agents and molecular targets)
1. Objectives

After this course, the student should be able to:

• Perform and evaluate specimens using the Gram stain and other laboratory procedures
• Understand and evaluate data from a clinical microbiology laboratory
• Integrate Microbiology with material presented in other 2nd year courses
• Perform satisfactorily on Microbiology-related items on USMLE Step 1
• Demonstrate advanced critical thinking skills
• Function readily and comfortably in Clinical coursework, Clerkships, Residencies, and in practice when Microbiology and Infectious Diseases are relevant
2. Core Content

• Content divided among the major microorganisms:
  – Bacteria (Block 1 & 2)
  – Parasites & Fungi (Block 3)
  – Viruses (Block 4)

• Following basic science lectures in each block a clinical faculty presents a clinical correlate.

• Bacteriology Laboratory:
  – Five series presented, which support the basic science lectures
3. Teaching Methods

• Text Books
  – *Medical Microbiology* (ed. Murry)
  – *Cases in Medical Microbiology and Infectious Disease* (ed. Gilligan)

• Lecture Notes

• Lecture PowerPoints

• Laboratory Manual
  – Bacteriology Lab
  – Five focal areas: Environmental, Respiratory, Wound, Urinary, Gastrointestinal
4. Evaluation Methods

• Total of Five Exams
  – One following each Block
    • 75 – 100 questions each
    • Multiple choice
    • Significant number of clinical vignettes
  – One comprehensive Final
    • Customized Shelf Exam (past two years).

• Laboratory Assignments
5. Grading Structure

<table>
<thead>
<tr>
<th>Block</th>
<th>15%</th>
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<tbody>
<tr>
<td>Block 1</td>
<td>15%</td>
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<tr>
<td>Block 2</td>
<td>15%</td>
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<tr>
<td>Block 3</td>
<td>15%</td>
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<tr>
<td>Block 4</td>
<td>15%</td>
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<tr>
<td>Lab</td>
<td>10%</td>
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<tr>
<td>Final</td>
<td>30%</td>
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</table>

Overall Avg. | Letter Grade
90% or higher | “A”
80.0 – 89.9% | “B”
70.0 – 79.9% | “C”
Less than 70% | “F”

100%

**A passing grade in the course is only awarded if a student demonstrates that they have and can utilize the minimum fund of knowledge within the field necessary for their third year clinical rotations. As a result, any student who fails the Final exam AND three or more block exams will fail the course, regardless of their final course average. Students who fail must repeat the course.**
6. Summary of Student Evaluations

**MY OVERALL EVALUATION OF THIS COURSE IS:**

<table>
<thead>
<tr>
<th></th>
<th>Blocks 1, 2, 3</th>
<th>Block 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent</td>
<td>22.2%</td>
<td>73.0%</td>
</tr>
<tr>
<td>Good</td>
<td>42.9%</td>
<td>20.6%</td>
</tr>
<tr>
<td>Satisfactory</td>
<td>30.2%</td>
<td>4.8%</td>
</tr>
<tr>
<td>Marginal</td>
<td>4.8%</td>
<td>1.6%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>100%</td>
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</table>
6. Summary of Student Evaluations

**Block 1, 2, 3 - Strengths**

- Usually great notes, good organization, fair tests
- The class is very well organized and the material is available quickly
- Physician lectures
- Lab was well organized

**Block 1, 2, 3 - Weaknesses**

- Lectures during Block II were typically less well structured than during blocks I or III.
- The bacteriology section seemed rushed and the lectures were not as helpful in focusing on the key points.
- Too many professors in block 1. Blocks 1 and 2 need make sure that they communicate the priorities
- The course is too heavily laden with some material that I feel is not of extreme importance
6. Summary of Student Evaluations

Block 4 - Strengths

• The instruction and very very clear objectives.
• Handouts and lectures were very beneficial.
• The course was well organized, the notes were incredible, and the guest lectures helped to highlight important facts from class.
• Extremely well organized - Only details important for Step are emphasized

Block 4 - Weaknesses

• The test was a big surprise to me. I felt it was very difficult.
• The test was extremely more difficult compared to the other tests.
• A weakness would have to be the small number of clinical correlates.
• I don't feel like there are any MAJOR weaknesses.
6. Summary of Student Evaluations

<table>
<thead>
<tr>
<th>Student Evaluation Immediately Following Course #</th>
<th>Percentage Rating as “Excellent” or “Good”</th>
</tr>
</thead>
<tbody>
<tr>
<td>QCOM Graduation Questionnaire</td>
<td>98%</td>
</tr>
<tr>
<td>National % Rating from Graduation Questionnaire</td>
<td>81%</td>
</tr>
</tbody>
</table>

#The 2010 graduating class took the Microbiology course in 2007-2008.

* Percentage rating was weighted based on the two evaluations (Blocks 1, 2, 3 = 77% “Excellent” or “Good”, where as Block 4 = 95.2%)
### Medical Microbiology Course 2010-2011

<table>
<thead>
<tr>
<th>Year</th>
<th>Exam 1</th>
<th>Exam 2</th>
<th>Exam 3</th>
<th>Exam 4</th>
<th>Final Exam</th>
<th>Final Avg.</th>
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<tr>
<td>2010-2011</td>
<td>12, 25, 18, 8 (81.6%)</td>
<td>22, 26, 14, 7 (85.7%)</td>
<td>13, 26, 17, 7 (81.4%)</td>
<td>15, 31, 11, 6 (84.0%)</td>
<td>18, 37, 7, 1 (86.0%)</td>
<td>14, 35, 14, 0 (85.6%)</td>
</tr>
<tr>
<td>2009-2010</td>
<td>02, 31, 23, 8 (79.5%)</td>
<td>18, 26, 15, 5 (83.8%)</td>
<td>22, 27, 10, 5 (85.5%)</td>
<td>18, 22, 16, 8 (82.3%)</td>
<td>27, 27, 6, 2 (87.7%)</td>
<td>17, 34, 13, 0 (85.4%)</td>
</tr>
<tr>
<td>2008-2009</td>
<td>08, 30, 19, 1 (82.9%)</td>
<td>38, 15, 3, 1 (90.2%)</td>
<td>34, 16, 6, 2 (88.7%)</td>
<td>22, 31, 4, 1 (87.6%)</td>
<td>12, 36, 8, 2 (85.2%)</td>
<td>22, 31, 4, 0 (87.8%)</td>
</tr>
<tr>
<td>2007-2008</td>
<td>(77.5%)</td>
<td>(86.5%)</td>
<td>(85.1%)</td>
<td>(82.7%)</td>
<td>(79.9%)</td>
<td>(83.8%)</td>
</tr>
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</table>

Indicates number of A, B, C, F (Exam Avg.)
8. Plans For Change

Organization and Communication Within Block 1 & 2.

• Lecture Assignments for Block 2 to be Reassigned.

• Effort to Communicate Significance

1. Clinical Presentation
2. Transmission/Source
3. Unique Characteristic/Important Virulence Factor
4. Lab Tests
5. Treatment
8. Plans For Change

• Audio lecture recording to be faculty choice

• Microbiology/Immunology Shelf Exam to be given as the Final Exam.

• Only one Student Evaluation to be requested.