Review of Year1 Immunology/Virology course

• Course occurs in the winter term of Year 1
• Course Directors – David Mullins (Immunology), David Bzik (Virology)
• Course has 44 curricular hours
• Course was last reviewed in Dec 2013
Prior Review: Summary of Recommendations

- Course objectives are clearly written and correlate well with objectives in the Step I brochure.
- Some session objectives need to be rewritten; session objectives need to be provided for every activity in the course.
- The issue of redundancy regarding common diseases should be explored by the course directors to ensure that the redundancy is planned.
- The course is heavily lecture-based; the course directors need to introduce more engaged/active forms of pedagogy into the course.
Assessment questions have been improved since the last review of the course, however further revision is needed; students continue to cite frustration with the content on assessments (i.e. the material assessed does not match what is emphasized in the course)

Expectations regarding the course need to be clearly communicated to students; some improvement is needed in the clarity of course materials
Faculty

- Faculty that have received feedback where significant student dissatisfaction was noted will consult with DCAL and a member of the Academy of Faculty Master Educators to review past taped lectures to improve their ability to communicate material effectively [done].
- The course director and department chairman will attend some lectures to see the material presented ‘in action’ and observe student-professor interactions. [done]

Notes

- Notes will appear in a similar format with learning objectives at the front. They will be in short paragraph format and cover key concepts. [done]
- Notes will be written in the same order as the session material. [done]
- The learning objectives will be the same for the lectures and state what the expectations are from the students for each session. [done]
Lectures

- Objectives for the session will be stated at the beginning of each session and what specifically should be learned will be stated. [done]
- Dr. Mullins will use a 2 hour team based learning problem for tumor immunology, which will increase the active learning time. [done]
- The course will shorten the lecture time by 3 hours. [done]
- Although a large group lecture format will be used in many sessions, more interactive learning styles (e.g. pair sharing, ARS questions) will be incorporated, although there will still be traditional lecture material. [some faculty did this, others still working on it]

Small Groups

- The student presentation groups will receive feedback from their faculty facilitator for their presentation. They will also receive results of a survey from all students attending to provide feedback on the presentation/discussion. [done]
- To provide more flexibility, we will allow the use of computer aids and other presentation approaches. However, this will be provisional depending on whether these promote or inhibit student interactions and learning. [done]
Prior Review: Immunology Action Plan

Assessment

• More problem based questions will be incorporated into the exams to assess higher level thinking skills and learning. [A new course director was appointed after this review and many changes were implemented. In order to assess the effectiveness of the new teaching methods, there was a desire to keep the quizzes and exams relatively stable, however more of these questions will be added in the future]
• All negative format questions will be removed from all quizzes. [done]
• Single best answer format will be used for exam questions. [done]

Course overlap

• This course will cover fewer laboratory tests that are covered as a part of Pathology in year 1. This course will continue to cover a few key immunological tests. [done]
• This course will not cover histology/anatomy of immune tissues that are covered in CTO. [done]
Prior Review: Virology Action Plan

• Incorporate more active modes of learning/new methods of pedagogy into the course (i.e. reduce % of lectures) [done to a small degree]
• Rewrite/create learning objectives for each session to clearly articulate expectations to students [done]
• Faculty development is needed for some faculty that are not meeting expectations with regard to teaching [one issue was rectified]
• Update/edit notes; ensure lecture content and notes are in agreement [continual process; faculty have worked on this]
• Provide an opportunity where biologic data are observed, measured and analyzed [incorporated an online lab for one year, but decided to discontinue as it was not deemed useful]
• Review overlap of material with other courses [done]
• Identify at risk students early and provide support [done; course director reached out to them]
• Revise assessment questions; verify that they link back to major course objectives [continual process; faculty have worked/continue to work on this]
# Course Objectives - Immunology

