STAT 3830  Times Series and Forecasting

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Time and Place: Mon. 12:30-14:20 WLB206, Fri. 9:30-10:20 AAB504.
Office Hours: Mon. 9:30-12:20 and Thu. 14:30-17:20 or by appointments.
Teaching Assistant: Zhao, Jingxin


Reference:


Prerequisite: STAT 2110 Regression Analysis
**Objective:** The subject aims at providing students with an understanding of the statistical methods for time series data whose order of observation is crucially important in depicting the background dynamics of the related social, economical, and/or scientific phenomena. The students will learn to use various time series models and techniques such as exponential smoothing, ARIMA, Karman Filter, etc., to model and make forecasts. Corresponding programming techniques to facilitate these practices will also be introduced within the platforms of MATLAB and SPLUS. Case studies will be provided to make the students acquainted with the elementary techniques.

**Subject Content in Outline**

- Application of Regression Model in Forecasting.
- Non-seasonal Series: Regression and Smoothing Methods.
- Seasonal Series: Regression and Smoothing Methods.
- Non-seasonal Stochastic Models.
- Seasonal ARIMA Model.
- Case Studies.

**Software:** MATLAB, SPLUS, R

**Homework:** Problems will be assigned at class meetings and will be due in class on Fridays of following weeks. No late homework will be accepted. Missed homework will receive a grade zero. The homework will be graded, and each assignment carries equal weight. Verbatim copying of homework is absolutely **forbidden**.

**Assessment:**

- Continuous Assessment (30%)
  - Assignments 15%
  - Case Project 15%
- Final Examination (70%)