

## Math 260—Sets and Logic Syllabus

<p><b>Instructor</b></p> <p>Mike Lundin          Office: Bouillon 108D          E-mail: <a href="mailto:Lundin@cwu.edu">Lundin@cwu.edu</a>          Web: <a href="http://www.cwu.edu/~lundin/">http://www.cwu.edu/~lundin/</a>          Phone: 963-1398          Office Hours: MWF 11:10-12:00                            T-Th 11:10-1:00</p>	<p><b>Course Description</b></p> <p>5 credits          Shaw Smyser 107          MTWThF 10:00</p> <p>This course is an introduction to abstract reasoning in mathematics. As such, the content and processes focus on applications of Aristotelian logic to elementary mathematical systems, particularly set theory.</p>	<p><b>Special Needs</b></p> <p>If you have special needs, please let me know.</p> <p><b>Text</b></p> <p><i>Logic, Sets &amp; Proof—An Introduction</i> by James D. Harper, professor, CWU</p> <p>Note: Much material will also come by way of lecture, so it is important that you are particularly diligent in class.</p>
<p><b>Objectives</b></p> <p>1) Students will demonstrate logical reasoning and problem solving ability as in applications of logic to mathematical systems. That reasoning shall include conjecturing, generalizing, and verifying or disproving conjectures or generalizations.          2) Students will demonstrate excellent written and oral communication in their demonstrations of Objective 1.          3) Students will demonstrate cooperative learning skills both inside and outside of class.</p>	<p><b>Learning in this Class</b></p> <p>This class is traditionally a transition course into the advanced mathematics curriculum. As such it fosters a formal use of logic to prove theorems. The content of this course highlights a framework supporting all of modern mathematics. Consequently, learning content and processes requires intensive practice and much reflection.</p> <p>Take time to think about and discuss your homework with others and to rewrite proofs. Make working with others a priority, but also take time to internalize the ideas yourself. Rewards for your hard work will include understanding the process of doing mathematics.</p> <p>Doing mathematics is pseudo-cyclic process of exploring, explaining, generalizing and verifying, with evaluation of progress at each step.</p>	
<p><b>Content</b></p> <p>Week 1—Logic (Chapter 1)          Week 2—Sets and Relations (Chapter 2)          Week 3—Sets (Chapters 2, 4)          Week 4—Sets (Chapter 3, 4) <b>TEST 1</b>          Week 5—Functions and Relations (Chapter 5)          Week 6—One to One and Onto Functions (Class)          Week 7—Induction (Chapter 6, 7)          Week 8—Quantifiers, Limits, and Continuous Functions (Class) <b>TEST 2</b>          Week 9—Equivalence Relations (Class)          Week 10—Order Relations (Class)  <b>FINAL EXAM</b></p>	<p><b>Assessments</b></p> <p>Homework Notebook—1/4 of final grade*          Weekly Quizzes (<b>no make-ups</b>)—1/4 of final grade          Two Tests (<b>no make-ups</b>)—1/4 of final grade          Final Exam (<b>no early or late final exams</b>)—1/4 of final grade</p> <p>* Notebooks will be collected on Monday of week 4 and Monday of Week 8. Assignments <b>MUST BE NEAT, and MARKED WITH THE CLASS DAY</b> at the <b>TOP</b> of the <b>FIRST PAGE</b> of the Assignment:</p> <p style="padding-left: 40px;">2pts (neat and mostly complete)          1pt (substantially lacking)          0 pts (too much missing)</p>	