ECON 350-01 Business Cycles and Forecasting

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Course Description

Business Cycles refer to the cyclical phenomenon of expansions and contractions in a macro economy. This course has three main objectives. First, we will study the macroeconomic reasons for the occurrence of business cycles with an assessment of past business cycles in the U.S. Second, we will focus on various economic indicators that can be used to measure economic performance, and understand how these indicators can help us to predict business cycles. Finally, we will examine several techniques that can be used for economic forecasting including time series analysis, non-econometric techniques, and regression models. In particular, we will emphasize how to: (a) model and estimate the underlying trends, seasonalities, and cycles in the data; (b) construct economic forecasts within the context of the business cycles; and (c) evaluate these forecasts.

Required Texts


WCB Mission Statement

“We educate students of business enabling them to improve organizations and society, consistent with the Jesuit tradition.”
Grading Policy

The final grade will be determined on the basis of several assignments (in-class or homework), two exams, and a term paper. The dates for the mid-term exam and the final exam, the submission dates for the final drafts of your paper, as well as a list of the reading assignments appears in the ‘Reading Schedule’ section below. The following weights will be applied to each category:

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problem Sets</td>
<td>25%</td>
</tr>
<tr>
<td>Mid-Term Exam</td>
<td>25%</td>
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<tr>
<td>Final Exam</td>
<td>25%</td>
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<tr>
<td>Term Paper</td>
<td>25%</td>
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The cumulative final letter grade will be based on the following scale:

- **A** ≥ 93%
- 93% > **A-** ≥ 90%
- 90% > **B+** ≥ 87%
- 87% > **B** ≥ 83%
- 83% > **B-** ≥ 80%
- 80% > **C+** ≥ 77%
- 77% > **C** ≥ 73%
- 73% > **C-** ≥ 70%
- 70% > **D+** ≥ 67%
- 67% > **D** ≥ 63%
- 63% > **D-** ≥ 60%
- 60% > **F**

In addition to the assigned text, I will provide some supplemental material throughout the course of the semester. We will use certain problems and exercises from the text to facilitate our understanding of the key concepts, and illustrate the application of certain forecasting techniques using the statistical software SAS. I have scheduled an introductory session to help familiarize you with SAS, and several other sessions to work together on assignments as well as your term paper (see the ‘Reading Schedule’ section for details). For specific examples, I will provide SAS programs with detailed notes that will help you to learn to read the SAS code and the interpret the corresponding output.

The term paper is a requirement for successful completion of the course. For the term paper, you need to analyze the time series for the composite Leading Economic Indicator series for the U.S. Your paper should explain the relevance, importance, and usefulness of the Leading Economic Indicator series for the business cycle. Specifically, you should characterize the
movements of this series with past recessionary and expansionary periods, and articulate the reason for any underlying patterns. The technical analysis should incorporate modeling of the underlying trend, seasonality, and cyclicality of the time series. You should also provide forecasts of the composite Leading Economic Indicator series over the short-term horizon (say, six months), and assess the implications for the U.S. economy over that horizon. The final version of your term paper is due on December 11, 2015. I expect the term paper to be about 20 pages (double spaced) excluding the bibliography and appendices.¹

You are welcome to send me emails, my email address is sen@xavier.edu. Kindly include your full name and course number in all correspondence. I would be happy to see you in person during the assigned office hours or by appointment. If you have difficulty or concerns with this course, you may contact Professor David Yi (Phone: 745-2933, Email: yid@xavier.edu, Office: 329 Smith Hall), Chair, Department of Economics, Williams College of Business.

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**WCB Learning Goals**

The learning goals and objectives for the Williams College of Business courses can be obtained from the following website: http://www.xavier.edu/williams/about/Learning-Goals-for-UG-and-MBA-Students.cfm.

Reading Schedule

**Week 1**: August 24, 26, 28  
Discuss Syllabus  
[Su] Chapter 1: Introduction  
[Su] Chapter 5: A Review of Macroeconomics

**Week 2**: August 31, September 2, 4  
[Su] Chapter 7: Economic Fluctuations and Business Cycles I

**Week 3**: September 7, 9, 11  
**September 7 - No Class**, Labour Day  
Introduction to SAS  
[Diebold] Chapter 4: Statistical Graphics for Forecasting

**Week 4**: September 14, 16, 18  
[Diebold] Chapter 5: Modelling and Forecasting Trend

**Week 5**: September 21, 23, 25  
[Diebold] Chapter 5: Modelling and Forecasting Trend (continued)

**Week 6**: September 28, 30, October 2  
[Diebold] Chapter 6: Modelling and Forecasting Seasonality

**Week 7**: October 5, 7, 9  
[Diebold] Chapter 6: Modelling and Forecasting Seasonality (continued)  
**October 9 - No Class**, Fall Break

**Week 8**: October 12, 14, 16  
[Diebold] Chapter 7: Characterizing Cycles  
**October 16 - Exam 1**
**Week 9**: October 19, 21, 23  
[Diebold] Chapter 7: Characterizing Cycles (continued)

**Week 10**: October 26, 28, 30  
[Diebold] Chapter 8: Modelling Cycles: MA, AR, and ARMA Models

**Week 11**: November 2, 4, 6  
[Diebold] Chapter 8: Modelling Cycles: MA, AR, and ARMA Models (continued)

**Week 12**: November 9, 11, 13  
[Diebold] Chapter 9: Forecasting Cycles

**Week 13**: November 16, 18, 20  
[Diebold] Chapter 10: Putting It All Together: A Forecasting Model with Trend, Seasonal, and Cyclical Components

**Week 14**: November 23, 25, 27  
[Diebold] Chapter 10: Putting It All Together: A Forecasting Model with Trend, Seasonal, and Cyclical Components (continued)

**November 25, 27 - No Classes**, Thanksgiving Break

**Week 15**: November 30, December 2, 4  
[Diebold] Chapter 12: Evaluating and Combining Forecasts

**Week 16**: December 7, 9, 11  
Forecasting the U.S. Business Cycle  
Final Exam Review and Course Evaluations

**Week 17**: December 16  
**Final Exam**, 12:00pm-1:50pm