

## *MS ECON 59000 – Economic Forecasting*

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### **Instructor**

Mohitosh Kejriwal  
Office: KRAN 371  
Online Live Work Sessions: Wednesdays, 4:00-4:30 PM  
Online Office Hours: Wednesdays, 4:30-5:30 PM  
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### **TA**

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### **Course Description**

This course provides an introduction to forecasting methods of current interest in economics. The goal is to equip students with a working knowledge of state-of-the-art techniques that are useful for forecasting macroeconomic variables. The strengths and weaknesses of the techniques will be analyzed and their empirical relevance will be demonstrated through a variety of applications to real data sets. The topics will include univariate prediction models, vector autoregressions, forecasting with large data sets, forecast combinations and forecast evaluation. Particular emphasis will be placed on applications and the issues involved with implementation of the various methods in practice.

### **Course Outcomes**

By the end of the course, students will be able to:

- identify the statistical issues involved in forecasting economic data.
- analyze the strengths and weaknesses of a variety of forecasting techniques commonly used in economics.
- demonstrate the empirical relevance of each forecasting approach through applications to real-world data sets.

### **Technical Requirements**

The following information has been provided to assist you in preparing to use technology successfully.

- Reliable internet connection - capable of consistently streaming video and stable enough to finish short quizzes without dropping connection.
- Headset/Microphone (for synchronous sessions)
- Zoom
- Word Processing Software (such as Microsoft Office)
- EViews Software: The required software for the course is EViews, a statistical package that offers an extensive library of procedures for analyzing time series data. The projects for the course should be completed using EViews. To access the full version of EViews 12, please visit <https://goremote.itap.purdue.edu/>. Enter your Purdue career account credentials and select the software from the list of applications. You may also check <https://www.eviews.com/EViews12/EViews12Univ/evuniv12.html> to purchase EViews 12 University Edition or freely download the Student Lite Version. Tutorials that cover the basics of EViews are available at <https://www.eviews.com/Learning/basics.html>. The weekly Zoom sessions will be partly used to demonstrate how to implement the various statistical procedures in EViews 12. Further

assistance regarding EViews is available by contacting the course TA, Linh Nguyen at [nguye535@purdue.edu](mailto:nguye535@purdue.edu).

## Learning Resources & Texts

### Required Textbooks:

- Applied Economic Forecasting Using Time Series Methods by Eric Ghysels and Massimiliano Marcellino. Available in the Purdue Libraries online and [Amazon](#). You are not required to purchase the book. You may use the Purdue Libraries link which will be posted in Brightspace.
- Forecasting for Economics and Business (The Pearson Series in Economics) 1st Edition by Gloria Gonzalez-Rivera. Available in the Purdue Libraries online and [Amazon](#). You are not required to purchase the book. You may use the Purdue Libraries link which will be posted in Brightspace.
- Other Web Resources:
  1. OECD Economic Outlook: <https://www.oecd.org/economic-outlook/september-2022/>
  2. World Economic Outlook (IMF): <https://www.imf.org/en/Publications/WEO>
  3. Survey of Professional Forecasters (Philadelphia Fed): <https://www.philadelphiafed.org/surveys-and-data/real-time-data-research/survey-of-professional-forecasters>
  4. Federal Open Market Committee (FOMC) Projections: <https://www.federalreserve.gov/monetarypolicy/fomcproptabl20220921.htm>
  5. European Central Bank (ECB) Survey of Professional Forecasters: [https://www.ecb.europa.eu/stats/ecb\\_surveys/survey\\_of\\_professional\\_forecasters/html/index\\_en.html](https://www.ecb.europa.eu/stats/ecb_surveys/survey_of_professional_forecasters/html/index_en.html)

## Instructor's Online Hours

I will be available and respond to student questions as soon as I am available (generally 48) hours during the Monday-Friday work week. Student inquiries made during the weekend may experience a delayed response time. When emailing me, please place the course number in the subject line of the email. This will help me tremendously in locating your emails quicker.

## Virtual Work Sessions

In each module, I will be offering at least one synchronous live session through Zoom. Students are encouraged to enroll live and participate in the activity with their colleagues. For those students who are not able to attend, the sessions will be recorded and be available in Brightspace later. As this is primarily an asynchronous course, these synchronous sessions are approximately 30 minutes per week.

## Virtual Office Hours

Virtual Office Hours are a synchronous session (through Zoom) to discuss questions related to the course content. My virtual offices hours will be approximately one (1) hour, immediately following the Virtual Work Sessions discussed above. You may also schedule a 1:1 session with me individually by appointment.

## Assignments

You will have six quizzes and two group projects throughout the semester. Details on these assignments will be posted on Brightspace. The due dates for the assignments posted on the course website are in Eastern Standard Time (the local time zone of West Lafayette, Indiana).

