

**University of Wyoming; College of Business  
Department of Economics**

**ECON 4115/5115  
Time Series Analysis & Forecasting  
Fall 2020**

**Instructor:** David Aadland

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**Class Homepage:** <https://www.aadecon.com/classes/econ4115/>

**Course Description:** Designed to have an applied orientation in a number of estimation procedures, such as exponential smoothing and forecasting with and without the presence of trends and seasonal repetitive patterns. The Box-Jenkins procedure will be covered in detail. Students become proficient in the application of statistical tools used in time series analysis of economic data.

**Course Prerequisites:** STAT 3050 or equivalent; STAT 4015/5015 recommended.

**Primary Texts:** *Forecasting: Principles and Practice* by Rob J Hyndman and George Athanasopoulos (3<sup>rd</sup> edition; free online <https://otexts.com/fpp3/>)

**Course Requirements:**

- Computer Software Packages. We will use R throughout the course.
- Examination. There will be one closed-book, in-class exam approximately 2/3 of the way through the semester.
- Problem Sets. There will be a total of five problem sets, which will be made available on our class webpage. The due date will be clearly printed at the top of each assignment. No late assignments will be accepted. Collaborative work is fine; however, each student is required to write up their own answers.
- Research Project. Each student is required to write a short research paper. Additional information about the research project is available on our class website.
- Graduate Student Expectations for ECON 5115. Each problem set will have one additional challenge question that must be answered by graduate students. For the research project, graduate students must include 1) a more thorough literature review with a minimum of five citations and 2) an econometric analysis to contrast with the time series forecasting model.

**Grading:** Examinations, problem sets and the research project will be weighted as follows:

5 Problem Sets	(100 pts)	33%
Exam	(100 pts)	33%
Research Paper	(100 pts)	33%
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	(300 pts)	100%

A score of 90% or above guarantees an A; a score between 80-89 guarantees and B; a score of 70-79 guarantees a score of C; etc.

**Attendance Policy:** Regular attendance is expected.

**Academic Dishonesty Policy:**

UNIREG 802, Revision 2, defines academic dishonesty as “an act attempted or performed which misrepresents one’s involvement in an academic task in any way, or permits another student to misrepresent the latter’s involvement by assisting the misrepresentation.” Academic dishonesty will not be tolerated in this class; any instances will be referred to the university’s established procedure for judging such cases, with severe penalties as found appropriate.

**Disclaimer:**

Subsequent changes may be made to any aspect or detail of this Syllabus if and when necessary. Any changes will be announced in class as soon as practical.

**Course Outline (tentative schedule; chapters are from *Forecasting: Principles and Practice*):**

- Chapter 1. Getting Started
- Chapter 2. Time Series Graphics
- Chapter 3. Time Series Decomposition
- Chapter 4. Time Series Features
- Chapter 5. The Forecaster’s Toolbox
- Chapter 6. Judgmental Forecasts
- Chapter 7. Time Series Regression Models
- Chapter 8. Exponential Smoothing
- Chapter 9. ARIMA Models
- Chapter 10. Dynamic Regression Models

**COVID-19 Policies** – during this pandemic, you must abide by all UW policies and public health rules put forward by the City of Laramie (or by Natrona County if at UW-Casper), the University of Wyoming and the State of Wyoming to promote the health and well-being of fellow students and your own personal self-care. The current policy is provided for review at: <https://www.uwyo.edu/alerts/campus-return/index.html>

As with other disruptive behaviors, we have the right to dismiss you from the classroom (Zoom and physical), or other class activities if you fail to abide by these COVID-19 policies. These behaviors will be referred to the Dean of Students Office using the UWYO Cares Reporting Form for Student Code of Conduct processes ([https://cm.maxient.com/reportingform.php?UnivofWyoming&layout\\_id=5](https://cm.maxient.com/reportingform.php?UnivofWyoming&layout_id=5)).

**Syllabus Changes:** I will alert you to any possible course format changes in response to UW decisions about community safety during the semester.

**HyFlex, Zoom, and WyoCourses expectations:**

As with all UW coursework, this course will be educational and useful to you. I will respond to questions, concerns, and feedback in a timely manner.

Your responsibilities:

- Give and receive feedback from me and your classmates respectfully and constructively in all interactions. This includes in Zoom chats, on WyoCourses boards, and within physical classroom spaces.
- Actively engage in civil discourse in a respectful manner. Use professional language in all course related forums.
- Communicate professionally. Whenever you send class-related email or messages, please include a clear, specific subject line and use the body of the email or message to explain the purpose for the email and any attached materials. Conduct yourself professionally.
- Meet assignment deadlines. We expect that you're interacting with course material multiple times during the week.
- Ask for help when you need it. For academic assistance for this course please contact me for available resources. For Dean of Students assistance please see: <https://www.uwyo.edu/dos/student-resources/covid-19-student-resources.html>
- Please let us know if you notice another student who needs help in our (anonymous) WyoCares referral option (<https://www.uwyo.edu/dos/students-concern/index.html>).

**Information Technology (IT):** If you have any IT related challenges, please contact the UWIT Service Center:

<https://uwyo.teamdynamix.com/TDClient/1940/Portal/Requests/ServiceDet?ID=8890>