

COURSE INFORMATION

Course title:	Forecasting and Time Series Prediction		
Course code:	BABS 502	Credits:	1.5
Session, term, period:	2012W2, Period 3	Class location:	HA 132
Section(s):	BA2	Class times:	Mon/Wed 4-6pm
Course duration:	Jan. 3 to Feb. 10, 2023	Pre-requisites:	BABS 507
Division:	Operations and Logistics	Co-requisites:	NA
Program:	MBAN		

INSTRUCTOR INFORMATION

Instructor:	Martha Essak, M.Sc.		
Phone:	778-819-8368	Office location:	HA 351
Email:	martha.essak@sauder.ubc.ca	Office hours:	Thurs. (time TBD)

COURSE DESCRIPTION

Forecasting is an integral part of decision-making activities. Organizations define goals, seek to predict environmental factors, and then take actions that they hope will result in the achievement of these goals. Forecasting allows organizations to decrease their dependence on chance and become more scientific in dealing with their environments. Today, forecasting rests on solid theoretical foundations while also having a realistic, practical base that increases its relevance and usefulness to organizations. This course covers the full range of major forecasting methods, providing a complete description of their essential characteristics and presenting the steps needed for their practical application, while avoiding getting bogged down in the theoretical details that are not essential to understanding how the various methods work. It provides a systematic comparison of the advantages and disadvantages of various methods so that the most appropriate method can be selected for each forecasting situation.

COURSE FORMAT

Class time will consist of lectures, discussions and activities. Students will complete readings, quizzes, homework assignments, and the project outside of class time.

LEARNING OBJECTIVES

This course will:

1. Introduce students to basic forecasting concepts and to major forecasting methods.
2. Teach students a structured and objective approach to forecasting.
3. Enable students to use forecasting to address different business problems.

At the end of the course, students will be able to:

1. Appreciate the key role that forecasting plays in organizational decision-making.
2. Understand and effectively apply the full range of major forecasting methods used in practice, and appreciate their strengths and weaknesses in view of their practical application.
3. Use forecasting to derive managerial insights relevant to the intended application.
4. Use and interpret output from statistical software, and critique and interpret forecasts prepared by others.

ASSESSMENTS

Summary

<u>Component</u>	<u>Weight</u>
Assignments	40%
Group project	40%
Quizzes	8%
Professionalism and participation	7%
Judgmental forecasting class activity	5%
Total	<u>100%</u>

Details of Assessments

Homework Assignments

Students will work **individually** to solve the problems in the homework assignments. Late submissions will not be accepted and will receive a zero. Homework assignments should be handed in electronically via the UBC Canvas system. Assignments will be graded on correctness and clarity.

Project

Students will work **in pairs** on a project (in report form) that uses the techniques learned throughout the course. **You may not work with classmates outside your pair or obtain outside help.** Please consult with the instructor if you need help or clarification. The project will be completed in two parts (Part A and B).

Quizzes

Students will work **individually** on the quizzes, which are designed to be completed after you have finished the readings about the relevant material.

Professionalism and participation

Professionalism and participation will be assessed based on: punctuality, preparation for class, participation in class activities (including iClicker), contribution to class discussions, and interaction with peers and the instructor.

Judgmental forecasting class activity

This is a project that will be completed by the entire class. Each pair will be graded on their contribution to the class activity.

LEARNING MATERIALS

Required Reading Materials: “Forecasting: Principles and Practice, 2nd edition” by Hyndman and Athanasopoulos (2018). This text is available for free online at <https://otexts.com/fpp2/> (Note that we are not using the 3rd edition)

Readings are indicated in the course schedule.

Required: iClicker <https://www.iclicker.com/students/>

Either iClicker app for iOS or Android, or can get up account through Web portal to use through browser.

Please use your student number if asked as this is essential for tracking participation.

Then add yourself to the course by searching “University of British Columbia” and “BABS 502 BA2”.

Technology Requirements: Computer installed with R, RStudio, Microsoft Excel, and Anaconda (Jupyter Notebook).

R: <http://www.r-project.org>

RStudio: <http://rstudio.org/download/>

Estimated cost of required materials: \$0

Additional materials recommended but not required: N/A

COURSE-SPECIFIC POLICIES AND RESOURCES

Missed or late assignments, and regrading of assessments

Late submissions will not be accepted and will receive a grade of zero.

Academic Concessions

If extenuating circumstances arise, please contact the RHL Graduate School program office as early as reasonably possible, and submit an [Academic Concession Request & Declaration Form](#). If an academic concession is granted during the course, the student will be provided options by RHL, or by the instructor in consultation with RHL, per [UBC's policy on Academic Concession](#).

Code Plagiarism

Code plagiarism falls under the UBC policy for [Academic Misconduct](#). Students must correctly cite any code that has been authored by someone else or by the student themselves for other assignments.

Cases of "reuse" may include, but are not limited to:

- the reproduction (copying and pasting) of code with none or minimal reformatting (e.g., changing the name of the variables)
- the translation of an algorithm or a script from a language to another
- the generation of code by automatic code-generations software

An "adequate acknowledgement" requires a detailed identification of the (parts of the) code reused and a full citation of the original source code that has been reused.

Students are responsible for ensuring that any work submitted does not constitute plagiarism. Students who are in any doubt as to what constitutes plagiarism should consult their instructor before handing in any assignments.

POLICIES APPLICABLE TO COURSES IN THE ROBERT H. LEE GRADUATE SCHOOL

Attendance

Excepting extenuating circumstances, students are expected to attend 100% of their scheduled class hours. Absent students limit their own academic potential, and that of their classmates, and cause unnecessary disruption to the learning environment. Students missing more than 20% of the total scheduled class hours for a course (including classes held during the add/drop period) without having received an academic concession will be withdrawn from that course. Withdrawals, depending on timing, could result in a "W" or an "F" standing on the transcript.

