Math 201–01  Fall, 2011
Transition to Advanced Mathematics
CRN: 12392
MWF 2:00pm to 2:50pm
Ohlendorf 225

Instructor:  Dr. Christopher Seaton
Office:  320 Ohlendorf Hall
Office Hours:  Mon.,Wed. 3:00—4:00pm
Tues., Thurs., 2:00—3:00pm
Fri. 1:00—1:50pm  or by appointment
Phone:  x3721
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Web:  http://faculty.rhodes.edu/seaton/

Course Description:
This course is an introduction to formal, proof-based mathematics. As you go on in mathematics, you will find that you will spend considerably more of your time learning to prove results rather than applying results to perform computations. This course will prepare you for these activities, introducing different styles of proof as well as the fundamental notions of mathematics such as sets, rules of logic, inference, relations, and functions. We will learn to read and write mathematical proofs, carefully considering the structures of proofs as well as the method of “finding a proof.”

Unlike mathematics with an emphasis on computation, proving theorems is a creative process with no recipe for a solution. Many strong mathematics students express distaste for this style of mathematics early in their education. However, this frequently changes once they are taught how to go about writing proofs. We will consider different approaches to this process as well as the important considerations in evaluating a proof. In addition, we will learn about the mathematical landscape, including understanding the different general areas of mathematics, the history of mathematics, and its culture.

Content:  We will cover Chapters 1 through 4 of the text in their entirety. We will also cover portions of Chapters 5, 6, and 7 as time permits.

Course Prerequisites:  The prerequisite for this class is Math 122: Calculus 2 or equivalent.

Office Hours:  Students are strongly encouraged to take advantage of my office hours and to make appointments when my office hours are not convenient. My schedule is posted online at http://faculty.rhodes.edu/seaton/schedule.htm and on the door of my office. Please consult this schedule before suggesting an appointment time (particularly via e-mail).
**Web Page:**
This syllabus and the summary of past homework assignments will be posted on my web page. I will announce anything I posted in class, but students are encouraged to consult my web page periodically, particularly if they have missed a class.

The homework summary on my web page is for your reference when studying for an exam. It is subject to change until the assignments have been given in class.

**Attendance Policy:**
I will take attendance. You are permitted three unexcused absences throughout the semester; if you are absent three or fewer times, you will be allowed to skip one problem on the final for which you will receive full credit (one tenth of the test). An excused absence must be discussed with me in advance if possible, and the proper documentation must be made available where appropriate. If I decide that excessive absences are jeopardizing your ability to pass the course, I will take action as outlined on page 71 of the catalogue. It is your responsibility to obtain notes and assignments when you are absent.

**Grading:**
Your letter grade for the course will be based on the following scale:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Score Range</th>
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<tbody>
<tr>
<td>A</td>
<td>[93, 100]</td>
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<tr>
<td>A-</td>
<td>[90, 93]</td>
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<tr>
<td>B+</td>
<td>[87, 90]</td>
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<tr>
<td>B</td>
<td>[83, 87]</td>
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<tr>
<td>B-</td>
<td>[80, 83]</td>
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<tr>
<td>C+</td>
<td>[77, 80]</td>
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<tr>
<td>C</td>
<td>[73, 77]</td>
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<tr>
<td>C-</td>
<td>[70, 73]</td>
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<tr>
<td>D</td>
<td>[67, 70]</td>
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<tr>
<td>D+</td>
<td>[63, 67]</td>
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<tr>
<td>D-</td>
<td>[60, 63]</td>
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<tr>
<td>F</td>
<td>[0, 60]</td>
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This scale is “worst case scenario”; I may choose to uniformly reduce the numerical requirements for a grade, but will not increase them.

The total percentage will be computed as follows:

- Homework and Quizzes: 20%
- Papers: 19% (4%, 7%, 8%)
- Tests: 2 × 18%
- Final Exam: 25%

**Homework:**
At the end of each lecture, I will assign both practice problems for you to test your comprehension and homework problems to be handed in. The homework from one week is due in class on the second lecture day of the following week (usually a Wednesday); on exam weeks, the schedule will be modified. The homework you hand in must be your own work; you may work on the problems with other students, but they may not aide in the final write-up. I will give in-class quizzes or group assignments that will count as a portion of a homework assignment.

**Late homework will not be accepted.**
Papers: There will be three written projects which will give you an opportunity to explore the different kinds of mathematics and their history as well as pursue a specific topic of your choice in depth. More information about these projects will be available early in the semester.

Tests: There will be two tests during the semester. They will be given in OH225 from 7:00pm to 8:30pm on Wed., September 28th and Wed., November 2nd.

If you have to be absent for an exam, you must make arrangements with me as early as possible before the day of the exam, and you will be expected to document your absence. Otherwise, you will not be allowed to make up the test. In most circumstances, I will not make arrangements for you to make up an exam unless I have been notified one week before the day of the exam.

Final Exam: The final exam is scheduled for Wednesday, December 4th at 8:30am. It will be a closed-book, closed-notes, cumulative exam with a slight emphasis on material covered after the second test.

Calculators and Technology: Calculators will not be allowed on the tests. You may use calculators or software packages on your homework, though you likely won’t need them very much.

LaTeX: Students in this class are strongly encouraged to learn and use the typesetting software LaTeX, the standard typesetting language for mathematical publishing. Homework and papers prepared in LaTeX will receive 5% extra credit. Resources for learning LaTeX will be made available early in the semester.

Honor Code: All students are expected to conduct themselves within the guidelines of the College’s Honor Code. Please ask me if you have any questions about what is allowed. I reserve the right to reduce a student’s grade in the event of plagiarism whose intent cannot be verified.

Students With Disabilities: If you have or think you may have a documented disability, please contact me and the Office of Student Disability Services as early in the semester as possible.