<table>
<thead>
<tr>
<th>Course Objective</th>
<th>Program Objective Mapping</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>To describe the cells, products, and effector responses of the immune system</td>
<td>MS.2</td>
</tr>
<tr>
<td>2</td>
<td>To describe an immune response from initiation to resolution</td>
<td>MS.2</td>
</tr>
<tr>
<td>3</td>
<td>To describe T and B cell receptor diversity and antigen recognition</td>
<td>MS.2</td>
</tr>
<tr>
<td>4</td>
<td>To explain the role of tolerance, when and how it occurs, and consequences of autoimmunity</td>
<td>MS.2</td>
</tr>
<tr>
<td>5</td>
<td>To compare innate and adaptive immune responses</td>
<td>MS.2</td>
</tr>
<tr>
<td>6</td>
<td>To describe how pathogens are recognized, presented to the immune system, and how this influences vaccine design</td>
<td>MS.2</td>
</tr>
<tr>
<td>7</td>
<td>To describe and explain the key interactions during T cell and B cell interactions</td>
<td>MS.2</td>
</tr>
<tr>
<td>8</td>
<td>To describe and compare the four types of hypersensitivity</td>
<td>MS.2</td>
</tr>
<tr>
<td>9</td>
<td>To explain and compare immune processes during transplantation and tumor immunity</td>
<td>MS.2</td>
</tr>
<tr>
<td>10</td>
<td>To explain how specific drugs alter the function of the immune system</td>
<td>MS.2</td>
</tr>
<tr>
<td>11</td>
<td>To explain the consequences of specific immune deficiencies and approaches to treat them</td>
<td>MS.2, MS.1</td>
</tr>
<tr>
<td>12</td>
<td>To describe how specific immunological tests function and are used in diagnosis</td>
<td>MS.2</td>
</tr>
<tr>
<td>13</td>
<td>To describe the immune basis, pathophysiology, epidemiology, clinical manifestations, and treatment of a disease for your med school colleagues.</td>
<td>MS.2, MS.1, CC.8, CS.6, CT.3, CS.1</td>
</tr>
<tr>
<td>14</td>
<td>To function as a team member and coordinate an effective presentation</td>
<td>CC.8, CS.6, CT.3, CS.1, CC.1, P.7</td>
</tr>
<tr>
<td>15</td>
<td>To provide a timely and accurate presentation on the important characteristics of a disease, its diagnosis, and treatment.</td>
<td>CC.8, CS.6, CT.3, CS.1</td>
</tr>
<tr>
<td>16</td>
<td>To lead a discussion of a topic and help fellow students understand key issues</td>
<td>CC.8, CS.6, CT.3, CS.1</td>
</tr>
<tr>
<td>17</td>
<td>To interpret data from experiments and draw appropriate conclusions from the data.</td>
<td>MS.2, MS.1</td>
</tr>
</tbody>
</table>
Course Objectives - Immunology

- Also maps to MS.3; suggest adding this link
  MS.3: Use interdisciplinary basic science knowledge to appraise novel mechanisms of disease, and propose and assess diagnostic strategies, and treatments

- Also maps to CC.4; suggest adding this link
  CC.4: Evaluate the appropriateness of diagnostic tests and studies for a particular condition and clinical context.
• CC.8 does not seem appropriate for this objective since there is no “patient presentation”; suggest removing this link. Could also map to CS.7 and PH.2.

**CC.8**: Deliver oral presentations appropriate to the patient's presentation and clinical context.

**CS.7**: Translate complex biomedical concepts and advances into useful information to educate patients, families, peers, and others.

**PH.2**: Assess the impact of social, environmental, behavioral, economic, cultural, and personal factors on the health of individuals, and the incidence and burden of disease in populations.
• CC.8 and CC.1 do not seem appropriate; could map to PPLD.1, PPLD.7, P.2, CT.1, CT.2, CT.4, CT.5

**CC.8**: Deliver oral presentations appropriate to the patient's presentation and clinical context.

**CC.1**: Establish mutually respectful student-patient-family relationships based on trust.

**PPLD.1**: Demonstrate critical and accurate self-assessment, reflection, and effective learning strategies to engage in lifelong learning and improve one's performance.

**PPLD.7**: Be a positive role model to fellow students in academic, clinical, research and/or service-learning contexts.

**P.2**: Behave respectfully, responsibly, and ethically towards patients, families, colleagues, members of the healthcare team, and the community.

