Course Syllabus

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Course Logistics and Instructor Contact Information

Course Title: Business Forecasting
Course Number and Section: FINA 4357.001
Scheduled Class Days and Times: Tuesdays and Thursdays: 2 - 3:20 pm

Instructor Name: Vivek Pandey
Office Location: SCOB 350.01
Phone Number: 903 566 7224
Email: vpandey@uttyler.edu
Best way to contact: Email

Office Hours: Mondays and Wednesdays: 2-4 pm. Other times by appointment

Course Information

NOTE: THIS COURSE ONLY USES OPEN EDUCATIONAL RESOURCES WHICH ARE AVALIABLE TO STUDENTS AT NO COST

REQUIRED TEXT: Forecasting: Principles and Practice, 2nd Edition, By Rob J Hyndman and George Athanasoupoulos, Monash University, Australia. An electronic version of the textbook is available free of charge at **https://otexts.com/fpp2/** ➦ **(https://otexts.com/fpp2/)** Additionally, if you would like a printed copy, you can purchase one from Amazon.com. To be clear, a printed copy of the book is not required for this class, you should only buy it if you feel that online access to the free e-book will be insufficient for your needs.

REQUIRED ACCESSORIES: The statistical software we will use in this class is *R,* freely available from **https://www.r-project.org/** ➦ **(https://www.r-project.org/)** and *R-Studio*, also available for free at **https://www.rstudio.com** ➦ **(https://www.rstudio.com)** . We will also use **Datacamp** ➦ **(http://www.datacamp.com)** to access online courses for learning the essentials of R and forecasting with R. This resource is provided free of charge for students in this course in conjunction with Datacamp for Classroom initiative.

COURSE DESCRIPTION: This course is dedicated to teaching students tools in econometrics that are especially useful in forecasting time series data, such as stock values, future energy prices, unemployment rate, GDP, etc.

 LEARNING OBJECTIVES: Upon completion of this course, the student will learn the essentials of and demonstrate proficiency in:

- Graphical examination and visualization of time series data
- Decomposition of Times Series into trend, seasonal, cyclical, and irregular components
- Analyzing and forecasting the dynamics of business and economic data
- Evaluation of the forecasting accuracy for competing forecasting methods
- Using statistical analysis software (*R* and *R-Studio*) for data analysis and forecasts
- Making subjective forecast adjustments based on new information

Date Week / Date	Ch.	Topic
Jan 11, 13	1	**Getting Started – Introduction to Forecasting**
Jan 17		***Celebrate Martin Luther King Day***
Jan 18		*Self-introduction due on Discussion Board*
Jan 18, 20	2	**Time Series Graphics**
Jan 25		~~Practical Exercise: Running company/stock filters in EIKON~~ Lab Exercise for importing and merging data in R
Jan 27 Feb ~~2~~ 9	3	**The Forecaster's Toolbox**
~~Feb 1~~		~~*Practical Assignment 1 due*~~
Feb 3		*Datacamp Assignment 1 due: Intro to R for Finance*
Feb ~~3~~ 22		Review for Exam 1
Feb ~~8~~ 24		**Exam 1**

~~Feb 10~~ Mar 1		~~Lab Exercise for importing and merging data in R~~ Practical Exercise: Running company/stock filters in EIKON
Feb 15, 17	4	**Judgemental Forecasts**
~~Feb 17~~ Mar 3		*Practical Assignment 1 due*
Feb 22		*Datacamp Assignment 2 due: Data Visualization in R*
~~Feb 22~~ Mar 3		Lab Exercise for obtaining financial markets data and optimizing portfolios
~~Feb 24,~~ Mar ~~1, 3~~ 14, 17, 22	5	**Time Series Regression Models**
Mar 7-12		***Spring Break, Aloha!***
Mar 17		Practical Exercise: Forecasting stock returns using the market model
Mar ~~17, 22,~~ 24, 29	7	**Exponential Smoothing**
Mar ~~22~~ 29		*Practical Assignment 2 due*
Mar 24		*Datacamp Assignment 3 due: Time Series Analysis in R*
Mar 28		***Last day to withdraw from this course***
Mar ~~29~~ 31		Review for Exam 2
~~Mar 31~~ Apr 5		# Exam 2
Apr ~~5,~~ 7, 12	8	**ARIMA Models**
Apr ~~7~~ 12		*Datacamp Assignment 4 due: ARIMA models in R*

