Microbiology and Immunology Teaching Retreat

May 17, 2006
SWOT Analysis of current courses

MICROIMM 106: M&I for nurses: enrolment 262

**Strengths:**
comprehensive review of immunology and medical microbiology, emphasizing nursing practice with time for some academic enrichment. Very popular.

**Weaknesses:**
very large class size, students have uneven backgrounds (Western vs. Fanshawe streams, some post RN)

**Opportunities:**
the new program for nurses to upgrade to a degree presents an opportunity to adopt a new half-course format that could be a shared curriculum with the dental program. This would necessitate moving the immunology portion to its own half course.

**Threats:**
shortage of teaching Faculty and of lecture rooms large enough to hold classes and exams. (Obvious solution of having two sections is limited by shortage of teaching Faculty)
MICROIMM 220a: enrolment 156

**Strengths**
- Provides exposure early on in undergraduate education to bacteriology; good textbook, used in other MicroImm courses
- WebCT Vista working well for communication with students
- Good lab exercises
- Good use of new teaching facility
- Lydia! and excellent, motivated Graduate Teaching Assistants; good pre-lab talks

**Weaknesses**
- Students need more instructions on writing lab reports
- Overlap in topics with MicroImm 221b (e.g., antibiotics, food and water borne diseases); a few students, taking both courses this year, told me that some same topics were covered
- Not all instructors use WebCT Vista to interact with students

**Threats**
- Increasing number of students wanting to take an introductory microbiology course, for various reasons
- Limit to enrolment is the number of lab spaces
- Long term planning for instructors; optimum number is 2-3; when applicable, replacement for Sally

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MICROIMM 221b Biology of Infection and Immunity: enrolment 240

**Strengths**
- Provides exposure early on in undergraduate education to this topic
- Informal feedback indicated a great deal of enthusiasm
- Students who take it in second year and develop an interest still have time to add relevant courses in 3rd year for a major or specialization
- Textbook adequate but not optimal, but economically justified since it is used in other MICROIMM courses
- WebCT Vista worked well for communication with students
- Dr. Kang provided a very useful introduction to molecular biology, since many students were just beginning genetics and cell biology
- Having two circumscribed mid-terms and a comprehensive final seemed to work well
- Students seemed to appreciate efforts to integrate factual material with abundant real-world scenarios
Weaknesses
workload (for students) may be a little high with 2 midterms plus a project and 3 lectures per week
we were unable to accommodate all students who wanted the course (ultimately ~14-16)
Opportunities
“Clicker technology” may help us to see how well concepts are getting across.
Threats
Increasing number of students wanting to take an introductory microbiology course, for various reasons
Need to identify new faculty to replace retirees

MICROIMM 221b: Immunology Component; Enrolment 240

Strengths:
First exposure to immunology: introduced basic and clinical aspects
Weaknesses:
Limited enrollment
Large class size results in numerous emails
Opportunities:
Improve Class Interaction: Introduce immunology-focused internet forum (WebCT?)
Threats:
none
MICROIMM 357a: enrolment 235

**Strengths**
Enrolment Increases from year to year (170 in 1994 to 235 in 2005). Student evaluation generally between 5 and 6 each year. **Textbook:** An excellent textbook with figures/graphics available to students on-line; Also used by 473A students. **Prospects for our 4th year honors program:** Increase in the number of students that qualified for entry to our Honors program. Increase in the number of students from the other Departments chose to take the 4th year Immunology course 473A.

**Weaknesses**
Lecture room: Poor air ventilation/temp control (Middlesex 101 last year) or being too big (2001). Increase in the number of make-up exams. Increase in interference from student councillors regarding exam time, marks and deferred exams.

**Threats/Issues**
Further increase in class size (>250 next year?) Would make this course more and more difficult to manage, and Would be accompanied with more students given exemptions by the student councillors (more multiple make-up exams, etc).

