

**UPDATED GENERAL INFORMATION — OCTOBER 18, 2017**

*Axioms for set theory*

In this course we have introduced axioms for the subject informally. The course directory now contains two sets of notes which describe the axioms in a more detailed fashion, but still at an undergraduate level:

macLane - Axioms for Set Theory.pdf

macLane - Axiomatic Set Theory.pdf

The second set of notes is more formal than the first. Both are included mainly for reference purposes and the sake of logical completeness.

*The first quiz*

This will take place on Tuesday, October 24, as scheduled. It will mainly recover material from Chapter III, with background from Sections II.2 and II.3.

*Assignments for Chapter IV*

Working the exercises listed below is **strongly recommended**.

The following exercises are taken from `set theory-exercises.pdf`:

- Section IV.1, Exercises to work: 1(*ace*), 2, 4–6, 8–10
- Section IV.1, Problems for study: Lipschutz, 3.6(*a*), 3.7(*ac*), 3.12(*b*), 3.13–3.14, 3.16–3.17, 3.23–3.25, 3.29–3.30, 3.32–3.33, 3.47(*a*), 3.48 parts (1) and (2), 3.55
- Section IV.2, Exercises to work: 1–3, 5–7
- Section IV.2, Problems for study: Lipschutz, 7.1, 7.3–7.5, 7.41–7.42, 7.52
- Section IV.3, Exercises to work: 1, 3–5, 7
- Section IV.3, Problems for study: Lipschutz, 4.1–4.2, 4.3(*ac*), 4.7–4.8, 4.33
- Section IV.4, Exercises to work: 1–2, 4(*bd*), 7(*a*), 8, 11, 13–14, 17
- Section IV.4, Problems for study: Lipschutz, 4.12, 4.14, 4.18, 4.20, 4.22, 4.39(*b*), 4.45–4.46
- Section IV.5, Exercises to work: 1
- Section IV.5, Problems for study: Lipschutz, 5.19, 5.49
- Section IV.6, Exercises to work: 1–5
- Section IV.6, Problems for study: Lipschutz, 7.27(*b*), 7.73

The following references are to the course directory file `exercises92f17.pdf`:

- Section IV.1: 101–102, 104
- Section IV.2: 101–103
- Section IV.3: 101–102
- Section IV.4: 101–103
- Section IV.5: 101
- Section IV.6: 101, 103

*Reading assignments from solutions to exercises*

The solutions to these exercises in `set theory-solutions.pdf` and `solutions92f17.pdf` should be read and understood at the passive level. Here is the difference between passive and active understanding:

A passive understanding means that one can follow the reasoning presented in a written proof fairly well.

An active understanding means that one knows the argument well enough to explain it correctly — or nearly so — to someone else (for example, on a quiz or examination).

The following exercises are taken from `set theory-exercises.pdf` and `solutions92f17.pdf`:

- Section IV.1, Solutions to read: 3, 7, 12
- Section IV.2, Solutions to read: 4, 6
- Section IV.3, Solutions to read: 4
- Section IV.4, Solutions to read: 3, 5–6, 12, 15, 104–106
- Section IV.5, Solutions to read: 2
- Section IV.6, Solutions to read: 102

*Reading recommendations for other files*

Here are the recommendations for Chapter IV.

<http://math.ucr.edu/~res/math144-2017/productposet.pdf>

A discussion which takes partial orderings on two sets  $A$  and  $B$  and yields a partial ordering on the cartesian product  $A \times B$ .

<http://math.ucr.edu/~res/math144-2017/corestrictions.pdf>

Discussion of some additional concepts involving functions.

<http://math.ucr.edu/~res/math144-2017/polarnote.pdf>

A discussion of issues which arise when one tries to find the intersection points of two curves in the plane which are described in terms of polar coordinates.

<http://math.ucr.edu/~res/math144-2017/polar-ambiguity.pdf>

More specific examples in connection with the previous file.