FOUNDATIONS OF ANALYSIS
Math 4090
FALL 2008
SYLLABUS

INSTRUCTORS

Maya Kiehl  
Amos Eaton 326  
kiehlm@rpi.edu  
Workshops: TBA

Harry McLaughlin  
Amos Eaton 333  
mclauh@rpi.edu  
Workshops: TBA

TEACHING ASSISTANT

Ethan O’Brien  
obrie4@rpi.edu  
Workshops: TF 10 - 11 AM

TEXT
Course Notes & Workbook, Fall 2008
Harry W. McLaughlin  
(available from) Market Block Books, 290 River Street, Troy, NY 12180

TAKEWAYS

- sharpened ability for mathematical exposition,
- sharpened ability for abstract mathematical thought,
- experience with the structure of mathematical analysis and vector spaces.

ATTENDANCE POLICY
Class participants are encouraged to attend the class meetings as they wish. The instructor believes that regular attendance and participation in class are key to a class participants overall success for the semester. Failure to write any of the exams or quizzes will be excused only with a written “excuse” from the Dean of Students Office or from a medical doctor.

INSTRUCTOR PHILOSOPHY
The instructor believes that there is a wide spectrum of individual learning
styles to be accommodated; that with a hands-off approach, a rich learning environment will self-organize. The total energy resident in the learning environment will exceed the sum of that provided by the participants. Class participants can expect the instructor to indicate appropriate directions; the Course Notes and Workbook provide details of an appropriate knowledge base.

CREDENTIALING
Class participants may elect to be credentialed in one of two ways. A class participant may elect to write two exams and five quizzes during the term and submit requested homework. Alternately, a class participant may elect to write a final exam and submit requested homework.

EXAMS, QUIZZES AND HOMEWORK
The two exams will each be scored on a basis of 100 points. The scores on each of the two exams may be enhanced by adding to the exam scores any points earned on the 5 scheduled quizzes. A maximum of 3 points may be earned on on quizzes numbered 1-3 and earned points may be added to the score earned on Exam #1. A maximum of 4 points may be earned on quizzes numbered 4 - 5 and these earned points may be added to the score earned on Exam #2.¹

The requested written work will be assigned possible points totaling 100. It is requested that all homework submission be in LaTeX prepared documents. Only homework submissions prepared in LaTeX will receive full credit. The available number of points for the written work will exceed 100; as with exams, the maximum achievable score for written work is 100.

This establishes three efforts. For each participant, the course grade determined by this method, will be a weighted average of the points earned in these three efforts. The weighting applied will be 30% Homework, 40% high exam score, 30% low exam score. A grade will be assigned to each class participant according to the following:

¹The maximum score achievable after quiz points are added to an exam is 100. If more than 100 points are earned the class participant pays a tax to the course instructors.
A   100 – 94
A−  93 – 90
B+  89 – 87
B   86 – 83
B−  82 – 80
C+  79 – 77
C   76 – 73
C−  72 – 69
D+  68 – 65
D   64 – 60
F   59 – 0.

FINAL EXAM AND HOMEWORK
Homework submission is described in the section above. A comprehensive Final Exam will be given during finals week (Dec). If a student is not satisfied with their course grade based on the method described above, a student may elect to write this final exam. A grade will be assigned, using the above grade breakdowns, based the weighted average of 25% Homework and 75% Final Exam score. However, a student may only improve their grade by taking the Final Exam.

EXAM SCHEDULE
Exam #1. October 17, 2008, (Friday) (2 P.M.-4 P.M.) Reference: Chapters #1-7 of Course Notes and Workbook (more or less)
Exam #2. December 2, 2008 (Tuesday) (2 P.M.-4 P.M.) Reference: Chapters #8-10 of Course Notes and Workbook (more or less)

QUIZ SCHEDULE
Quiz #1 September 5, 2008 (Friday)
Quiz #2 September 19, 2008 (Friday)
Quiz #3 October 3, 2008 (Friday)
Quiz #4 October 31, 2008 (Friday)
Quiz #5 November 14, 2008 (Friday)

HOMEWORK
The course instructor believes that most of the takeaways from this course are experiential and are derived from attacking the homework problems. That is, experience with writing mathematical proofs is the key takeaway of the course. A spin-off of this experience is the development of a mindset tuned for mathematical thought. To this end, homeworks will be graded for both mathematical correctness and in the detail and clarity of the written
WHAT DO UNHAPPY CAMPERS DO?
Course grades may be appealed through the office of the Chairman of the Department of Mathematical Sciences.