Apr 12		Practical Exercise: Fitting and evaluating various time series models
Apr ~~14~~ 19		Lab Exercise for non-seasonal ARIMA model
Apr 19		*Practical Assignment 3 due*
Apr 19	12	**Some Practical Forecasting Issues**
Apr 21		Datacamp Assignment 5 due: Forecasting in R
Apr 21		Review for exam 3
Apr 26		**Exam 3**

NOTE: This class schedule is subject to revisions by the instructor if it is deemed necessary as a responsive action to class progress and time constraints.

[Student Resources (https://uttyler.instructure.com/courses/28552/pages/student-resources)](https://uttyler.instructure.com/courses/28552/pages/student-resources)

[University Policies and Information (https://uttyler.instructure.com/courses/28552/pages/university-policies-and-information)](https://uttyler.instructure.com/courses/28552/pages/university-policies-and-information)

Course Summary:

Date	Details	Due
Tue Jan 11, 2022	📅 **[FINA-4357 (2022-SPRING) 001 (https://uttyler.instructure.com/calendar?event_id=135676&include_contexts=course_28552)](https://uttyler.instructure.com/calendar?event_id=135676&include_contexts=course_28552)**	2pm to 3:30pm
Thu Jan 13, 2022	📅 **[FINA-4357 (2022-SPRING) 001 (https://uttyler.instructure.com/calendar?event_id=135677&include_contexts=course_28552)](https://uttyler.instructure.com/calendar?event_id=135677&include_contexts=course_28552)**	2pm to 3:30pm

Date	Details	Due
Tue Jan 18, 2022	📅 **FINA-4357 (2022-SPRING) 001** (https://uttyler.instructure.com/calendar?event_id=135678&include_contexts=course_28552)	2pm to 3:30pm
	💬 **Discussion: Introduce Yourself - Due by Jan 18** (https://uttyler.instructure.com/courses/28552/assignments/556246)	due by 11:59pm
Thu Jan 20, 2022	📅 **FINA-4357 (2022-SPRING) 001** (https://uttyler.instructure.com/calendar?event_id=135679&include_contexts=course_28552)	2pm to 3:30pm
Tue Jan 25, 2022	📅 **FINA-4357 (2022-SPRING) 001** (https://uttyler.instructure.com/calendar?event_id=135680&include_contexts=course_28552)	2pm to 3:30pm
	📅 **FINA-4357 (2021-FALL) 001** (https://uttyler.instructure.com/calendar?event_id=130180&include_contexts=course_28552)	3:30pm to 4:45pm
Wed Jan 26, 2022	📅 **FINA-4357 (2022-SPRING) 001** (https://uttyler.instructure.com/calendar?event_id=137974&include_contexts=course_28552)	2:20pm to 3:20pm
Thu Jan 27, 2022	📅 **FINA-4357 (2022-SPRING) 001** (https://uttyler.instructure.com/calendar?event_id=135681&include_contexts=course_28552)	2pm to 3:30pm
Tue Feb 1, 2022	📅 **FINA-4357 (2022-SPRING) 001** (https://uttyler.instructure.com/calendar?event_id=135682&include_contexts=course_28552)	2pm to 3:30pm
Thu Feb 3, 2022	📅 **FINA-4357 (2022-SPRING) 001** (https://uttyler.instructure.com/calendar?event_id=135683&include_contexts=course_28552)	2pm to 3:30pm
	📝 **Datacamp Assignment 1: Introduction to R for Finance (due by 11:59 pm, Feb 3)** (https://uttyler.instructure.com/courses/28552/assignments/556247)	due by 11:59pm