**CT.1**: Foster a climate of collaboration, mutual respect, integrity, trust, and tolerance to facilitate optimal team performance.

**CT.2**: Demonstrate the ability to effectively share and/or allocate responsibilities among team members.

**CT.4**: Develop organizational, time management, and communication skills to serve efficiently and productively in different roles on a team.

**CT.5**: Manage conflict constructively.
• CC.8 does not seem appropriate; could map to CS.7 and P.7.

**CC.8**: Deliver oral presentations appropriate to the patient's presentation and clinical context.

**CS.7**: Translate complex biomedical concepts and advances into useful information to educate patients, families, peers, and others.

**P.7**: Demonstrate accountability for all professional responsibilities and commitments, and take responsibility for one’s words and actions.
**Course Objectives - Immunology**

- CC.8 does not seem appropriate; could map to CS.2, CS.7, PPLD.4, PPLD.6, PPLD.7, P.2, P.7.

**CC.8:** Deliver oral presentations appropriate to the patient's presentation and clinical context.

**CS.2:** Demonstrate empathy for individuals' concerns, and be respectful of others' perspectives and personal, cultural, and religious values.

**CS.7:** Translate complex biomedical concepts and advances into useful information to educate patients, families, peers, and others.

**PPLD.4:** Engage in active discussion and debate, taking advantage of different perspectives to advance knowledge and understanding, and improve decision-making.

**PPLD.6:** Identify and demonstrate the qualities, knowledge, skills, and attitudes to lead effectively at the level of one's self, team, organization, and community.

**PPLD.7:** Be a positive role model to fellow students in academic, clinical, research and/or service-learning contexts.

**P.2:** Behave respectfully, responsibly, and ethically towards patients, families, colleagues, members of the healthcare team, and the community.

**P.7:** Demonstrate accountability for all professional responsibilities and commitments, and take responsibility for one’s words and actions.
<table>
<thead>
<tr>
<th>#</th>
<th>Objective</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>18</td>
<td>To recognize the structure of viruses.</td>
<td>MS.2</td>
</tr>
<tr>
<td>19</td>
<td>To describe the replication strategy of viruses.</td>
<td>MS.2</td>
</tr>
<tr>
<td>20</td>
<td>To explain pathogenesis of diseases caused by viruses.</td>
<td>MS.2</td>
</tr>
<tr>
<td>21</td>
<td>To identify how viruses spread from person to person.</td>
<td>MS.2</td>
</tr>
<tr>
<td>22</td>
<td>To recognize an epidemic or pandemic of virus infection.</td>
<td>MS.2</td>
</tr>
<tr>
<td>23</td>
<td>To describe tools and techniques in study of the structure, life cycle, pathogenesis, and diagnosis of viruses and their clinical signs.</td>
<td>MS.1</td>
</tr>
<tr>
<td>24</td>
<td>To distinguish replicative virus infection from virus latency.</td>
<td>MS.2</td>
</tr>
<tr>
<td>25</td>
<td>To recognize the molecular mechanisms of control of the process and activation of viral genomes during reactivation.</td>
<td>MS.2</td>
</tr>
<tr>
<td>26</td>
<td>To explain the role of the immune system in the control of virus infection.</td>
<td>MS.2</td>
</tr>
<tr>
<td>27</td>
<td>To recognize current strategies to prevent virus infection by vaccination</td>
<td>MS.2, MS.1</td>
</tr>
<tr>
<td>28</td>
<td>To recognize current strategies to control virus infection or pathogenesis by immunological intervention.</td>
<td>MS.2, MS.1</td>
</tr>
<tr>
<td>29</td>
<td>To recognize current strategies to control virus infection or pathogenesis by pharmacological intervention.</td>
<td>MS.2, MS.1</td>
</tr>
<tr>
<td>30</td>
<td>To describe the growth behavior differences between cells transformed by oncogenic DNA and RNA viruses compared to normal cells.</td>
<td>MS.2</td>
</tr>
<tr>
<td>31</td>
<td>To relate tumor suppressor genes and the control of normal cell growth.</td>
<td>MS.2</td>
</tr>
<tr>
<td>32</td>
<td>To interpret how tumor suppressor gene products intersect growth and survival pathways and how tumor viruses interact with these molecules and their pathways.</td>
<td>MS.2, MS.1</td>
</tr>
<tr>
<td>33</td>
<td>To differentiate the processes involved in the antitumor effects of certain viruses.</td>
<td>MS.2</td>
</tr>
<tr>
<td>34</td>
<td>To practice and demonstrate systematic problem-solving skills in basic and clinical virology.</td>
<td>MS.2, MS.1</td>
</tr>
<tr>
<td>35</td>
<td>To integrate experimental strategies learned in the context of virus systems into the design of experiments that address other systems.</td>
<td>MS.2, MS.1</td>
</tr>
</tbody>
</table>
The wording of the objective is slightly confusing due to the way “and clinical signs” was tacked on at the end; revision is advised. [during the subcommittee meeting it was conveyed that the intent was to have students describe clinical signs of the diseases caused by viruses]

