STA347 - Probability I

University of Toronto Summer 2014

Course Description

This course provides a thorough overview of probability theory from a least-measure theoretic point of view which includes the convergence theorems. Topics covered are random variables and random vectors, independence, conditional probability and conditional expectation and their applications, and various types of convergence theorems. As time permits simple stochastic processes such as Markov chains, Poisson and branching processes will be introduced.

Prerequisite

Introductory probability similar to STA255/STA257 and multivariate calculus similar to MAT235/MAT237 is mandatory. Analysis equivalent to MAT257 is recommended;

Textbook

G. Grimmett and D. Stirzaker (2001). Probability and Random Processes, Oxford, 3rd edition.

Reference

M. Evans and J. Rosenthal (2010). Probability and Statistics. Freeman, 2nd ed.
W. Feller (1968). An Introduction to Probability Theory and Its Applications, V. 1, 3rd ed.
A.N. Kolmogorov (1956). Foundations of the Theory of Probability. 2nd ed.
S. Ross (2009). Introduction to Probability Models. Academic Press, 10th ed.
P. Whittle (2000). Probability via Expectation. Springer, 4th ed.

Evaluation

	Scheme#1	Scheme#2	date, time and location
Mid-term test	40%	30%	Thursday July 24, 6-8pm, location TBA
Final exam	60%	70%	TBA (3 hours)

Note: Final grade will be whichever the maximum between Schemes #1 and #2.

UNIVERSITY OF TORONTO

TIME SERIES ANALYSIS STA457H1 S

COURSE OUTLINE

INSTRUCTOR: JEN-WEN LIN, PH.D.

OFFICE HOURS/LOCATION: 0520--0600PM BEFORE CLASS, SS6025.

TA TUORIAL SESSION: TBD

CLASS TIME/PLACE: MONDAY AND WEDNESDAY 6-9 PM, SS 2118

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COURSE DESCRIPTION

This course provides an introduction to time series analysis with finance applications. The techniques 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), and multivariate time series analysis (transfer function model, co-integration, etc.), and State space model and Kalman filter.

WEIGHTING SCHEME

	Scheme
Midterm test	40%
Final exam	60%

TEXTBOOK

Shumway and Stoffer (2010), Time Series Analysis and Its Applications: With R Examples (Springer Texts in Statistics)

REFERENCE BOOKS

1. Brockwell and Davis (1991), *Time Series: Theory and Method*, Springer, Second edition.

2. Hamilton (1994), *Time Series Analysis*, Princeton University Press.

3. Hipel and McLeod (2005), *Time Series Modeling of Water Resources and Environmental Systems*, http://www.stats.uwo.ca/faculty/aim/1994Book/default.htm

4. Tsay (2010), *Analysis of Financial Time Series*, Wiley, Second edition.

5. Enders (2004), *Applided Econometric Time Series*, Wiley, Second edition.

6. Wei (2006), *Time Series Analysis: Univariate and Multivariate Methods*, Addison Wesley, Second edition.