COVID-19 Policies for Attendance & Academic Concessions:

If a student feels unwell, they should stay home and send a courtesy email to each impacted instructor and cc their program manager. The student should also submit an [Academic Concession Request & Declaration Form](#).

If a student suspects possible COVID-19 infection, they should use the BC Ministry of Health's [self-assessment tool](#), to help determine whether further assessment or testing for COVID-19 is recommended.

Punctuality

Students are expected to arrive for classes and activities on time and fully prepared to engage. Late arrivals may be refused entry at the discretion of the instructor or activity lead. Students arriving later than halfway through a scheduled class will be treated as absent for that class.

Electronic Devices

Devices such as laptops, tablets, and cell phones are not permitted to be used in class unless directed by the instructor for in-class activities. Students who do not follow the School's policy in this regard may be required to leave the room for the remainder of the class, so that they do not distract others. Research shows that students' use of laptops in class has negative implications for the learning environment, including reducing their own grades and the grades of those sitting around them.

Citation Style

Please use the American Psychological Association (APA) reference style to cite your sources.

Details of the above policies and other RHL Policies are available at:

<http://www.calendar.ubc.ca/vancouver/index.cfm?tree=12,199,506,1625>

UNIVERSITY POLICIES AND RESOURCES

UBC provides resources to support student learning and to maintain healthy lifestyles but recognizes that sometimes crises arise and so there are additional resources to access including those for survivors of sexual violence. UBC values respect for the person and ideas of all members of the academic community. Harassment and discrimination are not tolerated nor is suppression of academic freedom. UBC provides appropriate accommodation for students with disabilities and for religious observances. UBC values academic honesty and students are expected to acknowledge the ideas generated by others and to uphold the highest academic standards in all of their actions. Details of the policies and how to access support are available on the UBC Senate website at <https://senate.ubc.ca/policies-resources-support-student-success>.

Respect for Equity, Diversity, and Inclusion

The UBC Sauder School of Business strives to promote an intellectual community that is enhanced by diversity along various dimensions including status as a First Nation, Metis, Inuit, or Indigenous person, race, ethnicity, gender identity, sexual orientation, religion, political beliefs, social class, and/or disability. It is critical that students from diverse backgrounds and perspectives be valued in and well-served by their courses. Furthermore, the diversity that students bring to the classroom should be viewed as a resource, benefit, and source of strength for your learning experience. It is expected that all students and members of our community conduct themselves with empathy and respect for others.

Academic Integrity

The academic enterprise is founded on honesty, civility, and integrity. As members of this enterprise, all students are expected to know, understand, and follow the codes of conduct regarding academic integrity. At the most basic level, this means submitting only original work done by you and acknowledging all sources of information or ideas and attributing them to others as required. This also means you should not cheat, copy, or mislead others about what is your work. Violations of academic integrity (i.e., misconduct) lead to the breakdown of the academic enterprise, and therefore serious consequences arise and harsh sanctions are imposed. For example, incidences of plagiarism or cheating may result in a mark of zero on the assignment or exam and more serious consequences may apply if the matter is referred to the President's Advisory Committee on Student Discipline. Careful records are kept in order to monitor and prevent recurrences.

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All materials of this course (course handouts, lecture slides, assessments, course readings, etc.) are the intellectual property of the instructor or licensed to be used in this course by the copyright owner. Redistribution of these materials by any means without permission of the copyright holder(s) constitutes a breach of copyright and may lead to academic discipline and could be subject to legal action. Any lecture recordings are for the sole use of the instructor and students enrolled in the class. In no case may the lecture recording or part of the recording be used by students for any other purpose, either personal or commercial. Further, audio or video recording of classes are not permitted without the prior consent of the instructor. Students may not share class Zoom links or invite others who are not registered to view sessions.

ACKNOWLEDGEMENT

UBC's Point Grey Campus is located on the traditional, ancestral, and unceded territory of the x^wməθk^wəy̓əm (Musqueam) people, who for millennia have passed on their culture, history, and traditions from one generation to the next on this site.

COURSE SCHEDULE

(Subject to change with class consultation)

Class	Date	Topic	Readings or Activities	Assessments due
1	Jan. 4	Course Overview, Introduction to Forecasting	Ch. 1 – 4	Quiz #1 Due Thursday Jan. 5 at 11:59 pm
2	Jan. 6 CLASS ON FRIDAY!	Basic Forecasting Methods		Judgmental forecasting class activity Due Friday Jan. 6 at 11:59pm
3	Jan. 9	Time Series Decomposition	Ch. 6	Quiz #2 Due Tuesday Jan. 10 at 11:59pm
4	Jan. 11	Time Series Decomposition		Assignment 01: Basic Forecasting methods Due Thursday Jan. 12 at 11:59pm
5	Jan. 16	Exponential Smoothing Methods	Ch. 7	Quiz #3 Due Tuesday Jan. 15 at 11:59pm
6	Jan. 18	Exponential Smoothing Methods		Assignment 02: Time Series Decomposition Due Thursday Jan. 19 at 11:59pm
7	Jan. 23	ARIMA Models	Ch. 8	Quiz #4 Due Tuesday Jan. 24 at 11:59pm
8	Jan. 25	ARIMA Models		Assignment 03: Exponential Smoothing Methods Due Thursday Jan. 26 at 11:59pm
9	Jan. 30	Simple and Multiple Regression	Ch. 5	Final Project Part A Due Monday Jan. 30 at 11:59pm
10	Feb. 1	Simple and Multiple Regression		Assignment 04: ARIMA models Due Thursday Feb. 2 at 11:59pm
	Feb. 6-10	Final exam week		Final Project Part B deadline TBA