This objective could also map to MS.2.

**MS.2:** Apply core biomedical and social science knowledge to understand and manage human health and disease.
The correlation with the USMLE Brochure for Step I is very good; the immunology content in this brochure is covered in both years 1 and 2 of the curriculum, while the virology content is primarily discussed in year 1.

Note: Dr. Mullins will be the course director for the Virology portion of the course next year; we suggest that the Step I content outline might be useful to him as he plans the course content.
• Course objectives are provided in the syllabus
• Course objectives are written in the correct format
• Session objectives are provided in the course materials, however they are listed in the notes rather than on Canvas session pages as most courses do
• Most session objectives are written in the correct format; some objectives in the sessions below use the words “know” or “understand” and need to be revised: MHC/antigen, T-cell recognition, T-cell responses, Transplant Immunology, Tumor viruses
• Virology small group #2 is missing session objectives
Issues of Redundancy

• Numerous keywords were used to search for redundancy (e.g. immunodeficiency, autoimmunity, hypersensitivity, T cell, etc.)

• Ilios indicates that there is significant unplanned redundancy with the Y1 Pathology course. Two examples are below using immunodeficiency and hypersensitivity as a key words:

  **Immunology course:** To describe the difference between a primary and a secondary immunodeficiency

  **Pathology course:** Define what is meant by immunodeficiency and name the two categories into which it is divided.

  **Immunology course:** To describe and compare the four types of hypersensitivity

  **Pathology course:** Define, distinguish and explain hypersensitivity diseases types I through IV
Issues of Redundancy

• There may be slight unplanned redundancy with the immune system session in the Y1 CTO course.
• There is redundancy with some sessions in the SBM Infectious Diseases and Pharmacology courses in Y2, however this seems appropriate.
Exploration of Health and Values

• Two immunology sessions address ethics, cultural awareness and health equity – a large group on vaccines and a small group on TB
• A virology small group session on hepatitis C addresses ethics and health equity
• Many virology lectures include information about the epidemiology of specific viruses/diseases
Overall, the objectives are well written and the content seems appropriate

Some adjustments could be made in the mapping of objectives to the new Geisel competencies

Minor revisions need to be made to a small number of session objectives to incorporate measurable verbs

There may be some unplanned redundancy with the Y1 CTO and Pathology courses. The course directors should meet to ensure redundancy is planned and coordinated.
Course Learning Opportunities

- Immunology Lectures 19 hrs. (79%)
- Immunology Conferences 3 hrs. (13%)
- Immunology Case Presentation 1 hr (4%)
- Immunology TBL 1 hrs. (4%)

Optional reviews were provided prior to quizzes and exams

Data from prior review:
- Lecture 21 hrs. (88%)
- Discussion groups 3 hrs. (12%)
Course Learning Opportunities

- Virology Lectures 17 hrs. (85%)
- Virology Conferences 3 hrs. (15%)

Optional review was provided prior to final exams

Data from prior review:
- Lecture 20 hrs. (100%)
Course Learning Opportunities

• The Immunology course replaced two hours of lecture with more active sessions – a TBL session and a Case Presentation

• The Virology course replaced three hours of lecture with new small group conferences
Summary regarding Pedagogy

- The subcommittee was pleased to see that both courses introduced new pedagogy to replace several hours of traditional lecture.
- Both courses need to reduce the number of lecture hours. The current percentage of lectures does not meet the Geisel policy on Active Learning/Lecture Time or LCME recommendations (target is 40-50% of contact hours).

