

Discrete Mathematics (Math 330) — Spring, 2008

Location and Time: MWThF, Bouillon 210, 1:00-1:50; T, Bouillon 103, 1:00-1:50

Instructor: Dr. Dan Curtis

Office: 107a Bouillon

Office Hours: MTWThF 12:00 – 12:50. Actually, you can come by my office at any time and, unless I am occupied, I will be happy to talk with you.

Help Sessions: T, Th 4:00-5:00 pm, Bouillon 101

Office Phone: 963-2125

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Web Page: www.cwu.edu/~curtiswd

Final Exam: Friday, June 6, 2008, 12:00-2:00 pm

Textbook: Discrete Mathematics with Applications (3rd edition) by Susanna Epp
The textbook is required.

Course Content: We will cover material from chapters 4, 7, 8, 10, and 11, together with additional materials that will be handed out in class. The main topics to be covered will be

- Basic properties of divisibility, division theorem, Euclidean algorithm
- Modular arithmetic and properties of congruences
- Basic ideas of cryptology, including the RSA encryption method.
- Methods of mathematical induction
- Recursive algorithms and the relation with induction
- Solving linear, constant-coefficient recursions
- Basic concepts, properties, and applications of graphs

Classwork and Homework : You are expected to attend class daily. Homework will be assigned from the text and on materials handed out in class. None of these will be handed in for grading, but there will be time in class for discussion of these problems.

Course Prerequisites: Mathematics 260 (Sets and Logic) is a prerequisite for this course. We will be proving things in this course, so you must know how to read and do proofs. You don't have to be an expert at proofs, since one goal of this course is to increase your level of sophistication in dealing with theoretical mathematics, but you must know the basics going in. The proof technique we will be seeing most in this course is induction in any of several forms.

Mathematica Lab: On certain Tuesdays we will meet in the Bu103 Computer Lab where you will learn to use the *Mathematica* software package to solve problems of the types being studied in this course.

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

- how modular arithmetic works and how to apply it (applications include the RSA encryption method)
- what the various forms of induction are and how to use them
- what a recursive algorithm or a recursive definition is, and how to use them
- what a recurrence relation is and how to solve linear recursions with constant coefficients
- basic concepts of graph theory and how to use graphs to analyze a variety of problems
- how to use *Mathematica* to solve a variety of problems in this course

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

1. Two in-class exams counting for up to 100 points each.
2. A *Mathematica* based project worth up to 50 points.
3. A comprehensive final exam worth up to 100 points.

Your point total will be the sum of your two in-class exams, your *Mathematica* project, plus your score on the final exam, a maximum possible 350 points. Your course grade will be determined by the percentage p of these points you earn, according the following scale:

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

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 discuss the situation with me as soon as possible

Class Schedule (46 instructional class days)

Date	Class Activity	Date	Class Activity
03/24		05/05	
03/25	Classes Begin	05/06	
03/26		05/07	
03/27		05/08	
03/28		05/09	
03/31		05/12	Exam 2
04/01		05/13	
04/02		05/14	
04/03		05/15	
04/04		05/16	
04/07		05/19	
04/08		05/20	
04/09		05/21	
04/10	Exam 1	05/22	
04/11		05/23	
04/14		05/26	Holiday: Memorial Day
04/15		05/27	
04/16		05/28	
04/17		05/29	
04/18		05/30	Last day of classes
04/21		06/02	Prof. Dev./ Student Study Day
04/22		06/03	
04/23		06/04	
04/24		06/05	
04/25		06/06	Final Exam: 12:00-2:00 pm
04/28			
04/29			
04/30			
05/01			
05/02			