

# STA355H1 F

## Theory of Statistical Practice

### Fall 2025 Syllabus

#### Course Meetings

##### STA355H1 F

| Section | Day & Time                | Delivery Mode & Location |
|---------|---------------------------|--------------------------|
| LEC5101 | Friday, 5:00 PM - 8:00 PM | In Person: NF 003        |

Refer to ACORN for the most up-to-date information about the location of the course meetings.

#### Course Contacts

**Course Website:** [mouwenlong.github.io/teaching/sta355f25/index.html](https://mouwenlong.github.io/teaching/sta355f25/index.html)

**Instructor:** Wenlong Mou

**Email:** [wenlong.mou@utoronto.ca](mailto:wenlong.mou@utoronto.ca)

#### Course Overview

STA355H1 provides a unifying structure for the methods taught in other courses, and will enable students to read methodological research articles or articles with a large methodological component. Topics covered include statistical models and distributions; fundamentals of inference: estimation, hypothesis testing, and significance levels; likelihood functions and likelihood-based inference; prior distributions and Bayesian inference.

STA355H1 provides a rigorous introduction to the theory of statistical practice, bridging the 200-level introductory courses and advanced topics. The course will enable students to read methodological research articles or articles with a large methodological component. Both methodologies and models will be covered. Methodological topics include bootstrapping; parametric estimation and inference, maximal likelihood estimation; hypothesis testing; Bayesian inference and decision theory. Topics on models include linear regression, generalized linear models, and nonparametric regression. The course will also cover the basics of asymptotic theory.

**Prerequisites:** STA255H1 (73%)/ STA248H1 (73%)/ STA238H1 (73%)/ STA261H1 (60%)/ ECO227Y1 (60%)/ STAB57H3 (60%)/ STA260H5 (60%)/ ECO227Y5 (60%); MAT235Y1/ MAT237Y1/ MAT257Y1/ (MATB41H3, MATB42H3)/ (MAT232H5, MAT236H5)/ (MAT233H5, MAT236H5); MAT223H1/ MAT224H1/ MAT240H1/ MATA22H3/ MATA23H3/ MAT223H5/ MAT240H5/ MATB24H3/ MAT224H5

**Corequisites:** None

**Exclusions:** STAC58H3

**Recommended Preparation:** CSC108H1/ CSC120H1/ CSC148H1/ CSC110Y1/ CSC111H1

**Credit Value:** 0.5

## Marking Scheme

| Assessment           | Percent | Details                                                                                                   | Due Date                   |
|----------------------|---------|-----------------------------------------------------------------------------------------------------------|----------------------------|
| Mid-term test        | 30%     |                                                                                                           | 2025-10-17                 |
| Homework             | 30%     | Two practice questions during the course of the semester. Each is worth 15%, graded on a pass/fail basis. | 2025-09-05 -<br>2025-11-29 |
| In-Person Final Exam | 40%     |                                                                                                           | Final Exam Period          |

The raw final grade will be calculated as:

$30\% * \text{homework} + \max(30\% * \text{midterm} + 40\% * \text{final}, 70\% * \text{final})$ .

In particular, if you miss the midterm exam, the portion will be automatically allocated to the final exam.

### Late Assessment Submissions Policy

There is no late penalty.