

THE UNIVERSITY OF TEXAS AT TYLER
SOULES COLLEGE OF BUSINESS
Spring 2021

COURSE NUMBER: FINA 4357.001

COURSE TITLE: Business Forecasting

INSTRUCTOR: Dr. Vivek Pandey

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

REQUIRED TEXT: Forecasting: Principles and Practice, 2nd Edition, By Rob J Hyndman and George Athanasopoulos, Monash University, Australia. An electronic version of the textbook is available free of charge at <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/> and *R-Studio*, also available for free at <https://www.rstudio.com>. We will also use [Datacamp](#) 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.

COURSE 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

CLASS MEETING: Hybrid class with pre-recorded online lectures and other resources. Class meetings are once a week on Tuesdays 2:00 – 3:20 pm, in COB 121

TEACHING METHOD: Lectures, class discussions, programming and analytical exercises

OFFICE & E-MAIL: Location: COB 350.01; Phone: (903) 566-7224; Email: vpandey@uttyler.edu

OFFICE HOURS: Mondays 2 – 4 pm & Wednesday 2 – 3 pm. Other times by appointment.

CONTENT OUTLINE: Hybrid Format

<u>Week / Class Meetings</u>	<u>Ch.</u>	<u>Topic</u>
<u>Week 1</u>	1	Getting Started – Introduction to Forecasting
Jan 12		Online introductory class meeting via Zoom
<u>Week 2</u>	2	Time Series Graphics
Jan 19		<i>Self-introduction due on Discussion Board</i>
Jan 19		Online class meeting via Zoom
<u>Week 3</u>	3	The Forecaster’s Toolbox
Jan 26		<i>Datacamp Assignment 1 due: Intro to R for Finance</i>
Jan 26		F2F class - Practical Exercise: Running company/stock filters in EIKON
<u>Weeks 4-5</u>		
Feb 2		<i>Practical Assignment 1 due</i>
Feb 2		F2F class - Review for Exam 1
Feb 9		Exam 1 (administered in class)
<u>Week 6</u>	4	Judgemental Forecasts
Feb 16		<i>Datacamp Assignment 2 due: Data Visualization in R</i>
Feb 16		F2F class - Lab Exercise for importing and merging data in R
<u>Weeks 7-9</u>	5	Time Series Regression Models
Feb 23		F2F class – Discussion of Time Series Models
Mar 2		F2F class - Lab Exercise for obtaining financial markets data and optimizing portfolios
Mar 8-13		<i>Spring Break – Aloha!</i>

<u>Week 10</u>	7	Exponential Smoothing
Mar 16		<i>Datacamp Assignment 3 due: Time Series Analysis in R</i>
Mar 16		F2F class - Practical Exercise: Forecasting stock returns using the market model
<u>Weeks 11-12</u>		
Mar 23		<i>Practical Assignment 2 due</i>
Mar 23		F2F class - Review for Exam 2
Mar 29		<i>Last day to withdraw from this course</i>
Mar 30		Exam 2 (administered in class)
<u>Week 13</u>	8	ARIMA Models
Apr 6		<i>Datacamp Assignment 4 due: ARIMA models in R</i>
Apr 6		F2F class - Lab Exercise for non-seasonal ARIMA model
<u>Week 14</u>	12	Some Practical Forecasting Issues
Apr 13		F2F class - Practical Exercise: Fitting and evaluating various time series models
<u>Weeks 15-16</u>		
Apr 20		<i>Practical Assignment 3 due</i>
Apr 20		F2F class – Review for Exam 3
Apr 23		<i>Datacamp Assignment 5 due: Forecasting in R</i>
Apr 27 or 29		Exam 3 (Administered in accordance with UTT final exam schedule)

NOTE: Please note that 'F2F class' makes reference to in-person meetings in the assigned classroom (COB 121). For this hybrid model, in class meetings are restricted and several resources, including topical lectures will be provided online for the student's consumption and learning. All homework assignments are due by the end of the day (11:59 pm) on the assignment due date. This class-schedule is subject to change at the instructor's discretion based on class progress and external constraints such as Covid-19 related changes in the university calendar.

EVALUATION:

A student's grade for the class will be based on performance in exams, project assignments, and the

level of participation in class. Below are the weights for the different components that comprise your grade in class.

Component	Weight
Exams	45%
Datacamp Assignments	35%
Practical Exercise Assignments	15%
Class participation	5%

GRADING SCALE

A standard 10-point scale is utilized to assign grades in class. The following is the scheme used to assign letter grades based on the overall weighted score received by a student from the various activities described above.

Weighted Total Score	Grade
Greater than 90%	A
80% to less than 90%	B
70% to less than 80%	C
60% to less than 70%	D
Less than 60%	F

Important Covid-19 Information for Classrooms and Laboratories

Students are required to wear face masks covering their nose and mouth, and follow social distancing guidelines, at all times in public settings (including classrooms and laboratories), as specified by [Procedures for Fall 2020 Return to Normal Operations](#). The UT Tyler community of Patriots views adoption of these practices consistent with its [Honor Code](#) and a sign of good citizenship and respectful care of fellow classmates, faculty, and staff.

