HANDOUT AND HOMEWORK COMMENTS

JOEL FRIEDMAN

Contents

Disclaimer: The material may sketchy and/or contain errors, which I will elaborate upon and/or correct in class. For those not in CPSC 531F: use this material at your own risk...

1. Notes on Handouts in 2025

As of March 27, 2025:

"An Introduction to Simplicial Homology" contains the notes I handed out for the term. Some parts of the notes that we did not cover this year now appear in the colour brown. I've drawn attention to parts of the text (including exercises) that were corrected by writing them in red.

As of March 26, 2025, we are following an article: " The Barcode Theorem, Jordan Canonical Form (And an Appendix on Modules over a PID)." At the same time, I am currently adding the parts of this article that we will need and including this as a last section of "An Introduction to Simplicial Homology."

2. Notes on the Homework in 2025

Regarding the homework assigned this year:

(1) I recommend doing all exercises in Appendix A. You are given a choice of doing either Exercise A.15 or A.16; Exercise A.16 is longer, but is more straightforward.
(2) For Appendix B:
    (a) Exercises B.1 to B.7 are really to help you review some apsects of point set topology, and I don't ask that you hand them in (but you are welcome to do so if you would find this useful).

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(b) Exercises B.18 and B.19 are optional: I hoped to give some examples of these in class (one example is that for a topological space, X, $\mathrm{Cone}_P(X)$ is collapsible (to P).
(c) Exercise B.20 can be done without compactness, but the computation becomes more elaborate (as was clear thanks to office hours with QW on March 27).
(d) The results of Exercises B.23 and B.24 were proven in class, and Exercise B.23 is implied by Execise B.24 (B.23 is a "warm-up" to B.24). In fact, in class we proved the results in B.23 and B.24 for any "sensible" and continuous RewardToSwitch function. (See Exercise C.7). Exercise B.25 is very important, since it explains our interest in "1-player, n-strategy" games in B.23 and B.24.
(e) I've added thee Δ-complex computations as Exercise B.26.
(f) I will likely add some exercises on Barcodes.

Department of Computer Science, University of British Columbia, Vancouver, BC V6T 1Z4, CANADA.
Email address: jf@cs.ubc.ca
URL: http://www.cs.ubc.ca/~jf