COURSE SYLLABUS

Computer Science Department
CS 637 Time Series and Forecasting
Fall 2021
Every Other Monday: 6:30-7:45PM
Course Meetings via Zoom

Instructor:	*Kodie McNamara*	**Telephone:**	*(732) 685-6124.*
Office Location:	*Zoom (Remote)*	**Email:**	*kmcnamara@steu.edu*
Office Hours:	*By appointment – on the off-Monday's that we do not meet*		

Course Description:
This course is designed for the student who has completed a one-year sequence in calculus-based probability theory and mathematical statistics. The main objective is to present statistical methods used to analyze data consisting of measurements made over a specified period of time. This course will also provide an introduction to the wide range of statistical techniques available for making predictions and statistical forecasting including decomposition of time series, regression analysis, and time-series regression models. Students will be assigned computer projects using appropriate statistical software.

Student Learning Outcomes:
Learn the basic of time series analysis in R; Build plots and trends of time series data; understand and implement forecasting strategies; Build models such as stochastic, regression, stationary and non-stationary models; Conduct Spectral analysis; Build multivariate models.

Class Format and Methods of Instruction:
This course will meet on alternating Monday evenings, 6:30-7:45PM. Meetings will be via Zoom, with a setup, re-occurring Zoom meeting.

Required Materials:
Required Textbook:
Introductory Time Series with R
Paul S.P. Cowpertwait, Andrew V. Metcalfe
ISBN 978-0-387-88697-8

This textbook is available for free and will be posted to the course website

Course Outline and/or Schedule:

Week	Lecture	Assignment	Project
8/23 (Lecture 0)	Course Introduction/Introduction to R	Intro to R Assignment 1	
8/30 (Lecture 1)	Time Series Data (Chapter 1) Correlation (Chapter 2)	Assignment 2	
9/13 (Lecture 2)	Forecasting Strategies (Chapter 3) Basic Stochastic Models (Chapter 4)	Assignment 3	Topic Defined
9/27 (Lecture 3)	Regression Models (Chapter 5)	Assignment 4	
10/11 (No Lecture/Holiday)	-	-	-
10/18 (Lecture 4)	Stationary Models (Chapter 6)	Assignment 5	Beginning Analysis
11/1 (lecture 5)	Non-Stationary Models (Chapter 7)	Assignment 6	
11/15 (Lecture 6)	Spectral Analysis (Chapter 9)	Assignment 7	Intermediate Analysis
11/29 (Lecture 7)	Multivariate Models (Chapter 11)	Assignment 8	
TBD	Final Project Presentation		Final Project Write Up

Assessments:
Each student will be graded based on their completion of the eight assignments, 3 project deliverables, and final project presentations.

Class Participation Policy:
Participation is required for online lecture and activities. We will have two Zoom sessions for each Monday that we meet

Part I (6:30PM-7:10PM)
Link
Meeting ID: 975 4302 9704
Passcode: cs637

Part II (7:10PM-7:45PM)
Link
Meeting ID: 933 6014 2851
Passcode: cs637

Grading Policy:

Assignments	*40% (5% each)*
Intermediate Project Deliverables	*20% (10% each)*
Final Project Deliverable	*30%*
Final Project Presentation	*10%*

Final grades will be determined on the following scale

Letter Grade	*Percentage*
A	*93 – 100*
A-	*90 – 93*
B+	*87 – 90*
B	*83 – 87*
B-	*80 – 83*
C+	*77 – 80*
C	*73 – 77*
C-	*70 – 73*
D+	*67 – 70*
D	*63 – 67*
D-	*60 – 63*
F	*<60*

Policy for Missing or Late Assignments:

Late assignments will have one letter grade deducted for each day it is late. Past 1 week late, assignments will no longer be accepted without explanation provided.

