Instructor: Dr. Stephen Kosovich  
Email: kosovichs@sfasu.edu  
Phone: 936-468-1557  
Office: 303G  
Face-to-Face office hours: Tuesday and Thursday: 9 a.m.-noon  
(or by appointment)  

Email/online office hours: Friday: 11 a.m.-3 p.m.  
NOTE: During these email/online office hours (Friday), I am available to quickly answer questions via email; you can also request a Zoom meeting during these online office hours. Just send me a quick email request and I will send you a Zoom link.  

Class meeting time and place: Monday and Wednesday at 1-2:15 p.m. in McGee 324  

Class website: https://d2l.sfasu.edu/  
Catalog Description: An introduction to the forecasting techniques used frequently in economics and business.  

Prerequisites: ECON 2301, ECON 2302, and ECON 3309  


Attendance Policy: I will keep an official record of your class attendance until the 12th class day, even though it does not formally enter into your course grade.  

Course Requirements/Grading/Attendance Policy:  
Grades will be based on three exams (the first two worth 50 points and the final worth 74) and six mini-projects (worth 11 points each), for a total of 240 points in the course. Note: no makeup exams will be given, and exams will only be excused if you promptly provide me verifiable evidence that the absence is excused based upon SFA policy (the absence was caused because of health, family emergencies, or student participation in approved university-sponsored events). If the exam is excused, the weight of the excused exam will be dropped from the course. Assignments will be submitted via a drop box in D2L and late assignments will not be accepted.  

Letter grades are based on a ‘straight scale’ (from 240 possible points):  
90% and above is an A  
80% and above is a B  
70% and above is a C  
60% and above is a D  
Less than 60% is an F  

Program and Student Learning Outcomes:  
Program learning outcomes define the knowledge, skills, and abilities students are expected to demonstrate upon completion of an academic program. These learning outcomes are regularly assessed to determine student learning and to evaluate overall program effectiveness. You may access the program learning outcomes for your major and particular courses in the Curriculum Management Handbook at http://www.sfasu.edu/academics/colleges/business/welcome/faculty-resources. Upon successful completion of the course a student will:
1.) Use the appropriate terminology of economic/business forecasters.
2.) Use appropriate technology to plot economic/business data and forecasts.
3.) Use multiple regression models to forecast using cross-sectional data.
4.) Use various techniques to forecast in time-series data.
5.) Evaluate the performance of forecasting models, and understand criteria for model selection.

Tentative Content Calendar:
Week 1: Introduction to forecasting (Chapter 1) and introduction to R
Week 2-3: The forecaster’s toolbox: visualization, transformations, and forecast accuracy (Chapter 2/3)
Week 4: Practical forecast considerations (Chapter 4)
Week 5: Simple linear regression and statistical inference review (Chapter 5)
Exam #1 Monday, October 2nd
Week 6: Forecasts with simple linear regression (Chapter 5)
Week 7: Multiple regression models (Supplemental readings)
Week 8: Model selection criteria for multiple regression (Chapter 5 and supplemental readings)
Weeks 9: Time-series decomposition (Chapter 6)
Exam #2 Wednesday, November 1st
Week 10-11: Smoothing techniques for forecasting (Chapter 7)
Week 12-14: Autoregressive (AR), moving average (MA), and ARIMA models (Chapter 8)
Final Exam: Wednesday, December 13th at 1 p.m.

General Student Policies: Academic Integrity
The Code of Student Conduct and Academic Integrity outlines the prohibited conduct by any student enrolled in a course at SFA. It is the responsibility of all members of all faculty, staff, and students to adhere to and uphold this policy. Articles IV, VI, and VII of the new Code of Student Conduct and Academic Integrity outline the violations and procedures concerning academic conduct, including cheating, plagiarism, collusion, and misrepresentation. Cheating includes, but is not limited to: (1) Copying from the test paper (or other assignment) of another student, (2) Possession and/or use during a test of materials that are not authorized by the person giving the test, (3) Using, obtaining, or attempting to obtain by any means the whole or any part of a non-administered test, test key, homework solution, or computer program, or using a test that has been administered in prior classes or semesters without permission of the Faculty member, (4) Substituting for another person, or permitting another person to substitute for one’s self, to take a test, (5) Falsifying research data, laboratory reports, and/or other records or academic work offered for credit, (6) Using any sort of unauthorized resources or technology in completion of educational activities. Plagiarism is the appropriation of material that is attributable in whole or in part to another source or the use of one’s own previous work in another context without citing that it was used previously, without any indication of the original source, including words, ideas, illustrations, structure, computer code, and other expression or media, and presenting that material as one’s own academic work being offered for credit or in conjunction with a program course or degree requirements. Collusion is the unauthorized collaboration with another person in preparing academic assignments offered for credit or collaboration with another person to commit a violation of any provision of the rules on academic dishonesty, including disclosing and/or distributing the contents of an exam. Misrepresentation is providing false grades or résumés; providing false or misleading information in an effort to receive a postponement or an extension on a test, quiz, or other assignment for the purpose of obtaining an academic or financial benefit for oneself or another individual or to injure another student academically or financially. http://www.sfasu.edu/policies/student_academic_dishonesty.pdf