Note: The course director felt it would be useful for the MEC to define activities that meet the Geisel criteria of “active learning” to guide course revision efforts; the subcommittee agreed that this would help many course directors.
Assessment

• Written Quizzes -2 in Immunology, 2 in Virology (40% of course grade)
• Final Exam (50% of course grade)
• Immunology conferences (5% of course grade)
• Virology conferences (5% of course grade)
Assessment of Course Objectives

• Objectives 1-12, 18-33 cover aspects of medical knowledge
  – assessed on quizzes/exams

• Objectives 13-16 relate to skills such as peer teaching, communication, giving a presentation and leading a discussion
  – faculty assessed these skills in conferences using a rubric developed by the course director, however the course director felt they could improve on giving feedback
  – students were asked to evaluate their peers, but the course director felt the exercise was not useful since most students just checked the “excellent job” box
Assessment of Course Objectives

• Objective 17 relates to interpreting data from experiments
  – there is currently one question on an exam that assesses these skills; the course director plans to incorporate more application questions in the future

• Objectives 34-35 relate to problem-solving skills and designing experiments in the Virology course
  – these objectives related to the virtual lab that was developed and now has been discontinued; thus the course director felt they should be eliminated
There are a variety of activities in the course (conferences, quizzes, exams) that contribute to the overall course grade and the percentage of these activities seems appropriate.

With the exception of objectives 34-35, all objectives in the course are being assessed. The subcommittee recommends that objectives 34-35 should be eliminated.
Measures of Quality – Step I

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Biochemistry</td>
<td>0.20</td>
<td>0.22</td>
<td>0.03</td>
<td>0.15</td>
</tr>
<tr>
<td>Biostatistics/Epidemiology</td>
<td>0.40</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Biostatistics</td>
<td>0.08</td>
<td>0.29</td>
<td>0.19</td>
<td></td>
</tr>
<tr>
<td>Genetics</td>
<td>0.18</td>
<td>0.28</td>
<td>0.09</td>
<td>0.18</td>
</tr>
<tr>
<td>Gross anatomy/Embryology</td>
<td>0.26</td>
<td>0.14</td>
<td>0.16</td>
<td>0.19</td>
</tr>
<tr>
<td>Histology/Cell Biology</td>
<td>0.26</td>
<td>0.23</td>
<td>0.07</td>
<td>0.19</td>
</tr>
<tr>
<td>Microbiology/Immunology</td>
<td>0.47</td>
<td>0.39</td>
<td>0.02</td>
<td>0.29</td>
</tr>
<tr>
<td>Pathology</td>
<td>0.24</td>
<td>0.20</td>
<td>0.12</td>
<td>0.19</td>
</tr>
<tr>
<td>Pharmacology</td>
<td>0.22</td>
<td>0.12</td>
<td>-0.02</td>
<td>0.11</td>
</tr>
<tr>
<td>Physiology</td>
<td>0.35</td>
<td>0.25</td>
<td>0.11</td>
<td>0.24</td>
</tr>
</tbody>
</table>

*values reported for core disciplines are SD above the US/Can mean for Geisel mean scores
# Measures of Quality – Course Evaluation