Students who are feeling ill or experiencing symptoms such as sneezing, coughing, or a higher than normal temperature will be excused from class and should stay at home and may join the class remotely. Students who have difficulty adhering to the Covid-19 safety policies for health reasons are also encouraged to join the class remotely. Students needing additional accommodations may contact the Office of Student Accessibility and Resources at University Center 3150, or call (903) 566-7079 or email saroffice@uttyler.edu.

Recording of Class Sessions

Class sessions may be recorded by the instructor for use by students enrolled in this course. Recordings that contain personally identifiable information or other information subject to FERPA shall not be shared with individuals not enrolled in this course unless appropriate consent is obtained from all relevant students. Class recordings are reserved only for the use of students enrolled in the course and only for educational purposes. Course recordings should not be shared outside of the course in any form without express permission.

Soules College of Business Statement of Ethics:

The ethical problems facing local, national and global business communities are an ever-increasing challenge. It is essential the Soules College of Business help students prepare for lives of personal integrity, responsible citizenship, and public service. In order to accomplish these goals, both students and faculty of the Soules College of Business at The University of Texas at Tyler will:

- ✓ Ensure honesty in all behavior, never cheating or knowingly giving false information.
- ✓ Create an atmosphere of mutual respect for all students and faculty regardless of race, creed, gender, age or religion.

- ✓ Develop an environment conducive to learning.
- ✓ Encourage and support student organizations and activities.
- ✓ Protect property and personal information from theft, damage and misuse.
- ✓ Conduct yourself in a professional manner both on and off campus.

UT Tyler Honor Code

Every member of the UT Tyler community joins together to embrace: Honor and integrity that will not allow me to lie, cheat, or steal, nor to accept the actions of those who do.

Students Rights and Responsibilities

To know and understand the policies that affect your rights and responsibilities as a student at UT Tyler, please follow this link: <http://www.uttyler.edu/wellness/rightsresponsibilities.php>

Campus Carry

We respect the right and privacy of students 21 and over who are duly licensed to carry concealed weapons in this class. License holders are expected to behave responsibly and keep a handgun secure and concealed. More information is available at <http://www.uttyler.edu/about/campus-carry/index.php>

UT Tyler a Tobacco-Free University

All forms of tobacco will not be permitted on the UT Tyler main campus, branch campuses, and any property owned by UT Tyler. This applies to all members of the University community, including students, faculty, staff, University affiliates, contractors, and visitors.

Forms of tobacco not permitted include cigarettes, cigars, pipes, water pipes (hookah), bidis, kreteks, electronic cigarettes, smokeless tobacco, snuff, chewing tobacco, and all other tobacco products.

There are several cessation programs available to students looking to quit smoking, including counseling, quitlines, and group support. For more information on cessation programs please visit www.uttyler.edu/tobacco-free.

Grade Replacement/Forgiveness and Census Date Policies

Students repeating a course for grade forgiveness (grade replacement) must file a Grade Replacement Contract with the Enrollment Services Center (ADM 230) on or before the Census Date of the semester in which the course will be repeated. Grade Replacement Contracts are available in the Enrollment Services Center or at <http://www.uttyler.edu/registrar>. Each semester's Census Date can be found on the Contract itself, on the Academic Calendar, or in the information pamphlets published each semester by the Office of the Registrar.

Failure to file a Grade Replacement Contract will result in both the original and repeated grade being used to calculate your overall grade point average. Undergraduates are eligible to exercise grade replacement for only three course repeats during their career at UT Tyler; graduates are eligible for two grade replacements. Full policy details are printed on each Grade Replacement Contract.

The Census Date (Sept. 12th) is the deadline for many forms and enrollment actions of which students need to be aware. These include:

- ✓ Submitting Grade Replacement Contracts, Transient Forms, requests to withhold directory information, approvals for taking courses as Audit, Pass/Fail or Credit/No Credit.
- ✓ Receiving 100% refunds for partial withdrawals. (There is no refund for these after the Census Date)
- ✓ Schedule adjustments (section changes, adding a new class, dropping without a "W" grade)
- ✓ Being reinstated or re-enrolled in classes after being dropped for non-payment
- ✓ Completing the process for tuition exemptions or waivers through Financial Aid

State-Mandated Course Drop Policy

Texas law prohibits a student who began college for the first time in Fall 2007 or thereafter from dropping more than six courses during their entire undergraduate career. This includes courses dropped at another 2-year or 4-year Texas public college or university. For purposes of this rule, a dropped course is any course that is dropped after the census date (See Academic Calendar for the specific date).

