Topics covered in Math 320

06/09: Natural numbers, integers, rationals; properties of rationals; ordered sets
08/09: LUB and GLB property; fields; ordered fields
11/09: Existence of the reals; consequences of LUB property
13/09: Consequences of LUB property; solution to $y^n = x$
15/09: Construction of the real numbers via Dedekind cuts
18/09: The complex numbers
20/09: Cauchy-Schwarz inequality, Euclidean space $\mathbb{R}^n$
22/09: Cardinality, countable and uncountable sets
25/09: $[0, 1]$ is uncountable, introduction to metric spaces
27/09: Metric spaces cont’d
29/09: DeMorgan’s laws, limit points and closure
02/10: Relatively open sets, compact sets
04/10: Properties of compact sets
06/10: Compactness and nested intervals, Heine-Borel theorem
09/10: Thanksgiving
11/10: Midterm 1
13/10: Discrete metric, Weierstrass theorem, Cantor set
16/10: Sequences
16/10: Sequenced cont’d
18/10: Sub-sequences, compactness
20/10: Cauchy sequences
23/10: Cauchy sequences cont’d, monotone sequences, lim sup and lim inf
25/10: Series