

*Please note that this syllabus should be regarded only as a general guide to the course and is subject to change at the instructor's discretion.

BZAN6602.01/MFIN 6607.01 Forecasting Techniques, 3 Credits

Carroll Graduate School of Management

Spring 2022 Semester

Mondays 7 - 9:30 pm

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Office Hours: by appointment

Boston College Mission Statement

Strengthened by more than a century and a half of dedication to academic excellence, Boston College commits itself to the highest standards of teaching and research in undergraduate, graduate and professional programs and to the pursuit of a just society through its own accomplishments, the work of its faculty and staff, and the achievements of its graduates. It seeks both to advance its place among the nation's finest universities and to bring to the company of its distinguished peers and to contemporary society the richness of the Catholic intellectual ideal of a mutually illuminating relationship between religious faith and free intellectual inquiry.

Boston College draws inspiration for its academic societal mission from its distinctive religious tradition. As a Catholic and Jesuit university, it is rooted in a world view that encounters God in all creation and through all human activity, especially in the search for truth in every discipline, in the desire to learn, and in the call to live justly together. In this spirit, the University regards the contribution of different religious traditions and value systems as essential to the fullness of its intellectual life and to the continuous development of its distinctive intellectual heritage.

Course Description

The theory and practice of applied time series analysis will be explored. First the different segments (trend, seasonality, cyclical, and irregular) of a time series will be analyzed by examining the Autocorrelation functions (ACF) and Partial Autocorrelation functions (PACF). The specifics model the

various types of time series include linear regression, panel regression, seasonal decomposition, exponential smoothing, and ARIMA modeling as well as combining models.

In short, this course will equip you with tools necessary to construct forecasts to inform business decisions. As such, the focus of the course will not be only on tools, but also on how they are used in business.

Course Objectives

1. To understand basic concepts and tools of forecasting.
2. The demonstration of how and under what conditions different forecasting techniques may be appropriately applied for making managerial decisions in a wide range of situations in industry, business, public administration, and economy.
3. The development of the ability to identify situations where such techniques may be effectively applied, and to communicate with specialists in the field, and to evaluate critically, interpret properly, and utilize wisely the recommendations of experts.
4. The providing of a broad understanding of these techniques, so that the student may be better able to appreciate their potential as well as limitations, and to recognize their relative contributions to systematic planning, wise decision making and effective as well as efficient control of administrative processes.

Textbooks & Readings (Required)

Forecasting and Predictive Analytics with Forecast X (TM), 7th Edition, Barry Keating and J. Holton Wilson and John Solutions Inc.

Textbooks & Readings (Recommended)

Business Forecasting, (BF) 2nd edition, A. Reza Hoshmand, Routledge

Practical Time Series Forecasting with R (PTSF), 2nd edition, Shmueli and Lichtendahl, Schnall Publishers.

Canvas

All course materials other than the textbook and case studies will be posted to Canvas. Also, all announcements regarding the course, as well as any notes or Power Point presentations will be posted on Canvas as well. Canvas is the Learning Management System (LMS) at Boston College, designed to help faculty and students share ideas, collaborate on assignments, discuss course readings and

materials, submit assignments, and much more - all online. As a Boston College student, you should familiarize yourself with this important tool. For more information and training resources for using Canvas, click [here \(Links to an external site.\)Links to an external site. \(Links to an external site.\)](#).

I may use another service, such as ZOOM videoconference solution for synchronous interaction, especially in case of inclement weather.

Grading

Evaluation Criteria: The grade that you earn in this class will be based on your performance on the following:

1. There will be weekly discussions in the course and they will count for 10% of your grade.
2. Practical Assignments will carry 15% of your grade. These will be distributed roughly every two weeks
3. Midterm exam will be worth 25 % of your grade. Tentative date for the midterm is **the week of March 9th**.
4. Group Project and presentation will carry 25% of your grade. Details will be distributed in-class.
5. Final Exam will account for 30% of your grade, and will be given in the week of **May 4th and due on May 11th**.

