

## MATH 220—Mathematical Proof

**Text:** *Mathematical Proof 2nd Ed.* by Chartrand, Polimeni and Zhang, Pearson-Addison Wesley, 2008.

### Course Outline

The course will be based on chapters 1-6, 8 (if time), 9, 10, 12.1, 12.2 of the text:

- Ch. 1 Sets — definitions, set operations
- Ch. 2 Logic — logical connectives, quantifiers
- Ch. 3, 4 Proofs — direct and contrapositive
- Ch. 6 Induction — one of the most useful general proof techniques
- Ch. 8 Equivalence relations — if we have time
- Ch. 9 Functions — injective, surjective, bijective, inverses and compositions
- Ch. 5 Proofs — existence and contradiction
- Ch. 10 Cardinality of sets — finite sets and different types of infinite sets
- Ch. 12.1, 12.2 Sequences and series.