Course Preview
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Logic
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Proofs
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Review
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Lecture 01
Logic and Mathematical Proofs

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Mathematics Review Course, Summer 2023
University of Minnesota
August 7th, 2023

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THIS COURSE

▶ Review of graduate-level mathematics necessary for the 1st year sequence.

▶ Aimed at PhD-track. MS-track is encouraged.

▶ This sets the foundation (Not exhaustive).

▶ By the end you should feel confident tackling a variety of math situations in a short period.

▶ Syllabus on Github repo. Repo is the most up-to-date place for course content.

▶ This course is **optional**.

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PREVIEW OF COURSE

1. Logic, Proofs, Sets, & Topology

2. Uni-variate Calculus & Multi-variate Calculus

3. Linear Algebra

4. Functions & Optimization

5. Probability & Statistics

6. Optimization

7. Dynamic Programming

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ABOUT THE INSTRUCTOR

Ryan McWay

► Current: 2nd Year APEC PhD student

► Background: SLU → USF → UMich

► Research: Development, Behavior, Urban, Environment

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DAILY ICEBREAKER

- ▶ Attendance via prompt:
    - ▶ Name
    - ▶ Hometown
    - ▶ Program and track
    - ▶ Research interests
    - ▶ Daily icebreaker subject...

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MOTIVATION

► What is the general topic?
► Why do economist's care?
► Application in courses?

OVERVIEW

▶ List of topics

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FIRST TOPIC

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MOTIVATION

▶ What is the general topic?

▶ Why do economist's care?

▶ Application in courses?

OVERVIEW

▶ List of topics

First topic

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REVIEW OF LOGIC

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REVIEW OF PROOFS

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ASSIGNMENT

► Readings on Sets & Topology before next lecture:
  ►

► Assignment:
  ► Problem Set 01 (PS1)
  ► Answer key will be available following end of next lecture

► Struggling?
  1. Read the 'Encouraged Reading'
  2. Review 'Supplementary material'
  3. Reach out directly

TBD

◀ THEORY

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REFERENCES I