Math 205B
Winter 2018

UPDATED GENERAL INFORMATION — JANUARY 31, 2018

Suggested exercises

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

The following exercises are taken from Munkres:

p. 433: 1–3

p. 445: 1

pp. 483–484: 1, 2

p. 513: 2, 3

The following exercises are taken from Hatcher; the page numbers refer to the numbering in the book, not the `pdf` file:

p. 52 *et seq.*: 2, 21

p. 79 *et seq.*: 1–3, 8, 10

The following exercises are taken from the indicated files in the course directory:

`exercises00-2012.pdf`: 3, 4

`exercises01-2012.pdf`: 4, 6 (Recall that the fundamental group of real projective n-space is cyclic of order 2 if $n \geq 2$.)

`exercises02-2012.pdf`: 6, 8, 13, 14

`math145Bexercises5s15.pdf`: 1, 2, 4, 5

Readings for the third unit

In addition to `algtop-notes.pdf` and the corresponding exercise and solutions, here are some recommendations:

`graphpix1.pdf`
`graphpix2.pdf`
`cubegraph.pdf`

Illustrations to accompany the lecture notes. The first has several examples of graphs and non-graphs, and the second is a drawing for the proof of Theorem III.3.1. The third is self-explanatory.

`sans-serifs.pdf`

Examples of alphabet letters (in the sans-serif font) which are trees.

`haupt4graphs.pdf`
`haupt4graphs2.pdf`

Proof that homeomorphic graphs can be subdivided into graphs which are isomorphic (as graphs). This is somewhat advanced material.

`embed-graph.pdf`

Proof of an assertion in Munkres: Although the Figure 8 and Figure θ graphs have isomorphic fundamental groups, neither is homeomorphic to a subspace of the other. This is also somewhat advanced.

`Graph Theory - Robin Wilson.mp4`

A short talk on the use of graph theory to solve a combinatorial problem. There are numerous applications which play videos of `*.mp4` type. The VLC Media Player is one example; it is best to download this directly from the source and not through some intermediary which might play dirty tricks on you like changing your default browser or downloading unwelcome garbage.