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MICROIMM 360b: enrolment 80

**Strengths**
Opportunity to learn more about physiological activities and habitats of prokaryotes (not covered in a Biology course) Students really liked the group presentations on Fridays this year in the Prokaryote section WebCT Vista working well in the Prokaryote section for interaction with students; posting of notes, readings, announcements, etc.

**Weaknesses**
A discontinuity between topics (bacteriology and virology, which are difficult to integrate Some students want to learn about virology, but don’t necessarily want to learn more about bacteriology Different use of textbook between instructors: Prokaryote lectures are right from the textbook + 4-5 additional readings; Virology lectures are based on the instructor’s own lecture notes, which are posted on WebCT Vista; students are just asked to read the chapter on virology in the textbook
360b continued

**Opportunities**
make two new 0.5 courses
one course in virology and viral diseases
expand prokaryote section back to what it was in MicroImm 450b; this would provide
more lecture hours for topics that can’t be covered now, and the Presentations
could be modified for less students per group (5 this year) as more Friday
tutorial sessions would be available. Could use one more instructor if the
Prokaryote section was expanded to a 0.5 course

**Threats**
Teaching time of faculty members if course was changed

MICROIMM 360 Virology Section: enrollment 80

**Strengths:**
General introduction to Virology
Available to a wide audience
Only course that focuses on phage specifically as viruses
Baculovirus lectures are designed to complement the virology experiments in our
third year lab course.
A section on virus-host cell interaction allows students to better understand viral
infection of an animal host.

**Weaknesses:**
Because of the large enrollment (approximately 80 students), we do not currently
have student presentations on Virology as we do in MI461b.
We also do not cover plant viruses in either the third or fourth year.

**Opportunities:**
We could include some type of presentation input for students—perhaps in the form
of poster presentations on some aspect of virology.

**Threats:**
Separation of the Virology and Bacteriology components into two courses would
increase the number of prerequisites for our fourth year honors program.
Separation would necessitate additional teaching staff.
MICROIMM 361G (Immunology section): enrolment 49

**Strengths:**
The only practical immunology course
Introduces student to applications for previously learned aspects of immunology
Learn basic and clinical immunoassays relevant to future immunology lab work

**Weaknesses:**
Some inconsistency between TA's wrt marking and expectations on lab reports

**Opportunities:**
1. *Improve Marking System:* Design a more detailed marking scheme for each lab report listing points to discuss in the intro and discussion, and what figures/tables to include in the results
2. *Improve TA Communication:* Briefly meet TA's prior to each lab so that students are getting the same relay of information (i.e., lab practicum and report expectations)
3. *Update Experiments:* Some immunoassays are no longer in practice

**Threats:**
Need to decrease TA hours spent on course: salary based on 8.5 hrs/wk but spend up to 13.5 hrs/week
TA experience: 1/5 remain for 2007

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MICROIMM 361G (Mol Biol section); enrolment 48

**Strengths**
Direct hands-on experience with basics of molecular cloning; DNA digests, ligation, transformation, genetic selection vs. screen, plasmid DNA preps, agarose gel electrophoresis, baculovirus expression systems, SDS gel electrophoresis, DNA sequencing, introduction to bioinformatics
New lab facilities

**Weaknesses**
Limit to what can be accomplished in weekly 3 hour lab session
Perceived differences in marking between individual TAs
No textbook?

**Opportunities**

**Threats Concerns**
Increased enrolment (?) would be a strain due to the cost of running the labs (supplies and TA salaries, 1 TA per 10 students)
461B Molecular Virology: enrolment 49

**Strengths:**
The hallmark of the course is the student presentations, which complement areas of current interest such as Ebola, Foot and Mouth Disease Virus and West Nile Virus, not covered in the lecture portion of the class.

**Weaknesses:**
We do not currently provide detailed lectures on the Herpes Viruses either in the third or fourth year virology courses.

**Opportunities:**
With the addition of Laura Hertel to the faculty, we will now include a section on Herpes viruses taught by an expert in the field.