COLLABORATION
Participants are urged to collaborate on all phases of learning, including outright theft of ideas and solutions of homework problems. It is, however, expected that participants will prepare their own to-be-submitted homework assignments, using their own words.

CLASS HONOR CODE

- When two class participants hand in homework with identical wording (that has not been discussed in class) suspicion is aroused. When this occurs over several homework assignments this is considered a violation of the honor code.

- Submitting a homework assignment that is a copy of a published solution is considered a violation of the honor code.

- The transfer of files, either electronic or hand-written is considered a dishonest act. If such a transfer occurs, all parties involved will be held accountable.

- Collaboration on the exams and on quizzes is not permitted.

- Discussion of exam/quiz problems before one party in the discussion has written said exam/quiz is a violation of the honor code.

The above list are some specific examples of Academic Dishonesty that will not be tolerated in this course. Class participants should also be familiar with the various forms of Academic Dishonesty defined in the Rensselaer Handbook of Student Rights and Responsibilities. In this class, all assignments that are turned in for a grade must represent the student’s own work. In cases where help was received, or teamwork was allowed, a notation on the assignment should indicate your collaboration. Submission of any assignment that is in violation of this policy will result in a reduction of grade or possibility of a failing grade for the course. If you have any question concerning this policy before submitting an assignment, please ask for clarification.
# READING SCHEDULE

**2008**

<table>
<thead>
<tr>
<th>Date</th>
<th>Chapter</th>
</tr>
</thead>
<tbody>
<tr>
<td>August 26</td>
<td>2-3</td>
</tr>
<tr>
<td>August 29</td>
<td>2-3</td>
</tr>
<tr>
<td>September 2</td>
<td>2-3</td>
</tr>
<tr>
<td>September 5 (Friday)</td>
<td>4</td>
</tr>
<tr>
<td>September 9</td>
<td>4</td>
</tr>
<tr>
<td>September 12</td>
<td>4</td>
</tr>
<tr>
<td>September 16</td>
<td>4</td>
</tr>
<tr>
<td>September 19 (Friday)</td>
<td>4</td>
</tr>
<tr>
<td>September 23</td>
<td>5</td>
</tr>
<tr>
<td>September 26</td>
<td>5-6</td>
</tr>
<tr>
<td>September 30</td>
<td>6</td>
</tr>
<tr>
<td>October 3 (Friday)</td>
<td>7</td>
</tr>
<tr>
<td>October 7</td>
<td>7</td>
</tr>
<tr>
<td>October 10</td>
<td>8-9</td>
</tr>
<tr>
<td>October 14</td>
<td>Follows a Monday schedule</td>
</tr>
<tr>
<td>October 17 (Friday)</td>
<td>Exam #1</td>
</tr>
<tr>
<td>October 21</td>
<td>8-9</td>
</tr>
<tr>
<td>October 24</td>
<td>10</td>
</tr>
<tr>
<td>October 28</td>
<td>10</td>
</tr>
<tr>
<td>October 31 (Friday)</td>
<td>10</td>
</tr>
<tr>
<td>November 4</td>
<td>10</td>
</tr>
<tr>
<td>November 7</td>
<td>10</td>
</tr>
</tbody>
</table>

5
November 11 10
November 14 (Friday) 10 and Quiz #5
November 18 10-11
November 21 11
November 25 11
November 28 Thanksgiving Break
December 2 (Tuesday) Exam #2
December 5 (Friday) last day of class
December 8 (Monday) reading day
December 9 (Tuesday) reading day
December 10-12 & 15-16 Finals