Students with Disabilities
To obtain disability related accommodations, alternate formats and/or auxiliary aids, students with disabilities must contact the Office of Disability Services (ODS), Human Services Building, and Room 325, 468-3004 / 468-1004 (TDD) as early as possible in the semester. Once verified, ODS will notify the course instructor and outline the accommodation and/or auxiliary aids to be provided. Failure to request services in a timely manner may delay your accommodations. For additional information, go to http://www.sfasu.edu/disabilityservices/.

Classroom behavior should not interfere with the instructor’s ability to conduct the class or the ability of other students to learn from the instructional program (see the full Student Conduct Code at http://www.sfasu.edu/policies/student-conduct-code.pdf ). Unacceptable or disruptive behavior will not be tolerated. Students who disrupt the learning environment may be asked to leave class and may be subject to judicial, academic,
or other penalties. This prohibition applies to all instructional forums, including electronic, classroom, labs, discussion groups, field trips, etc. The instructor shall have full discretion over what behavior is appropriate/inappropriate in the classroom. Students who do not attend class regularly or who perform poorly on class projects/exams may be referred to the iCare Early Alert Program. This program provides students with recommendations for resources or other assistance that is available to help SFA students succeed.

**Mental Health and Wellness**

SFA values students' mental health and the role it plays in academic and overall student success. SFA provides a variety of resources to support students' mental health and wellness. Many of these resources are free, and all of them are confidential.

**Withheld Grades--Grades Policy (5.5)**

Ordinarily, at the discretion of the instructor of record and with the approval of the academic chair/director, a grade of WH will be assigned only if the student cannot complete the coursework because of unavoidable circumstances. Students must complete the work within one calendar year from the end of the semester in which they receive a WH, or the grade automatically becomes an F. If students register for the same course in future terms the WH will automatically become an F and will be counted as a repeated course to compute the grade point average. For additional information, go to [https://www.sfasu.edu/policies/course-grades-5.5.pdf](https://www.sfasu.edu/policies/course-grades-5.5.pdf).

**Course Topics (Details)**

1. Introduction to forecasting
   - Terminology and methods introduction
   - Cross-sectional vs. time-series forecasting
   - Some examples/case studies
2. The forecaster's toolbox
   - Visualization of data
   - Time-series patterns
   - Some simple forecasting methods
   - Some simple forecast evaluation criteria
   - Training and tests
3. Practical forecast considerations
   - Principles and limitations of forecasts
   - Best practices in forecasting
4. Simple linear regression
   - Review of framework
   - Review of statistical inference (hypothesis tests/confidence intervals)
   - Functional forms
   - Use to forecast
5. Multiple regression
   - Introduction and intuition
   - Cross-sectional and time-series applications
   - Dummy variables
   - Model selection criteria and diagnostics
6. Time series decomposition
   - Trend, seasonality, cycles
   - Common decomposition methods
     - Moving averages
     - Additive versus multiplicative decomposition
     - Forecasting with decomposition
7. Some additional smoothing techniques for forecasting
   - Exponential smoothing intuition and application
   - Application of smoothing to forecasting
8. Autoregressive (AR), moving average (MA), and ARIMA models
   - Stationarity and differencing
   - Autoregressive models
   - Moving average models
   - Unit root tests
   - ARIMA modeling
   - Using ARIMA models to forecast
9. **Time permitting:** Forecasting Binary outcomes (example: Logistic regression)