

MA 331 Homework 5: Spurn not Sperner's Lemma!

1. READING

- (1) Read the paper *Rental Harmony* by Francis Su. It's okay if you don't understand all of it! Here's what you should do as you read:
 - (a) Keep track of precisely what you do understand and what you don't understand. If there's something you don't understand, try to figure out whether it is something you *should* understand by this point in your mathematical career, or if it isn't.
 - (b) The proofs are written so as to work in arbitrary dimensions, but as you work to understand the paper, pay particular attention to the 1-dimensional (line segment) and 2-dimensional (triangle) cases.
 - (c) Do your best to understand the proof of Sperner's Lemma.
 - (d) Try to get the main ideas of how Sperner's Lemma is relevant to rent division.
 - (e) Write a report, which should be about a page long, summarizing what you did and didn't understand from the paper and giving an outline of the proof of Sperner's Lemma.