Sets and Logic (Math 260) — Fall, 2007

Location and Time: Bouillon 210, MTWThF, 11:00 ─ 11:50 pm.

Instructor: Dr. Dan Curtis

Office: Bouillon 107a

Office Hours: MTWThF 10:00 – 10:50 or by appointment. You can drop by my office at any time and usually I'll be able to talk with you.

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Final Exam: Thursday, December 6, 8:00-10:00am

Textbook: *Discrete Mathematics with Applications* (3^{rd} Ed), by Susanna Epp. The textbook is required. (**Note**: This book will also be used in Math 330 in Winter and Spring of 2008.)

Course Content: The main goal of this course is to teach you how to construct correct and readable proofs of mathematical statements. The course will cover material from chapters 1-5 of the text, together with additional material that may be introduced. You should read the book. The examples in the text will supplement those given in class and the discussion given in the text will provide extra discussion will provide reinforcement for material presented in class. However, I will try to emphasize in class what I consider to be the most important ideas, so you should pay special attention to what is done in class.

Course Conduct: You are expected to attend class daily. Come to class prepared and having read the relevant sections of the text. Always bring your textbook and paper, pencil, and eraser. (Bring pencils, **not** pens. Never do mathematics in ink!) You may be called upon to present material to the class. We will often do group work during class and you should be prepared to participate in such activities.

Learner Outcomes: Upon successful completion of this course, the student will understand:

- What constitutes a mathematical proof;
- How to recognize valid and invalid patterns of reasoning;
- The basic forms of proof: direct proof, proof by contraposition, proof by contradiction, proof by induction;
- How to write a correct and readable proof;
- What constitutes good style in writing proofs;
- How to prove basic theorems of number theory;
- How to manipulate sets and prove basic facts from elementary set theory;
- How to use existential and universal quantifiers.

Grading: Your course grade will be determined by the following:

1. Two 100-point in-class exams worth up to 200 points. The dates of these exams are found on the **Course Schedule** part of this syllabus.
2. Five homework assignments will be handed in. Each set of problems to be handed in will consist of problems assigned in class and will be clearly stated to be a hand-in assignment. Each of these assignments will count for up to 20 points. Half of the points (10 points) will be given for handing in the assigned problems, the other 10 points will result from the detailed grading of two problems on each assignment. Therefore, the total for these assignments will be up to 100 points. The dates when each of these assignments is due are found on the **Course Schedule** part of this syllabus. Late assignments will be graded on a basis of 10 possible points, rather than the normal 20.
3. A comprehensive final exam worth 100 points.

A perfect score on all three of the above categories would result in a total of 400 points. Your course grade will be determined by the percentage p of these points you earn, according the following scale.

$90 \le p$	A	$65 \le p < 77.5$	C
$89 \le p < 90$	A-	$64 \le p < 65$	C-
$87.5 \le p < 89$	B+	$62.5 \le p < 64$	D+
$80 \le p < 87.5$	B	$50 \le p < 62.5$	D
$79 \le p < 80$	B-	$p < 50$	F
$77.5 \le p < 79$	C+		

Note: It is important that you not miss the two in-class exams. If you have to miss one for a valid reason, you should let me know in advance (if possible). If you have a legitimate reason for missing the exam a makeup may be given. You **must** take the final exam to pass the course.

Tentative Course Schedule (49 Class Days)

Date	Class Activity	Date	Class Activity
09/17		10/29	
09/18		10/30	
09/19	Classes Begin	10/31	
09/20		11/01	
09/21		11/02	HW3 due
09/24		11/05	
09/25		11/06	
09/26		11/07	
09/27		11/08	
09/28	HW 1 due	11/09	HW4 due
10/01		11/12	HOLIDAY: Veterans Day
10/02		11/13	
10/03		11/14	
10/04		11/15	
10/05		11/16	
10/08	Exam 1	11/19	Exam 2
10/09		11/20	
10/10		11/21	HOLIDAY: Thanksgiving
10/11		11/22	HOLIDAY: Thanksgiving
10/12		11/23	HOLIDAY: Thanksgiving
10/15		11/26	
10/16		11/27	HW5 due
10/17		11/28	
10/18		11/29	
10/19	HW2 due	11/30	
10/22		12/03	Prof. Dev. Day
10/23		12/04	
10/24		12/05	
10/25		12/06	Final Exam: 8:00-10:00am
10/26		12/07	

Students with disabilities: If you require accommodation based on a documented disability, have emergency medical information to share, or need special arrangements in case of emergency evacuation, please make an appointment with me as soon as possible.