Mathematics 1130: Fundamental Concepts of Mathematics  
Fall 2012

MWF 11:30am-12:30pm  
Drew Science Center Room 6  

**Texts:** *The Heart of Mathematics* 2nd Edition by Edward Burger and Michael Starbird  
*The Mathematician’s Apology* by G. H. Hardy  
*Logicomix* by Apostolos Doxiadis

**Instructor:** Kim Logan  
**E-Mail:** klogan03@hamline.edu  
**Office:** Drew Science Center 123D  
**Office Hours:** MWF 12:40-1:40pm

**Course Description:** This course is meant for students who do not intend to continue their mathematics education. It combines a variety of different areas of mathematics that are not traditionally taught until later in one's education but are some of the more interesting (and fun!) topics. We will cover a little bit of number theory, topology, graph theory, set theory and probability. This course will move very quickly and students are expected to be able to perform basic computation and very basic algebra.

**Attendance:** Regular attendance and participation is expected. While attendance will not be factored directly into your grade, daily attendance is an important component of success in mathematics and will indirectly affect your performance. If you have other commitments that prevent you from coming every day, you may want to register for this course another quarter.

Assignments: There are only 6 homework assignments specified on the syllabus, the questions collected represent a variety of concepts and it is expected that you attempt at least 3 times as many similar problems in order to be able to stay on top of the material. I maintain the right to add more assignments if I feel that the class needs more structure or guidance. Given the fact that you are aloud around 2 weeks for each assignment, I will accept NO LATE WORK. Each assignment is to be in my hands by the time class ends on the day that it is due. Your work is to be stapled and legible in order to earn credit.

**Grades:** Assignments 30%  
Exams 45%  
Final 25%

**Paper:** You will have the option of raising one of your exam scores (I would recommend the lowest!) by writing a five page paper. The paper will have to answer one of the prompts (which will relate to either *Logicomix* or *The Mathematician's Apology*) that will handed out in class.

**Final Exam:** Wednesday, December 19 from 10am-12pm in Drew Science Center Room 6
**Schedule**: The following schedule is a subject to change but will serve as a guideline for the semester.

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<th>Week</th>
<th>Monday</th>
<th>Wednesday</th>
<th>Friday</th>
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<tbody>
<tr>
<td>1: S 3-7</td>
<td>No Class</td>
<td>Introduction Section 1.1</td>
<td>Section 1.2 &amp; 1.3</td>
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<tr>
<td>2: S 10-14</td>
<td>Section 2.1 &amp; 2.2</td>
<td>Section 2.3</td>
<td>Section 2.3 continued Homework #1 due</td>
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<td>3: S 17-21</td>
<td>Section 2.4 Last Day to Drop (Tuesday)</td>
<td>Section 2.5</td>
<td>Section 2.5 continued</td>
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<td>4: S 24-28</td>
<td>Section 2.6</td>
<td>Section 2.7</td>
<td>Section 3.1 &amp; 3.2 Homework #2 due</td>
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<tr>
<td>5: O 1-5</td>
<td>Section 3.2 continued</td>
<td>Review</td>
<td>EXAM 1 (Ch 1 &amp; 2)</td>
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<td>6: O 8-12</td>
<td>Section 3.3</td>
<td>Section 3.4</td>
<td>Section 3.5</td>
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<td>7: O 15-19</td>
<td>Section 4.1</td>
<td>Section 4.2 Homework # 3 due</td>
<td>Section 4.3</td>
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<td>8: O 22-26</td>
<td>Section 4.5 have Logicomix read for class</td>
<td>Section 4.5 continued</td>
<td>No Class (Midterm Break)</td>
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<td>9: O 29-N 2</td>
<td>Section 4.7</td>
<td>Section 4.7 continued</td>
<td>Section 5.1 Homework #4 due</td>
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<tr>
<td>10: N 5-9</td>
<td>Section 5.2</td>
<td>Review</td>
<td>EXAM 2 (Ch 3 &amp; 4)</td>
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<tr>
<td>11: N 12-16</td>
<td>Section 5.3</td>
<td>Section 5.3 continued have A Mathematician's Apology read for class</td>
<td>Section 5.4</td>
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<td>12: N 19-23</td>
<td>Section 5.5</td>
<td>No Class (Thanksgiving Break)</td>
<td>No Class (Thanksgiving Break)</td>
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<td>13: N 26-30</td>
<td>Section 7.1</td>
<td>Section 7.2 Homework #5 due</td>
<td>Section 7.3</td>
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<td>14: D 3-7</td>
<td>Section 7.4</td>
<td>Review</td>
<td>EXAM 3 (Ch 5 and Sec 7.1-7.3)</td>
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<td>15: D 10-14</td>
<td>Section 7.5</td>
<td>Review Homework #6 due</td>
<td>Review Optional Papers Due</td>
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<td>16: D 17-21</td>
<td>No Class</td>
<td>FINAL EXAM</td>
<td>No Class</td>
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