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UNIVERSITY OF TORONTO  
TIME SERIES ANALYSIS STA457H1S

COURSE OUTLINE

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**INSTRUCTOR:** Jen-Wen Lin, PhD, CFA

**OFFICE HOURS/LOCATION:** THURSDAY 02:10-03:00 pm/AH100

**CLASS TIME/PLACE:** THURSDAY 3-6 pm/AH100

**EMAIL:** [jenwen@utstat.toronto.edu](mailto:jenwen@utstat.toronto.edu)

**TEACHING ASSISTANT (TENTATIVE):**

(1) TIANYI JIA [tianyi.jia@mail.utoronto.ca](mailto:tianyi.jia@mail.utoronto.ca)

(2) XIUCAI DING [xd301@nyu.edu](mailto:xd301@nyu.edu)

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COURSE DESCRIPTION

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This course provides an introduction to time series analysis with finance applications. The techniques learned in this course can also be applied to other disciplines. After finishing this course, students are expected to gain hands-on knowledge on how to analyze and model time series data. Topics in this course include fundamental concepts of time series, Box-Jenkins methods (ARIMA models), multivariate time series analysis (transfer function model, Vector autoregression, co-integration), and applications of machine learning techniques in time series analysis, such as bootstrapping, bagging and boosting for forecasting time series.

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WEIGHTING SCHEME

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The final mark will be calculated using the following formula

$$47.5\% \times \text{midterm score} + 47.5\% \times \text{final score} + 5\% \text{ participation}$$

- If students miss the midterm test with a legitimate reason, his/her weight on the midterm test will be shifted to final exam.
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TEXTBOOK (OPTIONAL)

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Wei (2005), Time Series Analysis—Univariate and Multivariate Methods.

<https://search.library.utoronto.ca/details?5587975&uuid=be2c9580-3b87-4133-897a-04dac9884666>