Active Mathematics For Shalom

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Introduction

A Note to Students

Syllabus Spring 2020

0.1 Basic Information

- Institution: Dordt University
- Course Title: Math 149: Explorations in Modern Mathematics (3 cr.)
- Instructor: Mike Janssen, Ph.D., Associate Professor of Mathematics
- Instructor Office: SB 1608
- ***Student Hours***: Book an appointment
- Class Time: MWF 1:00--1:50pm
- Class Location: CA 267

0.2 Frequently Asked Questions

0.2.1 Questions about the content

Question 0.2.1 What are the course learning objectives? test □

Contents

Part I

Play

One of the fundamental human desires is for *play*. In recent years, ancient games and puzzles such as Go, Nim, and Chess have given way to a slew of new games, many of which can be understood and analyzed with mathematical thinking. In this part, we explore play in two contexts: the classic Rubik's cube puzzle, and the game of chess.

Chapter 1

The Rubik's Cube

1.1 January 10, 2020: Getting To Know You (and the Cube)

Introduction goes here.

Exploration 1.1.1 First, introduce yourself to your partner. Then, consider the questions:

- What are the essential qualities of play? That is, what makes one activity *play*, and another not?
- What does it mean to be playful in your own major disciplines?

Write your answers on your whiteboards.

Investigation 1.1.2 In pairs, investigate your cubes. What do you notice? What do you wonder? Make a list of as many observations and questions as you can.

Part II

Truth

Test introduction

Chapter 2

Logic

2.1 Deductive Reasoning

Chapter 3

Statistical Inference

Part III

Justice

Test introduction

Chapter 4

Gerrymandering

4.1 What are districts?