**MATH 4473 – Combinatorics**  
**Independent Study, Summer 2010**

**Prerequisites:** Math 3003.

**Instructor:** Dr. Rui Xu  
**Office:** 311 Boyd Bldg  
**Phone:** (678)839-4122  
**E-mail:** xu@westga.edu  
**Website:** [http://www.westga.edu/~xu/](http://www.westga.edu/~xu/)

**Office hours:** M T W R 9:30 am – 10:00 am; T R 11:50 am – 2:00 pm or by appointment.


**Course Description:** An introduction to combinatorics. Topics include the pigeonhole principle, combinations, permutations, distributions, generating functions, recurrence relations, and inclusion-exclusion.

**Objectives:**
- (I) A thorough understanding of the Pigeonhole Principle. (L2)
- (II) An understanding of permutations, combinations. (L7, L10)
- (III) An understanding of the Binomial Coefficients. (L5, L10)
- (IV) The ability to use Inclusion-Exclusion in applications (L9, L10)
- (V) A thorough introduction to the theory of recurrence and generating functions. (L7, L9)
- (VI) An introduction to graph theory. (L7, L10)

**Grading Methods:** Grades will be assessed based on a total of 500 points (as shown below), using the standard decade scale: (90–100%=A, 80–89%=B, 70–79%=C, 60–69%=D, below 60%=F).

| Test 1 Chapter 2 and Chapter 3 | 100pts |
| Test 2 Chapter 5 and Chapter 6 | 100pts |
| Test 3 Chapter 7 and Chapter 9 | 100pts |
| Test 4 Chapter 11 and Chapter 12 | 100pts |
| Homework | 100pts |
| **Total** | **500pts** |

**Homework & Test policy:** Homework is due every meeting Monday and Wednesday. Late homework is not acceptable. Homework may be graded partially or totally. I may grade a specific problem or just look for completeness. I am interested in the solution of problems not just their answers. So you need to show your work in details to get credits. Make-up test or homework can only be given for the students who have University Approved Excuses.
Reading Assignment:

**Week 1**: Chapter 2 and Section 3.1-3.2

**Week 2**: Section 3.3-3.5, Section 5.1-5.2

**Week 3**: Section 5.3-5.5, Section 6.1-6.2

**Week 4**: Section 6.3, Section 7.1-7.4

**Week 5**: Section 7.5-7.6, Section 9.1-9.3

**Week 6**: Section 9.3-9.4, Section 11.1-11.3

**Week 7**: Section 11.4-11.6, Section 12.1-12.2