<b>Quizzes (6)</b>	<b>30%</b>
<b>Project 1</b>	<b>30%</b>
<b>Project 2</b>	<b>40%</b>
<b>Total</b>	<b>100</b>

## Krannert Grading Policy

The target grade distribution for all *core courses* is 35-40% A/A-, 50-55% B+/B's, 5-10% B-'s, 0-5% C+ or below resulting in approximately an average Grade Point Average (GPA) of 3.35 for each core course where the GPA is calculated as A = 4, A- = 3.70, B+ = 3.30, B = 3.00, B- = 2.70, C+ = 2.30, C = 2.00, C- = 1.70, D = 1.00 and F = 0.00.

## Participation and Assignment policies

No late work will be accepted in this course.

## Netiquette

You are encouraged to comment, question, or critique ideas. However, be mindful that sarcasm and humor can be easily misconstrued in online interactions. Please read the Netiquette rules for this course:

- Give other students the opportunity to join in the discussion.
- Present ideas appropriately.
- Be cautious in using Internet language. For example, do not capitalize all letters since this suggests shouting.
- Avoid using vernacular and/or slang language. This could possibly lead to misinterpretation.
- Keep an "open-mind" and be willing to express even your minority opinion.
- Think and edit before you share (e.g., post or email).
- Ask for feedback.

## Course Evaluation

During the last two weeks of the course, you will be provided with an opportunity to evaluate this course and your instructor. Purdue now uses an online course evaluation system. You will receive an official email from evaluation administrators with a link to the online evaluation site. You will have up to two weeks to complete this evaluation. Your participation is an integral part of this course, and your feedback is vital to improving education at Purdue University. I strongly urge you to participate in the evaluation system.

## Academic Dishonesty

Purdue prohibits "dishonesty in connection with any University activity. Cheating, plagiarism, or knowingly furnishing false information to the University are examples of dishonesty." [Part 5, Section III-B-2-a, University Regulations] Furthermore, the University Senate has stipulated that "the commitment of acts of cheating, lying, and deceit in any of their diverse forms (such as the use of substitutes for taking examinations, the use of illegal cribs, plagiarism, and copying during examinations) is dishonest and must not be tolerated. Moreover, knowingly to aid and abet, directly or indirectly, other parties in committing dishonest acts is in itself dishonest." [University Senate Document 72-18, December 15, 1972]

## Emergency Statement

In the event of a major campus emergency, course requirements, deadlines and grading percentages are subject to changes that may be necessitated by a revised semester calendar or other circumstances beyond the instructor's control. Relevant changes to this course will be posted onto the course website or can be

obtained by contacting the instructors or TAs via email or phone. You are expected to read your @purdue.edu email on a frequent basis.

## Disability Statement

Students with disabilities must be registered with Disability Resource Center in the Office of the Dean of Students before classroom accommodations can be provided. If you are eligible for academic accommodations because you have a documented disability that will impact your work in this class, please schedule an appointment with me as soon as possible to discuss your needs.

## Nondiscrimination

Purdue University is committed to maintaining a community which recognizes and values the inherent worth and dignity of every person; fosters tolerance, sensitivity, understanding, and mutual respect among its members; and encourages each individual to strive to reach his or her own potential. In pursuit of its goal of academic excellence, the University seeks to develop and nurture diversity. Purdue University prohibits discrimination against any member of the University community on the basis of race, religion, color, sex, age, national origin or ancestry, genetic information, marital status, parental status, sexual orientation, gender identity and expression, disability, or status as a veteran. Any student who believes they have been discriminated against may visit [www.purdue.edu/report-hate](http://www.purdue.edu/report-hate) to submit a complaint to the Office of Institutional Equity. Information may be reported anonymously.

## Academic Guidance in the Event a Student is Quarantined/Isolated

If you become quarantined or isolated at any point in time during the semester you will have access to an Academic Case Manager who can provide you academic support. Your Academic Case Manager can be reached at [acmq@purdue.edu](mailto:acmq@purdue.edu) and will provide you with general guidelines/resources around communicating with your instructors, be available for academic support, and offer suggestions for how to be successful when learning remotely. Importantly, if you find yourself too sick to progress in the course, notify your academic case manager and notify me via email or Brightspace. We will make arrangements based on your particular situation. The Office of the Dean of Students ([odos@purdue.edu](mailto:odos@purdue.edu)) is also available to support you should this situation occur.

## Course Schedule

**Readings [GGR = Gloria Gonzalez-Riviera (2013), GM = Ghysels and Marcellino (2018)]**

Note: This schedule is subject to change; a new schedule will be posted if changes occur.