Exceptions to the 6-drop rule may be found in the catalog. Petitions for exemptions must be submitted to the Enrollment Services Center and must be accompanied by documentation of the extenuating circumstance. Please contact the Enrollment Services Center if you have any questions.

Disability/Accessibility Services:

In accordance with Section 504 of the Rehabilitation Act, Americans with Disabilities Act (ADA) and the ADA Amendments Act (ADAAA) the University of Texas at Tyler offers accommodations to students with learning, physical and/or psychological disabilities. If you have a disability, including a non-visible diagnosis such as a learning disorder, chronic illness, TBI, PTSD, ADHD, or you have a history of modifications or accommodations in a previous educational environment, you are encouraged to visit <https://hood.accessiblelearning.com/UTTyler> and fill out the New Student application. The **Student Accessibility and Resources (SAR)** office will contact you when your application has been submitted and an appointment with an Accessibility Case Manager. For more information, including filling out an application for services, please visit the SAR webpage at <http://www.uttyler.edu/disabilityservices>, the SAR office located in the University Center, # 3150 or call 903.566.7079.

Student Absence due to Religious Observance

Students who anticipate being absent from class due to a religious observance are requested to inform the instructor of such absences by the second class meeting of the semester.

Student Absence for University-Sponsored Events and Activities

If you intend to be absent for a university-sponsored event or activity, you (or the event sponsor) must notify the instructor at least two weeks prior to the date of the planned absence. At that time the instructor will set a date and time when make-up assignments will be completed.

Social Security and FERPA Statement

It is the policy of The University of Texas at Tyler to protect the confidential nature of social security numbers. The University has changed its computer programming so that all students have an identification number. The electronic transmission of grades (e.g., via e-mail) risks violation of the Family Educational Rights and Privacy Act; grades will not be transmitted electronically.

Emergency Exits and Evacuation

Everyone is required to exit the building when a fire alarm goes off. Follow your instructor's directions regarding the appropriate exit. If you require assistance during an evacuation, inform your instructor in the first week of class. Do not re-enter the building unless given permission by University Police, Fire department, or Fire Prevention Services.

Student Standards of Academic Conduct

Disciplinary proceedings may be initiated against any student who engages in scholastic dishonesty, including, but not limited to, cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts.

i. "Cheating" includes, but is not limited to:

- ✓ copying from another student's test paper;
- ✓ using, during a test, materials not authorized by the person giving the test;
- ✓ failure to comply with instructions given by the person administering the test;

- ✓ possession during a test of materials which are not authorized by the person giving the test, such as class notes or specifically designed “crib notes”. The presence of textbooks constitutes a violation if they have been specifically prohibited by the person administering the test;
 - ✓ using, buying, stealing, transporting, or soliciting in whole or part the contents of an unadministered test, test key, homework solution, or computer program;
 - ✓ collaborating with or seeking aid from another student during a test or other assignment without authority;
 - ✓ discussing the contents of an examination with another student who will take the examination;
 - ✓ divulging the contents of an examination, for the purpose of preserving questions for use by another, when the instructor has designated that the examination is not to be removed from the examination room or not to be returned or to be kept by the student;
 - ✓ substituting for another person, or permitting another person to substitute for oneself to take a course, a test, or any course-related assignment;
 - ✓ paying or offering money or other valuable thing to, or coercing another person to obtain an unadministered test, test key, homework solution, or computer program or information about an unadministered test, test key, home solution or computer program;
 - ✓ falsifying research data, laboratory reports, and/or other academic work offered for credit;
 - ✓ taking, keeping, misplacing, or damaging the property of The University of Texas at Tyler, or of another, if the student knows or reasonably should know that an unfair academic advantage would be gained by such conduct; and
 - ✓ misrepresenting facts, including providing false grades or resumes, for the purpose of obtaining an academic or financial benefit or injuring another student academically or financially.
- ii. “Plagiarism” includes, but is not limited to, the appropriation, buying, receiving as a gift, or obtaining by any means another’s work and the submission of it as one’s own academic work offered for credit.
- iii. “Collusion” includes, but is not limited to, the unauthorized collaboration with another person in preparing academic assignments offered for credit or collaboration with another person to commit a violation of any section of the rules on scholastic dishonesty.
- iv. All written work that is submitted will be subject to review by plagiarism software.

UT Tyler Resources for Students

- ✓ [UT Tyler Writing Center](http://www.uttyler.edu/writingcenter) (903.565.5995), writingcenter@uttyler.edu
- ✓ [UT Tyler Tutoring Center](http://www.uttyler.edu/tutoring) (903.565.5964), tutoring@uttyler.edu
- ✓ The Mathematics Learning Center, RBN 4021, this is the open access computer lab for math students, with tutors on duty to assist students who are enrolled in early-career courses.
- ✓ [UT Tyler Counseling Center](http://www.uttyler.edu/counseling) (903.566.7254)