Mathematics 19
Introduction to Set Theory Tentative Schedule
Winter 2020

Instructor: M. Groszek
Distributive: QDS
Prerequisites: None

Textbook: *Elements of Set Theory*, Herbert B. Enderton,
    Academic Press, 1977. ISBN: 978-0122384400

Math 19 Draft Schedule for Winter 2020

1. January 6-10

    (a) Monday: Introduction to set theory.
        Chapter 1, section (a), pages 1-7.

    (b) Tuesday (x-hour): Introduction to writing proofs.

    (c) Wednesday: Overview of axiomatic set theory.
        Chapter 1, sections (b)-(f), pages 7-16.

    (d) Friday: The first axioms.
        Chapter 2, section (a), pages 17-23.

2. January 13-17

    (a) Monday: Arbitrary unions and intersections.
        Chapter 2, section (b), pages 23-27.

    (b) Tuesday (x-hour): A little more about writing proofs.

    (c) Wednesday: Algebra of sets.
        Chapter 2, sections (c)-(e), pages 27-34.

    (d) Friday: Ordered pairs and relations.
        Chapter 3, sections (a)-(c), pages 35-42.

3. January 20-24

    (a) Monday: MLK Day; class does not meet. We will meet during
        the x-hour on Tuesday.

(b) Tuesday (x-hour): Functions.
Chapter 3, sections (d)-(e), pages 42-55.

(c) Wednesday: Equivalence relations.
Chapter 3, section (f), pages 55-62.

(d) Friday: Ordering relations.
Chapter 3, sections (g)-(h), pages 62-66.

4. January 27-31

Exam this week on material in weeks 1-3.

(a) Monday: Natural numbers.
Chapter 4, sections (a)-(b), pages 67-73.

(b) Wednesday: Recursion on ω.
Chapter 4, sections (c)-(d), pages 73-83.

(c) Friday: Ordering the natural numbers.
Chapter 4, sections (e)-(f), pages 83-89.

5. February 3-7

(a) Monday: Integers.
Chapter 5, section (a), pages 90-101.

(b) Wednesday: Representing mathematical objects as sets.
Chapter 5, section (e), pages 123-127.

(c) Friday: Sizes of sets.
Chapter 6, section (a), pages 128-133.

6. February 10-14

(a) Monday: Finite sets.
Chapter 6, Section (b), pages 133-138.

(b) Wednesday: Cardinal arithmetic.
Chapter 6, section (c), pages 138-145.

(c) Friday: Ordering cardinal numbers.
Chapter 6, section (d), pages 145-151.

7. February 17-21

    (a) Monday: The axiom of choice.
        Chapter 6, section (e), pages 151-159.
    (b) Wednesday: Infinite cardinals.
        Chapter 6 sections (f)-(h), pages 159-166.
    (c) Friday: Partial orderings and well orderings.
        Chapter 7, sections (a)-(b), pages 167-179.

8. February 24-28
   Exam this week on material in weeks 1-7 (mostly weeks 4-7).

    (a) Monday: Replacement axioms.
        Chapter 7, section (c), pages 179-182.
    (b) Wednesday: Epsilon images and isomorphisms.
        Chapter 7, sections (d)-(e), pages 182-187.
    (c) Friday: Ordinal numbers.
        Chapter 7, section (f), pages 187-195.

9. March 2-6

    (a) Monday: Cardinal numbers.
        Chapter 7, section (g), pages 195-200.
    (b) Wednesday: Rank.
        Chapter 7, section (h), pages 200-208.
    (c) Friday: Conclusion.

10. Final exam during finals period.