Instructor: Jonathan White
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Web Page: http://www.coe.edu/~jwhite/
Office: Hickok 206A
Office Hours: MTWF 9:00-9:50am and by appointment
Office Phone: 399-8280
Home Phone: 841-5111 (between 7am and 10pm)
Text: Chapter Zero: Fundamental Notions of Abstract Mathematics, 2nd, Schumacher

Problem Sets: There will be several problem sets during the semester. Together these will be worth 200 points (25% of the final grade)

Daily Work & Presentations Day-to-day class participation and presentations will be a prominent aspect of this class, and together will be worth 200 points (25% of the final grade)

Exams: There will be two in-class exams administered during class time. The dates of these are indicated in the schedule on the back side of this sheet. These exams will be worth 100 points (12.5% of the final grade) each.

The final exam will be held during finals week at the date and time indicated on the back side of this sheet. The final will be worth 200 points (25% of the final grade).

Grading: Grading will approximately follow a 90% A, 80% B, 70% C, 60% D scale.

Makeups: Late work of any sort will generally not be accepted, and if accepted due to extenuating circumstances will generally be subject to a penalty of 20% of the possible points for each day past due.

This class is intended to achieve several goals, but primary among them is to give some accurate idea of what mathematics actually is. The specific content of the course is secondary, but my hope is to give a good exposure to many topics which are helpful or necessary to further study in mathematics and related fields.

This course will be profoundly different, both in subject matter and in daily conduct, than what most of you are accustomed to in a math class. Don’t let that be overwhelming, and remember that I’m around to help.
## Tentative Schedule

<table>
<thead>
<tr>
<th>Day</th>
<th>Monday, January 12th</th>
<th>Wednesday, January 19th</th>
<th>Friday, January 21st</th>
</tr>
</thead>
<tbody>
<tr>
<td>§1.1 True or False</td>
<td>§1.6 &amp; 7 Truth Tables</td>
<td>§1.12 &amp; 13 Direct &amp; Contrapositive P'f</td>
<td>§1.14&amp;15 Proof by Contradiction, etc.</td>
</tr>
<tr>
<td>Day</td>
<td>Monday, January 14th</td>
<td>Wednesday, January 26th</td>
<td>Friday, January 28th</td>
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<tr>
<td>§1.2 &amp; 3 Statements and Quantification</td>
<td>§1.8 &amp; 9 Negation and Existence</td>
<td>§2.3 Set Operations</td>
<td>§2.4 Set Algebra</td>
</tr>
<tr>
<td>Day</td>
<td>Monday, January 17th</td>
<td>Wednesday, February 2nd</td>
<td>Friday, February 4th</td>
</tr>
<tr>
<td>§1.4 &amp; 5 Statements and Implication</td>
<td>§2.1 &amp; 2 Sets and Subsets</td>
<td>§2.6 Russell’s Paradox &amp; Review</td>
<td>§2.5 The Power Set</td>
</tr>
<tr>
<td>Day</td>
<td>Monday, January 24th</td>
<td>Wednesday, February 9th</td>
<td>Friday, February 11th</td>
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<tr>
<td>§1.10&amp;11 Uniqueness &amp; Examples</td>
<td>§1.12 &amp; 13 Direct &amp; Contrapositive P'f</td>
<td>§2.6 Russell’s Paradox &amp; Review</td>
<td>Exam 1</td>
</tr>
<tr>
<td>Day</td>
<td>Monday, January 31st</td>
<td>Wednesday, February 16th</td>
<td>Friday, February 18th</td>
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<tr>
<td>§2.1 &amp; 2 Sets and Subsets</td>
<td>§3.1 Mathematical Induction</td>
<td>§3.2 Using Induction</td>
<td>§3.3 Complete Induction</td>
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<tr>
<td>Day</td>
<td>Monday, February 7th</td>
<td>Wednesday, February 23rd</td>
<td>Friday, February 25th</td>
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<tr>
<td>§2.5 The Power Set</td>
<td>§4.1 Relations</td>
<td>§4.2 Orderings</td>
<td>§4.3 Equivalence Relations</td>
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<td>Day</td>
<td>Monday, February 14th</td>
<td>Wednesday, March 2nd</td>
<td>Friday, March 4th</td>
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<tr>
<td>§3.1 Mathematical Induction</td>
<td>§4.4 Graphs</td>
<td>§4.4 Graphs</td>
<td>§5.1 Functions</td>
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<tr>
<td>Day</td>
<td>Monday, February 17th</td>
<td>Wednesday, March 16th</td>
<td>Friday, March 25th</td>
</tr>
<tr>
<td>§5.2 Composition &amp; Inverses</td>
<td>§5.3 Images &amp; Inverse Images</td>
<td>§5.6 Binary Operations &amp; Review</td>
<td>Exam 2</td>
</tr>
<tr>
<td>Day</td>
<td>Monday, March 21st</td>
<td>Wednesday, March 23rd</td>
<td>Friday, April 1st</td>
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<tr>
<td>§5.5 Sequences</td>
<td>§7.2 Infinite Sets</td>
<td>§7.3 Countable Sets</td>
<td>§7.5 Comparing Cardinalities</td>
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<tr>
<td>Day</td>
<td>Monday, March 28th</td>
<td>Wednesday, April 6th</td>
<td>Friday, April 8th</td>
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<tr>
<td>§7.1 Galileo’s Paradox</td>
<td>§7.4 Beyond Countability</td>
<td>Symp.</td>
<td>§7.5 Comparing Cardinalities</td>
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<tr>
<td>Day</td>
<td>Monday, April 4th</td>
<td>Wednesday, April 13th</td>
<td>Friday, April 15th</td>
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<tr>
<td>§7.4 Beyond Countability</td>
<td>§A.1 Elementary Axioms</td>
<td>§A.1 Elementary Axioms</td>
<td>§A.3 Axioms of Choice &amp; Substitution</td>
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<tr>
<td>Day</td>
<td>Monday, April 11th</td>
<td>Wednesday, April 20th</td>
<td>Friday, April 22nd</td>
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<tr>
<td>§7.6 The Continuum Hypothesis</td>
<td>§A.2 The Axiom of Infinity</td>
<td>§A.2 The Axiom of Infinity</td>
<td>§A.3 Axioms of Choice &amp; Substitution</td>
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<tr>
<td>Day</td>
<td>Monday, April 18th</td>
<td>Wednesday, April 27th</td>
<td>Friday, April 25th</td>
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<tr>
<td>§A.2 The Axiom of Infinity</td>
<td>Review</td>
<td>Review</td>
<td>Review</td>
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<tr>
<td>Day</td>
<td>Monday, April 25th</td>
<td>Wednesday, April 27th</td>
<td>Friday, May 4th</td>
</tr>
<tr>
<td>Review</td>
<td>§A.3 Axioms of Choice &amp; Substitution</td>
<td>Review</td>
<td>8am</td>
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<tr>
<td>Final Exam: Wednesday, May 4th, 8am</td>
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Any students with disabilities which might affect their performance in this class should contact me as soon as possible to arrange accommodations.

The faculty has adopted a policy on academic integrity. It is your responsibility to understand and follow it.

Diversity, in all its forms, is valuable.