Your learning is my primary concern in this course, so I may modify the schedule if, for instance, we discover we need to spend more time on a certain topic and less on another. So, you should know all the information given in this syllabus and check if the syllabus has been updated.

Description of the Course: Forecasts are basic inputs for many kinds of decisions in business and government organizations. This course is designed to equip students with the necessary skills to deal with time series data analysis that is critical to decision making.

Course Objectives:

- Equip students with the necessary skills to deal with time series data analysis that is critical to decision making.
- Develop practical skills necessary to produce forecasts and interpret, assess, and utilize forecasts produced by others.
- Emphasis is on the fundamental understanding and application of various forecasting methods with regard to analyzing and projecting future business and economic conditions.
- Develop computing skills. All practical forecasts will be done in R. R is an open source programming language and is widely used for data analysis.

Prerequisite:

Prerequisites include ECON 2110, ECON 2130, and ECON 3100.

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1 Both books have online format so you don’t need to buy them. Other materials would be available on the Canvas.

2 https://otexts.com/fpp2/

3 https://bookdown.org/ccolonescu/RPoE4/
Instructional methods

Education research shows that your learning is greatest when you are actively involved in making sense of new concepts (“constructing knowledge”) and when you do this in social settings. This model is technically called “social constructivism.” We will use this model throughout the course, so you can expect to

- Be engaged in plenty of classroom activities to build on the readings you have done for each class;
- Work in small groups during class and for those groups to change on a regular basis;
- Ask your instructor for clarifications, rather than expecting lectures.

I hope you find this an engaging and enjoyable approach to learning.

Evaluations

Homework Assignments, Exams and Grading

Assignments: (20% of your overall grade)

There will be assignments almost every week (starting from the 2nd week) except exam weeks. Assignments will account for 20% of your overall grade. They will be posted on Canvas. Assignments should be submitted online (submit a word processed exported as PDF file and/or Codes (*.R) files through Canvas – Note that Hand writing is not acceptable). You may discuss the assignments with your colleagues, but you should write your answers individually.

IMPORTANT! I will not let anyone do the homework late because they “didn’t know it was due.” Also, as we all know, computers are not 100% reliable. Therefore, you should NOT wait until the last minute to do your homework. I cannot be sympathetic to the excuses such that “I would have had my homework done but my internet went out”. If you do the homework in advance, then you can avoid such problems. If, however, you have a documented approved excuse, then your homework grade will be re-weighted.

** If you do the assignment and I see that you spend some time to study and try to implement what you have learned in the class (say your grade is more than 70%), don’t worry about the grade. I’ll give you the full grade for that assignment since what is important for me is you read the course materials and try to understand it properly.

Class Participation (15% of your overall grade)

Class participation is based on your attendance (5%) and your scores in a series of quizzes (10%). For your class participation grades, I will ask you to solve problems or participate in a series of quizzes. These are NOT announced in advance. Thus, class attendance is compulsory. You must participate in all the quizzes to prove your attendance.

To participate in the quizzes, you must at least have a laptop, tablet, iPad or any smartphone (Android or iOS) with browser and internet access. (You must bring your laptop for the programming part of the class.)
We use Kahoot platform for the quizzes which can be found at:
iOS: https://itunes.apple.com/us/app/kahoot!/id1131203560?mt=8
Website: https://kahoot.it

In the first lecture I’ll explain how to use Kahoot platform. You have to create an account using your full name to keep the record of your attendance and the score of your responses.

Exams: (50% of your overall grade)

There will be two midterms (I’ll drop the one with the lowest grade) and a comprehensive final exam. The mid-term exam (after dropping the lowest one) and the final exam account for 20% and 30% of your overall score, respectively.

All exams will be administered in strict observance of Seattle University’s Honor Code, without compromise or exception. Any violation of the University Honor Code will be reported to the Honor Code Council.

Exam dates:
1st Midterm: Thursday, May 2, 2019
2nd Midterm: Monday, May 30, 2019
Final Exam: Tuesday, June 11, 2019 (from 12:00PM to 01:50PM)

Group Project: (15% of your overall grade)

The group project is an important part of this class. It is an opportunity to use the tools you learn in this course to model an economics phenomenon of your choice. At the end of the first week (April 7), I will divide the class into groups of four or five students. Each group should submit a short (Max 2 pages) description of the project of their choice by the end of the second week (April 14). On May 23, each group will submit the complete first draft of the project that includes: abstract, introduction, literature review, description of data, empirical model, results and discussions, and conclusion. I will give you my comments and feedback by May 27, so you can revise your project. Submission of the final version of your group project is due to June 3rd. The group project accounts for 15% of your overall grade.

The instruction for group projects and some useful tips and resources will be uploaded on the Canvas at the end of the first week (April 7).

Grading Scale:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>A</td>
<td>93-100</td>
</tr>
<tr>
<td>A-</td>
<td>90-92</td>
</tr>
<tr>
<td>B+</td>
<td>87-89</td>
</tr>
<tr>
<td>B</td>
<td>83-86</td>
</tr>
<tr>
<td>C+</td>
<td>77-79</td>
</tr>
<tr>
<td>C</td>
<td>73-76</td>
</tr>
<tr>
<td>D+</td>
<td>67-69</td>
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<tr>
<td>D</td>
<td>63-66</td>
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<tr>
<td>D-</td>
<td>60-62</td>
</tr>
<tr>
<td>F</td>
<td>0-59</td>
</tr>
</tbody>
</table>
**Statistical Software:**

We mainly use R\(^4\) which is a free (open resource) statistical programming language available for Windows, Mac, and Linux.

