**Discrete Structures, CSCI 2824**

**Instructors**:

Mike Eisenberg (section 100), FLMG 130E, Office Hours: T 2-3:30

Ioana Fleming (section 200), ECOT 822, Office Hours: W 10-noon

**Lectures:**

Section 100: TTh 12:30 – 1:45 in VAC 1B20

Section 200: TTh 12:30 – 1:45 in MUEN E0046.

**Teaching Assistant:**

Sina Aghli – sina.aghli@colorado.edu

**Textbook:**

1. We will use the following textbook [Discrete Mathematics: Mathematical Reasoning and Proof with Puzzles, Patterns and Games by Douglas E. Ensley and J. Winston Crawley](http://www.bestwebbuys.com/Discrete-Mathematics-Mathematical-Reasoning-and-Proof-with-ISBN-9780471476023?isrc=-rd)

* **Beware**: The “paperback” version of the book is the *student solutions manual*. Please make sure that you are **not** purchasing the *student solutions manual*. We will not need it for the course.
* “New” and “Used” versions on-line (amazon, barnes-and-noble, half.com, …) are significantly less expensive.

2. Polya “How to Solve It”

**Grading Policy:**

Problem Sets 60%

Midterm 20% (October 22nd in lecture)

Final 20%

Periodic Challenge Problems will be used to adjust the final grade (if needed)

**Fall 2015 Syllabus (tentative)**

8/25 Intro to Discrete Mathematics: Problem Solving

8/27 Propositional Logic

9/1 From propositional to predicate logic

9/3 Predicate Logic

9/8 Proof by Induction; recursion

9/10 Many logics

9/15 Methods of proof (contradiction; pigeonhole principle)

9/17 Number theory 1: divisors and prime factors

9/22 *Mike out of town (guest lecture) Intro to set theory*

9/24 *Mike out of town (guest lecture) Further steps in set theory*

9/29 Chinese Remainder Theorem; Fermat's theorem

10/1 Euler's theorem

10/6 Public Key Cryptography

10/8 Infinite sets

10/13 Combinatorics; first steps

10/15 Pascal's triangle and Multichoosing

10/20 Review for midterm

10/22 **Midterm exam** *(Mike out of town)*

10/27 *Mike out of town (guest lecture) Intro to discrete probability*

10/29 Discrete Probability

11/3 Bayesian Probability

11/5 Probability and Human Intuitions

11/10 Graph Theory 1: Terminology, basic ideas

11/12 Graph theory 2: Graph algorithms

11/17 Graph Theory 3: Planarity and Coloring

11/19 Graph Theory 4: Searching graphs

11/24 ***Fall Break***

11/26 ***Fall Break***

12/1 Game Theory

12/3 Game Theory

12/8 Cellular automata

12/10 *Review session for final*