

Hand-out week 1

This week: Introduction

Mathematical concepts you should have seen before

1.1. Preferences and Utility

commodity bundles, consumption space

weak preference, strict preference, and indifference

basic axioms

utility representation and indifference curves

convexity and differentiability

marginal rate of substitution (MRS)

Readings: Varian chapters 2 and 3, DM 2.1

Practice Problems:

1. List the basic axioms, and for each come up with a simple counterexample, ie an example that violates the axiom at hand.
2. Draw a few indifference curves for right and left shoes; do the same for your preferences regarding beer and wine.
3. Are the preferences you just depicted convex?
4. Bill's preferences regarding goods x and y can be represented by $U(x, y) = \sqrt{x} \sqrt{y}$, Hillary's exquisite tastes are represented by $U(x, y) = \ln(x) + \ln(y)$. Can you say anything about familial harmony?
5. Calculate the MRS for both of the above utility functions.