

# MATH 205: Statistical methods

October 25th, 2021

Midterm review

# Announcements

- Midterm exam (written part): next Wednesday.
- Closed-book. You are allowed to bring a one-sided hand-written A4-sized note to the exam
- You can use calculators

# Chapter 1& 2: Describing datasets

- Summarizing univariate data
  - mean
  - median
  - standard deviation and variance
  - interquartile range
- Correlation
  - Standard coordinates
  - Using correlation to predict

# Chapter 3: Basic ideas in probability

3.1 Sample space, events

3.2 Probability

3.3 Independence

3.4 Conditional probability

# Chapter 4: Random variables and expectations

## 4.1 Random variables and probability distribution

- Discrete
- Continuous
- Joint and marginal distributions
- Independent variables

## 4.2 Expectations

- Mean
- Variance
- Covariance

## Chapter 5 & 6: Useful distributions and the sample mean

- Working with normal random variables
- Linear combinations of random variables
- Distribution of the sample mean
  - law of large numbers
  - central limit theorem