<table>
<thead>
<tr>
<th>Year 1 courses</th>
<th>Overall Quality AY 14-15</th>
<th>Overall Quality AY 15-16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biochemical and Genetic Basis of Medicine</td>
<td>4.34</td>
<td>4.40</td>
</tr>
<tr>
<td>CTO</td>
<td>4.07</td>
<td>4.06</td>
</tr>
<tr>
<td>Human Anatomy and Embryology I</td>
<td>4.35</td>
<td>4.04</td>
</tr>
<tr>
<td>Physiology-Carbohydrate</td>
<td>3.23</td>
<td>3.41</td>
</tr>
<tr>
<td>Physiology-Respiration</td>
<td>3.34</td>
<td>3.41</td>
</tr>
<tr>
<td>Human Anatomy and Embryology II</td>
<td>4.57</td>
<td>4.43</td>
</tr>
<tr>
<td>Immunology</td>
<td>3.67</td>
<td>3.94</td>
</tr>
<tr>
<td>Metabolic Basis of Disease</td>
<td>4.35</td>
<td>4.48</td>
</tr>
<tr>
<td>Physiology-Renal</td>
<td>4.19</td>
<td>3.63</td>
</tr>
<tr>
<td>Physiology-Endocrine</td>
<td>3.76</td>
<td>3.52</td>
</tr>
<tr>
<td>Virology</td>
<td>3.77</td>
<td>3.83</td>
</tr>
<tr>
<td>Basic Science of Microbial Disease</td>
<td>3.94</td>
<td></td>
</tr>
<tr>
<td>Neuroscience</td>
<td>3.59</td>
<td></td>
</tr>
<tr>
<td>Pathology</td>
<td>3.22</td>
<td></td>
</tr>
</tbody>
</table>

*Scale [1=poor; 2=fair; 3=good; 4=very good; 5=excellent]*
# Measures of Quality – Course Evaluation

*scale [1=poor; 2=fair; 3=good; 4=very good; 5=excellent]*

<table>
<thead>
<tr>
<th>Category</th>
<th>Immunology AY13-14 (88%)*</th>
<th>Immunology AY14-15 (93%)*</th>
<th>Immunology AY15-16 (91%)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall satisfaction of course</td>
<td>2.35</td>
<td>3.67</td>
<td>3.94</td>
</tr>
<tr>
<td>Clarity of learning objectives</td>
<td>2.68</td>
<td>3.70</td>
<td>4.06</td>
</tr>
<tr>
<td>Organization of the course</td>
<td>2.45</td>
<td>3.59</td>
<td>3.79</td>
</tr>
<tr>
<td>How well the course introduced me to this discipline</td>
<td>Not available</td>
<td>3.84</td>
<td>4.01</td>
</tr>
<tr>
<td>Congruence of assessment questions to material emphasized in course</td>
<td>2.01</td>
<td>3.61</td>
<td>3.84</td>
</tr>
</tbody>
</table>

*student participation rate on course evaluation*
## Measures of Quality – Course Evaluation

*student participation rate on course evaluation*

scale [1=poor; 2=fair; 3=good; 4=very good; 5=excellent]

<table>
<thead>
<tr>
<th></th>
<th>Virology AY13-14 (88%)*</th>
<th>Virology AY14-15 (93%)*</th>
<th>Virology AY15-16 (91%)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall satisfaction of course</td>
<td>3.71</td>
<td>3.77</td>
<td>3.83</td>
</tr>
<tr>
<td>Clarity of learning objectives</td>
<td>3.81</td>
<td>3.86</td>
<td>3.98</td>
</tr>
<tr>
<td>Organization of the course</td>
<td>3.68</td>
<td>3.67</td>
<td>3.67</td>
</tr>
<tr>
<td>How well the course introduced me to this discipline</td>
<td>not available</td>
<td>3.94</td>
<td>4.01</td>
</tr>
<tr>
<td>Congruence of assessment questions to material emphasized in course</td>
<td>3.61</td>
<td>3.69</td>
<td>3.61</td>
</tr>
</tbody>
</table>
Measures of Quality – Student Comments

Immunology Strengths:

• A host of great lecturers
  – “Mullins’ lectures were outstanding.”

• Large bank of practice questions for each quiz
  – “Having the Levinson questions was a great way to self-test”

• Review sessions helped to integrate the material
  – “The reviews before quizzes [highlight] the important concepts”
Measures of Quality – Student Comments

Virology Strengths:

• **iBooks provided essential background content**
  – “iBook explanations [were mostly] easy to understand.”
  – “I appreciated that the lecturers responded to students' requests and released an overall iBook that consolidated all of the course material.”

