

An introduction to fair division and cake-cutting algorithms

Reference

Shan Shan

June 19, 2017

There are two very good books on the subject of fair division.

- *Cake-cutting algorithms: be fair if you can* by Jack Robertson and William Webb
- *Fair division from cake-cutting to dispute resolution* by Steven J. Brams and Alan D. Taylor

The Robertson and Webb book gives an extensive and friendly survey to the topics in fair division. We will cover the materials in its first six chapters¹. The Brams and Taylor book takes a broader view by addressing historical development of the field and detailing its applications in social and political science.

For a quick introduction to graph theory, try

- *A walk through combinatorics* by Miklos Bona [Part III]

For learning mathematical notations and terminology used in this class, check out

- *An introduction to abstract mathematics* by Robert J. Bond and William J. Keane

For Sperner's lemma and its application in fair division, take a look at this article,

- *Rental harmony: Sperner's lemma in fair division* by Francis E. Su

¹Not all of it, due to a limited amount of time. But I would encourage you to read on your own for things that will not be covered in this class.