# DISCRETE MATHEMATICS

## Syllabus

Instructor: Michael Henle
Office Hours: M W Th 3:30-5:00 P.M. in King 202
Phone: x58383 or 775-7676

Text: **Discrete Mathematics and its Applications** (by Kenneth Rosen)

Evaluations:

| | |
|---|---|
| Written Problem Solutions (due **Thursdays**) | 200 |
| Homework (due **Tuesdays**) | 100 |
| Exams (September 30 and November 19) | 200 |
| Final Exam (Tuesday, December 21 at 2 PM) | 200 |
| TOTAL: | 700 points |

Course Goals:

1. To learn some interesting mathematics completely unlike the calculus.
2. To learn some mathematics that applies directly to computer science.
3. To learn to read and write proofs.

Outline of the Semester:

| Week of | Topics | Reading |
|---|---|---|
| September 2 | Logic | §1.1-1.2 |
| September 7 | Quantification and proof | §1.3-1.5 |
| September 14 | Sets | §1.6-1.8 |
| September 21 | Proof technique and induction | §3.1-3.3 |
| September 28 | Recursion and algorithms | §3.4-3.5 |
| October 5 | Counting | §4.1-4.3 |
| October 12 | Binomial coefficients, permutations, combinations | §4.4, §6.1 |
| | **Fall Break** | |
| October 26 | Recurrence equations | §6.2-6.4 |
| November 2 | Relations | §7.1-7.3 |
| November 9 | Equivalence relations, partial order | §7.5-7.6 |
| November 16 | Graph theory | §8.1-8.3 |
| November 23 | Connectivity | §8.4-8.5 |
| November 30 | Trees | §9.1-9.3 |
| December 7 | Machines | §11.1-11.2 |
| December 14 | Language recognition | §11.4 |