To summarize, your grade will break down as follows:

Discussions	10%
Practical Assignments	15%
Group Project and Presentation	20%
Midterm Exam	25%
Final Exam	30%

The grading system is as follows:

A (4.00), A- (3.67)

B+ (3.33), B (3.00), B- (2.67)

C+ (2.33), C (2.00), C- (1.67)

D+ (1.33), D (1.00), D- (.67)

F (.00)

All students can access final grades through Agora after the grading deadline each semester. Students who complete course evaluations can access grades earlier, as they are posted.

Deadlines and Late Work

Unless arranged otherwise, late assignments will be accepted with a 10-point penalty for each 24-hr. period that assignment is late.

Course Assignments

It is expected that you will spend 8 hours per week on out-of-class reading, assignments, and exercises. These are listed below. Please note that some weeks will require more time and some weeks less time but the average is approximately 8 hours per week over the semester.

Course Schedule

Date/Week	Topic	Reading/Assignments
2-Feb	Introduction, Statistics Review	Chapter 1
9-Feb	Elements of Time Series, Evaluating a Forecast	Chapters 2-3
16-Feb	Data Transformations	Chapter 4
23-Feb	Exponential Smoothing	Chapter 5
2-Mar	Moving Average Techniques	Chapter 6
9-Mar	MIDTERM (due March 14th)	

16-Mar	Linear Regression	Chapter 7
23-Mar	Multiple Regression	Chapter 8
30-Mar	Advanced Regression Techniques	Chapter 9
6-Apr	ARIMA Models	Chapter 10
13-Apr	Communicating Forecasts	Chapter 11
20-Apr	Forecasting Binary Outcomes	PTSF Chapter 8
27-Apr	Group Presentations 1	
4-May	Group Presentations 2	
11-May	Final Exam due	

Written Work

Boston College students are expected to prepare professional, polished written work. Written materials must be typed and submitted in the format required by your instructor. Strive for a thorough yet concise style. Cite literature appropriately, using APA, MLA or CLA style per your instructor's requirements. Develop your thoughts fully, clearly, logically and specifically. Proofread all materials to ensure the use of proper grammar, punctuation and spelling. For writing support, please contact the [Connors Family Learning Center \(Links to an external site.\)](#)[Links to an external site.](#) ([Links to an external site.](#)).

Attendance

Attending class is an important component of learning. Students are expected to attend all class sessions. When circumstances prevent a student from attending class, the student is responsible for contacting the instructor before the class meets. Students who miss class are still expected to complete all assignments and meet all deadlines. Makeup work may be assigned at the discretion of the instructor. If circumstances necessitate excessive absence from class, the student should consider withdrawing from the class.

Consistent with BC's commitment to creating a learning environment that is respectful of persons of differing backgrounds, we believe that every reasonable effort should be made to allow members of the

university community to observe their religious holidays without jeopardizing their academic status. Students are responsible for reviewing course syllabi as soon as possible, and for communicating with the instructor promptly regarding any possible conflicts with observed religious holidays. Students are responsible for completing all class requirements for days missed due to conflicts with religious holidays.

Accommodation and Accessibility

Boston College is committed to providing accommodations to students, faculty, staff and visitors with disabilities. Specific documentation from the appropriate office is required for students seeking accommodation. Advanced notice and formal registration with the appropriate office is required to facilitate this process. There are two separate offices at BC that coordinate services for students with disabilities:

- [The Connors Family Learning Center \(CFLC\)](#)(Links to an external site.)Links to an external site.(Links to an external site.) coordinates services for students with LD and ADHD.
- [The Disabilities Services Office \(DSO\)](#)(Links to an external site.)Links to an external site.(Links to an external site.) coordinates services for all other disabilities.

Find out more about BC's commitment to accessibility at www.bc.edu/sites/accessibility (Links to an external site.)Links to an external site. (Links to an external site.).

Scholarship and Academic Integrity

Students at Boston College courses must produce original work and cite references appropriately. Failure to cite references is plagiarism. Academic dishonesty includes, but is not necessarily limited to, plagiarism, fabrication, facilitating academic dishonesty, cheating on exams or assignments, or submitting the same material or substantially similar material to meet the requirements of more than one course without seeking permission of all instructors concerned. Scholastic misconduct may also involve, but is not necessarily limited to, acts that violate the rights of other students, such as depriving another student of course materials or interfering with another student's work. Please see the Boston College Policy on Academic Integrity (<https://www.bc.edu/offices/stserv/academic/integrity.html>).