Academic Integrity Policy:

University Academic Integrity Policy:

Each member of the academic community must recognize her/his individual responsibility to uphold academic integrity. The University will not accept academic dishonesty, which includes but is not limited to plagiarism; cheating in any form; theft of educational materials; unauthorized removal of books, journals or other library resources; copyright violations; falsification of data; sabotaging the work of others; and illegal production of computer and audio/video software. Penalties will be imposed for violations of academic integrity. For a detailed description of the University's Academic Integrity Policy, visit www.steu.edu/academicpolicies.

Course Academic Integrity Policy:

While students are permitted and encouraged to work with one another on assignments, explicit copying of another's code and/or work is not permitted and will result in a 0 for the given assignment.

Instructor Recordings of Class Sessions:
The instructor may record portions of this class for educational purposes. The recordings will be shared only with students enrolled in the course and will be deleted at the conclusion of the course. Students may not reproduce, post, or distribute any recordings provided by the instructor.

Student Recording of Class Sessions:
Saint Elizabeth University prohibits recording and transmission of activities (e.g., lectures, discussions) that occur as part of a classroom session by a student unless permission from the course instructor has been obtained and all students in the course as well as any guest speakers have been informed that audio/video recording may occur. Students may not reproduce, post, or distribute any recordings that they are given the permission to create.

SEU Policy on Accommodations for Students with Disabilities:
Saint Elizabeth University, in accordance with Section 504 of the Rehabilitation Act of 1973, the Americans with Disabilities Act, and the ADA Amendments Act provides for equal educational opportunities and accommodations to eligible students with documented disabilities. Please contact the Coordinator of Accessibility Services at (973) 290-4261 or visit www.steu.edu/accessibility Students who require accommodations for documented medical reasons should also contact this office. The office is located on the main floor of Mahoney Library.

Academic Support Resources:
Students can request tutoring for all courses at the Academic Success Center, located on the first floor of the Mahoney Library. We provide support for specific assignments and review of course content, writing papers, math skills, efficient reading comprehension methods, study techniques, and ways to enhance memory and concentration. These services are provided in the form of one-on-one tutoring, group and drop-in sessions, supplemental instruction sessions, and/or workshops. We also provide assistance with goal-setting, study skills, time management, and learning strategies instruction. Please stop in or contact us at (973) 290-4325, or go to our website for more information: www.steu.edu/academicsupport.

Health and Safety Policy:
Because we are a community of mutual respect and caring, all students, faculty, and staff must comply with all health and safety policies.

Please be advised that the University may terminate in person learning if the local, state, or federal governments order the closure of the campus or if the University deems that it is in the best interest and safety of the academic community.

In an effort to keep the campus safe and healthy, students with approved religious or medical exemptions from the COVID-19 vaccination mandate staff must comply with social distancing practices that require staying at least 6 feet apart during class sessions, and includes the wearing of masks at all times. They are also required to monitor their health on a daily basis. They are therefore required to download the Campus Clear app on their mobile phone. This is a COVID-19 self-screening tool that must be completed each day before coming to campus (you will

receive a daily reminder). Upon completion, the app will tell you if you are approved to come to campus or not, based on how you are feeling. If you are not approved, you must contact health services (973) 290-4175 or 4131 and they will instruct you on next steps. Under no circumstances are you come to campus if you are feeling ill.

Proctortrack Identity Verification Software Policy

If this course requires the use of identity verification software used for exam proctoring, then the following policy applies: Proctortrack (PT) allows students to take an exam online from a remote environment. The technology uses identity verification and tracks movements to ensure test-taking integrity. PT will continuously verify a student's identity and test-taking experience by recording the screen and testing environment. An algorithm is used to flag behaviors that are unusual. Your instructor is alerted to the flagged behaviors and will have access to the recording so he/she can review for any concerns. Recordings will only be available to the instructor and Saint Elizabeth University's IT staff and are deleted at the end of each term. Faculty reserve the right to require students to use Proctortrack PT as part of an evaluation.

Please note that this syllabus and course schedule are subject to change at the discretion of the professor.