DEPARTMENT OF MATH

MATH 2305 – Discrete Math

Semester Spring 2015

Instructor:	Fred Khoury	***Office Hours***:	MTW	2:00 – 2:30 PM	M 307
E-*mail*:	fkhoury@gc.edu	***Lecture***:	TTr	11:00 AM – 12:20 PM	R 360
Phone Number:	(409) 944–1279				

- **PREREQUISITE**

  A grade of "C" or better in MATH-2312 (Pre-Calculus)

- ***Course Description***

  This is a course, to prepare students to math, computer science, and engineering majors, covering the following topics: Logic, relations, functions, basic set theory, countability and counting arguments, proof techniques, mathematical induction, discrete probability, recursion, sequence and recurrence, elementary number theory, graph theory, and mathematical proof techniques.

- **STUDENT LEARNING OUTCOMES**

  Upon successful completion of this course, students will be able to:

  1. Introduce mathematical Logic.
  2. Introduce proof techniques such as Mathematical induction and Contradiction.
  3. Develop an understanding of counting, functions and relations.
  4. Familiar with fundamental notions of statistics, such as sample space, mean and distributions,
  5. Demonstrate factual knowledge of the mathematical notation and terminology.
  6. Demonstrate knowledge of fundamental principles used in problem solving
     - Implement algorithms
     - Prove computational theorems
     - Analyze computational systems
     - Communicate technical results.
  7. Determine appropriate techniques for specific problems in decision theory, and graph theory and to develop and apply algorithms to those problems.
  8. Acquire proficiency in the fundamental concepts of graph theory, induction, and combinatorics, at a level necessary for more advanced mathematics courses.

- ***Attendance***

  - All students are expected to attend each class. More than ***three*** unexcused absences and missing ***one*** exam may result in the student being ***dropped*** from the class.
  - *Attendance* is *important* to achieve your objective of learning this material and it will reflect on your grade.

- ***Class Participation***

  Students are expected to take notes and instructor encourages questions and discussions concerning the material.

- ***Grade Range***

90 – 100	***A***
80 – 89	***B***
70 – 79	***C***
57 – 69	***D***
Below 56	***F***

- ***Grading*****:** The final class average will be determined by the following guidelines:

  4 Major Exams 90%
  Assignments 10%

- ***Classroom Etiquette***
  - Please be on time.
  - A Graphic **CALCULATOR (TI-84)** is needed for this course.
  - Cellular phone must be turned *OFF* during all the exams
  - ***No text messaging*** during the class.

- ***Withdraw Policy:*** Students wishing to drop courses must drop themselves over the web. Faculty will not drop students. Students starting college for the first time in fall 2007 or after may only receive ***six grades of W*** (grade received from a course dropped after the census date) from all Texas public colleges and universities attended.

  Last Day to Drop without "W": 2/14
  Last Day to Drop with "W": 4/16

- ***Honesty Code***
  - The student is expected to follow the honesty code in all the academic activities.
  - Any **DISHONESTY** will at the least result in a failing grade for the course.

- **Emergency Closure:** In the event the College needs to be closed for any situation, such as inclement weather, students and employees should check the College website at http://www.gc.edu or call for the most immediate and current information.

- ***DISABILITY Statement*****:** The Americans with Disabilities Act (***ADA***) is a federal anti-discrimination statute which provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with documented disabilities be guaranteed reasonable accommodation for those disabilities. If you believe that you have a disability requiring such accommodation, please contact the Galveston College Counseling Center or call (409) 944-1223

- **TEXTBOOKS/MATERIALS:**
  Discrete Math and Its Application, by Rosen, 6th Edition, publisher MCG
  Discrete Mathematics with Application, by EPP 4th edition, publisher Cengage.

- ✓ ***No classes***:
  3/16 – 3/20 Spring Break

MATH 2305 –**Discrete Math**

Sec.	***Topic***
1.1	Logic
1.2	Propositional Equivalences
1.3	Predicates and Quantifiers
1.4	Nested Quantifiers
1.5	Introduction to Proofs
1.6	Proof Methods and Strategy
1.7	Sets
1.8	Set Operations
1.9	Functions
	***Exam* 1**
2.1	Sequences and Summations
2.2	Algorithms
2.3	Divisibility and Modular Arithmetic's
2.4	Integer Representations and Algorithms
2.5	Primes and Greatest Common Divisors
2.6	Applications of Congruence
	***Exam* 2**
3.1	Mathematical Induction
3.2	Recursive Definitions and Structural Induction
3.3	The Basics of Counting
3.4	Permutations and Combinations
3.5	Applications of Recurrence Relations
3.6	Solving Linear Recurrence Relations
	***Exam* 3**
4.1	Relations and Their Properties
4.2	Representing Relations
4.3	Closures of Relations
4.4	Equivalence Relations
4.5	Partial Orderings
4.6	Graphs and Graph Models
4.7	Graph Terminology and Special Types of Graphs
4.8	Representing Graphs and Graph Isomorphism
4.9	Connectivity
4.10	Euler and Hamilton Paths
	***Exam* 4**
Comprehensive Final Exam	**5/7: 10:30 AM – 12:30 PM**