**Threats:**
The popularity of the course (48 enrolled this year) made it difficult to schedule all the presentations in a one hour tutorial on Thursdays. We have temporarily solved this problem by extending the tutorial to two hours as needed. However, this does make a potential long term problem. I am currently the only one to attend and evaluate all of the student presentations. When I retire in three years, arrangements will have to be made to cover this time.

MICROIMM 465a Bacterial pathogenesis: enrolment 46

**Strengths**
Motivated and dedicated instructors – 4 instructors in 4 teaching blocks
Material is enlightening for the students and up-to-date (no textbook)
By design, the course is taught to make students think critically about problems – provides a great base and opportunity to capture top graduate students into our program and assess which ones are substandard
WebCT Vista working well for dissemination of course material (cost saving)

**Weaknesses**
First exam (of 4) still a major blow to students (average was a generous 73% this year but has been in the low to mid 60's in previous years)
WebCT could have been better used for discussion between students
WebCT site never up and running for first class
Room that is booked for us has no microphone

**Opportunities**
Need to better prepare students for the exam format before the first exam

**Threats**
MICROIMM 467b enrolment 52

**Strengths**
Provides Honours students with a rigorous overview of the regulation of gene expression at the transcriptional level
Students exposed to similarities and differences of transcriptional control in prokaryotes and eukaryotes in a single course
Presents not only current models of transcriptional control, but also methods for analyzing gene expression
Lecturers (Koropatnick, Mymryk, Tini) with expertise in eukaryotic gene regulation

**Weaknesses**
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**Opportunities**
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**Threats Concerns**
Increases in enrolment over 50 – 60 students would make it difficult to use essay format for exams
reliance on “non-core” faculty for eukaryotic lectures

MICROIMM 473a Advanced Immunology: 82 students

**Strengths**
1. Course has been re-organized last year
   a. Minimal overlap with M&I 357 course
   b. Focus on special topics
   c. Reduced # of lecturers
2. Enrolment up from ~50 in 2004 to 82 in 2005
3. Attracts students from other departments

**Weaknesses**
Not known yet since:
   a. newly structured course has been running only for one year
   b. student evaluations and comments are not available

**Opportunities**
With new faculty recruitments we can now offer a wider selection of lecturers to provide a rotation of topics and attract broader student interest

**Threats**
Dr. Zhong may not be able to teach next year and a replacement has to be found.
MICROIMM 483E: enrolment 33

**Strengths**
- Provides key hands-on research experience for undergraduates
- The report write-up and presentations are excellent experiences
- There are generally very few complaints
- Report evaluations by faculty are generally very consistent

**Weaknesses**
- Attendance at student talks has been poor for some sections
- Faculty evaluations of their own students are not well standardized – some did not like the December evaluation

**Opportunities**

**Threats**
- Limit to enrolment is the number of spaces provided by faculty

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MICROIMM 211 Dental Microbiology: enrolment 54

**Strengths**: Review of immunology and medical microbiology, emphasizing dental practice with time for some academic enrichment.

**Weaknesses**: Students have uneven backgrounds

**Opportunities**: The new program for nurses to upgrade to a degree presents an opportunity to adopt a new half-course format that could be a shared curriculum with the dental program.

**Threats**: Insistence of Dental School in maintaining on-the-hour scheduling makes coordination with other classes difficult. Shortage of teaching Faculty
MICROIMM 512b-Curr concepts in Immunol: 10 stud

**Strengths**
Course was evaluated as very good in the last five years.
Course provided the opportunity for critical thinking and discussion that we want to encourage in students.

**Weaknesses**
1. A "Journal Club"-like course but topic-oriented.
2. Students do not receive feedback on their presentations.
3. Participation of students in the discussion needs further encouragement.
4. Students were not given the topics for writing the reviews early in the course.

**Opportunities**
With new faculty recruitments we can now offer a wider selection of lecturers to provide a rotation of topics and attract broader student interest

**Threats**
1. Dr. Zhong may not be able to teach next year and a replacement has to be found.
2. Decreasing enrolment from 16 students in 2004 to 10 students 2005 could imply a fundamental weakness that needs to be addressed if the course is to be sustainable