**Lectures and Laptop Policy:**

You will need to bring your own laptop. *If you cannot bring your own laptop and you need to use Albers laptops please let me know as soon as possible.*

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**Academic Resources:**

My goal is to create a learning environment in which you can be incredibly successful. I will work hard to create and improve the learning environment throughout the quarter based on my own observations of the course and your feedback on what would help you learn more. In return, I ask and encourage you to make the most of this learning opportunity. Please take advantage of the academic support services available to you at the university. Even if you have had excellent study skills in the past, it is easy to slip into suboptimal habits and these services can help you excel in your studies.

**LIBRARY AND LEARNING COMMONS\(^5\)**

**WRITING CENTER**

The Writing Center employs undergraduate writing consultants who assist students at all stages of the writing process. Consultants will help students begin writing tasks, organize and develop first drafts, and revise and edit later drafts. To schedule an appointment, call 206-296-6239.

**LEARNING ASSISTANCE PROGRAMS**

Learning Assistance Programs provide peer tutoring, facilitated study groups, and learning strategy development through scheduled workshops and individual meetings with a learning specialist. To schedule an appointment, call 206-398-4450.

**MATH LAB**

The Math Lab is a drop-in service available to students enrolled in lower division mathematics courses. Students can stop by the lab to work with a tutor who will assist them with their particular mathematics assignments. Visit us on the 2nd floor.

**RESEARCH SERVICES**

Research Services are available to students at any stage in the research process. Students can receive help in person, by chat, phone, or email, or by scheduling a research consultation. To learn more, or for immediate assistance, call 206-296-6230.

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\(^4\) [https://www.r-project.org/](https://www.r-project.org/)

\(^5\) [http://www.seattleu.edu/learningcommons/](http://www.seattleu.edu/learningcommons/)
**MEDIA PRODUCTION CENTER**

Lemieux Library's Media Production Center, located on the first floor of the library, offers the tools, training, and space for students, clubs, faculty, and staff to create their own original multimedia productions.

**Academic Integrity Policy:**

Seattle University is committed to the principle that academic honesty and integrity are important values in the educational process. Academic dishonesty in any form is a serious offense against the academic community. Acts of academic dishonesty will be addressed according to the Seattle University Academic Honesty Policy. The policy can be found at the address below:

[https://www.seattleu.edu/academic-integrity/resources-for-students/](https://www.seattleu.edu/academic-integrity/resources-for-students/)

If you are not sure whether a particular action is acceptable according to the Academic Honesty Policy, you should check with your instructor before engaging in it.

**Resources for Disability**

If you have, or think you may have, a disability (including an ‘invisible disability’ such as a learning disability, a chronic health problem, or a mental health condition) that interferes with your performance as a student in this class, you are encouraged to arrange support services and/or accommodations through Disabilities Services staff in the Learning Center, Loyola 100, (206) 296-5740. Disability-based adjustments to course expectations can be arranged only through this process.

**Policy for Missed Classes and Exams:**

**Class:** If you expect to be absent or to be late, please e-mail me beforehand (or as soon as possible). If for any reason you do miss a class, be sure to obtain notes from one of your peers to catch up. If, after going over those notes and checking the readings for the class, you still have questions, please arrange to meet me during office hours to discuss. Remember to bring those notes with you so that we can work on your specific, focused questions.

**Exam:** There will not be any make-up midterm exams*. Anyone who missed an exam without being excused will get a score of zero for that exam. The only acceptable reasons for missing an exam are serious illness and family emergency. To be excused, you need to get your reason for missing the exam approved either by the Dean of Student’s Office (for family emergency) or Health Center (for physical illness). If you have appropriately approved excused absence from an exam, then I will either give you a make-up exam or weigh your other exams more heavily, depending on the circumstances and my best judgment.

**ACADEMIC POLICIES ON THE REGISTRAR WEBSITE**

Be sure that you understand the following university academic policies, posted on the Registrar’s website:

- ACADEMIC INTEGRITY POLICY
- ACADEMIC GRADING GRIEVANCE POLICY
- PROFESSIONAL CONDUCT POLICY

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* [https://www.seattleu.edu/redhawk-axis/academic-policies/](https://www.seattleu.edu/redhawk-axis/academic-policies/)
Hints for a Successful Quarter: It is almost common to hear students say “I understand everything you say in class, so I know the material. Why did I get such a bad grade on the exam?” The answer is simple; the class objective is for you to learn how to solve quantitative methods problems, not to understand someone else’s solution. Quantitative problems almost always sound simple when someone who understands it explains it to you – the key is to be able to explain it on your own and practice.

Course Outline

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Lecture</td>
<td>Syllabus</td>
</tr>
<tr>
<td>1st - 2th Weeks</td>
<td>Introduction to R and review of linear regression model</td>
</tr>
<tr>
<td>3rd – 4th Weeks</td>
<td>Statistics and Time Series</td>
</tr>
<tr>
<td>May 2, 2019</td>
<td>1st Midterm Exam</td>
</tr>
<tr>
<td>5th – 8th Weeks</td>
<td>Forecasting with</td>
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<td></td>
<td>• Regression</td>
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<tr>
<td></td>
<td>• Moving Average (MA) processes</td>
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<tr>
<td></td>
<td>• Autoregressive (AR) models</td>
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<td></td>
<td>• Assessment of forecasts</td>
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<td></td>
<td>• Deterministic and stochastic trends</td>
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<tr>
<td>May 30, 2019</td>
<td>2nd Midterm Exam</td>
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<tr>
<td>9th Week</td>
<td>• Vector Autoregression (VAR)</td>
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<tr>
<td>June 11, 2019 (12:00PM-01:50PM)</td>
<td>Final Exam</td>
</tr>
</tbody>
</table>