

STA410H1 S

Statistical Computation

Winter 2025 Syllabus

Course Meetings

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Section	Day & Time	Delivery Mode & Location
LEC2001	Friday, 12:00 PM - 3:00 PM	In Person: AH 400

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

Carr Hall computer lab CR325 has been booked from Friday from 12-3pm for students who do not have a laptop for completing the coding challenge.

Course Contacts

Course Website: <https://q.utoronto.ca/courses/380399>

Instructor: Scott Schwartz

Email: scott.schwartz@utoronto.ca

Office Hours and Location: 6:30-8PM Wednesdays Hybrid
<https://utoronto.zoom.us/j/2910373742> with in person location TBA

Additional Notes: All course communication will take place through the course piazza discussion board unless otherwise directed: <https://piazza.com/class/m5h6cuchjnbns/>
(<https://piazza.com/utoronto.ca/winter2025/sta410>)

Course Overview

Programming in an interactive statistical environment. Generating random variates and evaluating statistical methods by simulation. Algorithms for linear models, maximum likelihood estimation, and Bayesian inference. Statistical algorithms such as the Kalman filter and the EM algorithm. Graphical display of data.

Jan 06-10: Pseudorandom numbers

Jan 14-17: Sampling methods

Jan 20-24: Monte Carlo methods

Jan 28-31: Markov chain methods

Feb 03-07: Numeric precision

Feb 10-14: Direct methods

Feb 17-21: READING WEEK

Feb 24-28: Functional bases

Mar 03-07: Iterative methods

Mar 10-14: Variance reduction (and ML)

Mar 17-21: Newton-like methods

Mar 24-28: Bayesian deep learning

Apr -1-04: Generative modeling

https://github.com/pointOfive/STA410_tenfouroverandout

<https://markus.teach.cs.toronto.edu/markus/courses/>

Marking Scheme

Assessment	Percent	Details	Due Date
HW	40%	Weekly Homework (best 10 of 12)	2025-01-10,2025-01-17,2025-01-24,2025-01-31,2025-02-07,2025-02-14,2025-02-28,2025-03-07,2025-03-14,2025-03-21,2025-03-28,2025-04-04
CC	40%	Weekly in class coding challenge (best 10 of 12)	2025-01-10,2025-01-17,2025-01-24,2025-01-31,2025-02-07,2025-02-14,2025-02-28,2025-03-07,2025-03-14,2025-03-21,2025-03-28,2025-04-04
Course Project	20%		2025-04-04

Late Assessment Submissions Policy

HW may be submitted up to 10 days late for a 50% penalty. The penalty is not pro-rated and no HW will be accepted after this later period. All other missed work is covered by the best 10 of 12 policy.