MODULE	TOPIC, READINGS, VIDEOS	ASSIGNMENTS
1 Jan 9- Jan 15	<i>Introduction: Key Concepts and Examples</i> Read/Watch <ul style="list-style-type: none"><li>GGR: 1 .1-1.4, 4.1-4.3</li><li>Review Article: "Forecasting in Economics and Finance" (by Elliott and Timmermann, <i>The Annual Review of Economics</i>, 2016), <a href="https://www.annualreviews.org/doi/pdf/10.1146/annurev-economics-080315-015346">https://www.annualreviews.org/doi/pdf/10.1146/annurev-economics-080315-015346</a></li></ul> Participate Wednesday, January 11, 4:00 PM EST <ul style="list-style-type: none"><li>Key Concepts and Examples</li></ul>	Available: <ul style="list-style-type: none"><li>Quiz 1 available Monday, January 9, 11:59 PM EST</li></ul> Complete: <ul style="list-style-type: none"><li>No assignments due this week</li></ul>
2	<i>Review of the Linear Regression Model</i> Read/Watch	Available:

Jan 16- Jan 22	<ul style="list-style-type: none"> <li>GGR: 2.1-2.4</li> </ul> Participate Wednesday, January 18, 4:00 PM EST <ul style="list-style-type: none"> <li>Review of the Linear Regression Model</li> </ul>	<ul style="list-style-type: none"> <li>Quiz 2 available Monday, January 16, 11:59 PM EST</li> </ul> Complete: <ul style="list-style-type: none"> <li>Quiz 1 due Thursday, January 19, 11:59 PM EST</li> </ul>
3  Jan 23- Jan 29	<i>Univariate Prediction Models</i> Read/Watch <ul style="list-style-type: none"> <li>GM: 5.1-5.9, 5.13-5.15</li> </ul> Participate Wednesday, January 25, 4:00 PM EST <ul style="list-style-type: none"> <li>Univariate Prediction Models</li> </ul>	Available: <ul style="list-style-type: none"> <li>Quiz 3 available Monday, January 23, 11:59 PM EST</li> <li>Project 1 available Thursday, January 26, 11:59 PM EST</li> </ul> Complete: <ul style="list-style-type: none"> <li>Quiz 2 due Thursday, January 26, 11:59 PM EST</li> </ul>
4  Jan 30- Feb 5	<i>Vector Autoregressions</i> Read/Watch <ul style="list-style-type: none"> <li>GM: 6.1-6.11</li> </ul> Participate Wednesday, February 1, 4:00 PM EST <ul style="list-style-type: none"> <li>Vector Autoregressions</li> </ul>	Available: <ul style="list-style-type: none"> <li>Quiz 4 available Monday, January 30, 11:59 PM EST</li> </ul> Complete: <ul style="list-style-type: none"> <li>Quiz 3 due Thursday, February 2, 11:59 PM EST</li> <li>Project 1 due Sunday, February 5, 11:59 PM EST</li> </ul>
5  Feb 6- Feb 12	<i>Forecasting with Large Data Sets</i> Read/Watch <ul style="list-style-type: none"> <li>GM: 13.1-13.3, 13.6-13.7</li> <li>Review Article: "How is machine learning useful for macroeconomic forecasting" (by Coulombe et al., <i>Journal of Applied Econometrics</i>, 2022), <a href="https://onlinelibrary.wiley.com/doi/full/10.1002/jae.2910">https://onlinelibrary.wiley.com/doi/full/10.1002/jae.2910</a></li> </ul> Participate Wednesday, February 8, 4:00 PM EST <ul style="list-style-type: none"> <li>Forecasting with Large Data Sets</li> </ul>	Available: <ul style="list-style-type: none"> <li>Quiz 5 available Monday, February 6, 11:59 PM EST</li> </ul> Complete: <ul style="list-style-type: none"> <li>Quiz 4 due Thursday, February 9, 11:59 PM EST</li> </ul>
6  Feb 13- Feb 19	<i>Forecast Combinations</i> Read/Watch <ul style="list-style-type: none"> <li>GGR: 9.3</li> <li>GM: 4.6</li> <li>Review Article: "Forecast combinations, an over 50-year review" (by Wang et al., Working Paper, 2022), <a href="https://arxiv.org/pdf/2205.04216.pdf">https://arxiv.org/pdf/2205.04216.pdf</a></li> </ul> Participate Wednesday, February 15, 4:00 PM EST <ul style="list-style-type: none"> <li>Forecast Combinations</li> </ul>	Available: <ul style="list-style-type: none"> <li>Quiz 6 available Monday, February 13, 11:59 PM EST</li> <li>Project 2 available Thursday, February 16, 11:59 PM EST</li> </ul> Complete: <ul style="list-style-type: none"> <li>Quiz 5 due Thursday, February 16, 11:59 PM EST</li> </ul>
7  Feb 20- Feb 26	<i>Forecast Evaluation</i> Read/Watch <ul style="list-style-type: none"> <li>GGR: 9.1-9.2</li> <li>GM: 4.1-4.5, 4.7-4.1</li> </ul>	Complete: <ul style="list-style-type: none"> <li>Quiz 6 due Thursday, February 23, 11:59 PM EST</li> <li>Project 2 due Sunday, February 26, 11:59 PM EST</li> </ul>

- Review Article: “Evaluating macroeconomic forecasts: a concise review of some recent developments” (by Franses et al., *Journal of Economic Surveys*, 2014),  
<https://onlinelibrary.wiley.com/doi/epdf/10.1111/joes.12000>

Participate Wednesday, February 21, 4:00 PM EST

- Forecast Evaluation