Date	Details	Due
Tue Feb 8, 2022	📅 **FINA-4357 (2022-SPRING) 001** **(https://uttyler.instructure.com/calendar?** **event_id=135684&include_contexts=course_28552)**	2pm to 3:30pm
	📝 **Exam 1** **(https://uttyler.instructure.com/courses/28552/assignments/556252)**	due by 3:20pm
Thu Feb 10, 2022	📅 **FINA-4357 (2022-SPRING) 001** **(https://uttyler.instructure.com/calendar?** **event_id=135685&include_contexts=course_28552)**	2pm to 3:30pm
Tue Feb 15, 2022	📅 **FINA-4357 (2022-SPRING) 001** **(https://uttyler.instructure.com/calendar?** **event_id=135686&include_contexts=course_28552)**	2pm to 3:30pm
Thu Feb 17, 2022	📅 **FINA-4357 (2022-SPRING) 001** **(https://uttyler.instructure.com/calendar?** **event_id=135687&include_contexts=course_28552)**	2pm to 3:30pm
Tue Feb 22, 2022	📝 **Datacamp Assignment 2: Data Visualization in R (due by 11:59 pm, Feb 22)** **(https://uttyler.instructure.com/courses/28552/assignments/556248)**	due by 11:59pm
Thu Mar 3, 2022	📝 **Submission Portal for Practical Assignment 1 - Running company/stock filters on EIKON (due by Mar 3)** **(https://uttyler.instructure.com/courses/28552/assignments/556261)**	due by 11:59pm
Tue Mar 15, 2022	📅 **FINA-4357 (2022-SPRING) 001** **(https://uttyler.instructure.com/calendar?** **event_id=140711&include_contexts=course_28552)**	2pm to 3pm
	📅 **FINA-4357 (2021-FALL) 001** **(https://uttyler.instructure.com/calendar?** **event_id=130181&include_contexts=course_28552)**	3:30pm to 5pm

Date	Details	Due
Thu Mar 17, 2022	🗓 **FINA-4357 (2022-SPRING) 001** **(https://uttyler.instructure.com/calendar?** **event_id=140779&include_contexts=course_28552)**	2pm to 3pm
	🗓 **FINA-4357 (2021-FALL) 001** **(https://uttyler.instructure.com/calendar?** **event_id=130182&include_contexts=course_28552)**	3:30pm to 5pm
Thu Mar 24, 2022	📝 **Datacamp Assignment 3: Time** **Series Analysis in R ((due by 11:59** **pm, Mar 24)** **(https://uttyler.instructure.com/courses/28552/assignments/556249)**	due by 11:59pm
Tue Mar 29, 2022	📝 **Submission Portal for** **Practical Assignment 2 - Stock** **Returns prediction using Market** **Model (due by Mar 29)** **(https://uttyler.instructure.com/courses/28552/assignments/556262)**	due by 11:59pm
Tue Apr 5, 2022	📝 **Exam 2** **(https://uttyler.instructure.com/courses/28552/assignments/556253)**	due by 3:20pm
Tue Apr 12, 2022	📝 **Datacamp Assignment 4:** **ARIMA Modeling with R (due by** **11:59 pm, Apr 7)** **(https://uttyler.instructure.com/courses/28552/assignments/556250)**	due by 11:59pm
Tue Apr 19, 2022	📝 **Submission Portal for** **Practical Assignment 3 - Fitting** **and evaluating time series models** **(due by Apr 19)** **(https://uttyler.instructure.com/courses/28552/assignments/556263)**	due by 11:59pm
Thu Apr 21, 2022	📝 **Datacamp Assignment 5:** **Forecasting Using R (due by 11:59** **pm, Apr 21)** **(https://uttyler.instructure.com/courses/28552/assignments/556251)**	due by 11:59pm

Date	Details	Due
	📝 **Extra Credit Assignment: Polynomial Regression, R, and ggplot** **(https://uttyler.instructure.com/courses/28552/assignments/556255)**	due by 11:59pm
Fri Apr 22, 2022	📝 **Extra Credit Assignment: Training set, test set, ggplot and R** **(https://uttyler.instructure.com/courses/28552/assignments/556256)**	due by 11:59pm
	📝 **Extra Credit for FMA Participation (or another academic student organization).** **(https://uttyler.instructure.com/courses/28552/assignments/556259)**	due by 11:59pm
Tue Apr 26, 2022	📝 **Exam 3** **(https://uttyler.instructure.com/courses/28552/assignments/556254)**	due by 3:20pm
	📝 **Extra Credit for EIKON Certification** **(https://uttyler.instructure.com/courses/28552/assignments/556258)**	due by 11:59pm
	📝 **Roll Call Attendance** **(https://uttyler.instructure.com/courses/28552/assignments/586883)**	