• **Viruses were often taught in their clinical context**
  – “The course did a great job trying to tie in clinical correlations.”
  – Dr. Lahey’s lecture on HIV was also very clear and engaging.”
  – “We talked about how certain risk factors (location, behaviors, genetics, etc.) could make you more susceptible to certain viruses.”
Measures of Quality – Student Comments

Immunology Suggestions for Improvement:

• Variable quality and utility of lecture notes
  – “I thought the notes were incredibly dense and poorly organized for some of the lectures.”

• Section on Humoral Immunity difficult to understand
  – “Organization of the humoral immunity unit was difficult...and hard to follow.”

• Minimal guidance on expectations for small group presentations
  – “The quality of groups’ presentations was heterogeneous.”
Measures of Quality – Student Comments

Virology Suggestions for Improvement:

- **AIDS small group presentation relatively more difficult**
  - “I think the third small group topic was overly ambitious [especially] when students are distracted by the upcoming final exam.”

- **Rationale behind order of virus lectures unclear**
  - “I think the course can be taught in a more organized way.”
  - “The taxonomy of viruses was often rather confusing”

- **Presentation of viruses inconsistent across lecturers**
  - “It would have been so helpful for each virus to have been clearly presented in the same way....i.e. Classification, Pathogenesis, Epi, vaccines/treatment, etc.”
The ratings for the immunology portion of the course have risen substantially since AY 13-14 and numbers are currently in the “good” to “very good” range; we commend the course director for his efforts.

The virology portion of the course has consistently been rated in the “good” to “very good” range; values for overall satisfaction and clarity of learning objectives exhibit an upward trend.

Students suggest some revisions to some sessions (e.g. Humoral immunity) to improve the course, and clarification of small group expectations/rationale of course design.
Recommendations

Since Dr. Mullins will be leading the entire course in AY 16-17 (both immunology and virology), the subcommittee feels this is an ideal time for the course to be reimagined and “polished up”. We understand that Dr. Mullins has plans to fix many of the issues raised by students over the years and we are confident in his abilities to address them. Based on the current review, here are our recommendations:

- The course should fix minor issues with course and session objectives
- Possible unplanned redundancy in the Pathology and CTO courses should be explored (and remedied if necessary) by the course director
Recommendations

• The course director should continue to explore ways to incorporate engaged/active learning activities into the course and gradually replace traditional lectures with other pedagogies.

• Although all course objectives are currently being assessed, the course director should continue to experiment with methods to provide students with verbal or narrative feedback.

• The course director should direct improvement efforts towards sessions that students identified as problematic; course expectations should be clarified.
Action Plan

• Revise and update the course layout and content
  – Update Course Aims (anticipated summer ‘16)
  – Greater integration of Immunology and Virology content
  – Ensure correspondence with USMLE Brochure
  – Reassignment of lectures from underperforming instructors

• Revise and update session objectives
  – Ensure correct format and consistent presentation of session objectives
  – Use session objectives to establish expectations for learning and assessment across the course
• Assess potential redundancy
  – Course Director to meet with peers from Pathology to identify and eliminate unplanned redundancy
  – Course Director to work with peers from CTO, SBM, and Pharmacology to coordinate planned redundancy

• Improve assessment and feedback
  – Addition of higher order, problem-solving test items
  – Improve feedback on small group presentations, including expanded assessment rubric and peer feedback
Decrease traditional/didactic lecture in favor of active learning content in immunology and virology

Traditional lecture content hours (percentage):

<table>
<thead>
<tr>
<th></th>
<th>Actuals</th>
<th>Goals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AY14-15</td>
<td>AY15-16</td>
</tr>
<tr>
<td>Immunology</td>
<td>20/24 (83%)</td>
<td>19/24 (79%)</td>
</tr>
<tr>
<td>Virology</td>
<td>17/20 (85%)</td>
<td>17/20 (85%)</td>
</tr>
<tr>
<td>TOTAL</td>
<td>37/44 (84%)</td>
<td>36/44 (82%)</td>
</tr>
</tbody>
</table>

Engage DCAL and GAME for additional guidance