SYLLABUS
LIU POST
COLLEGE OF MANAGEMENT
Spring 2021

MDA 625: Time Series Forecasting

BASIC COURSE INFORMATION
Class Meeting Days: Thursdays (01 February 2021 – 07 May 2021)
Class Meeting Time: 8:35pm-10:50pm
Classroom: Library Room 113A
Class Website: https://blackboard.liu.edu/

Students are REQUIRED to use the class website for class information including, but not limited to, PowerPoint slides, announcements, grades, and general discussions. Students are also required to use their LIU's email addresses, and regularly check the email boxes. All announcements and communications in this class would be delivered ONLY to the LIU email addresses.

TEXT/RESOURCES: (PDF/ebook version recommended)

- Hyndman, Rob J., and George Athanasopoulos. *Forecasting: principles and practice*. OTexts, 2018.
- Academic papers from different journals contingent on the topic
- Online blogs and forums
  https://stackoverflow.com/
- Software necessary-R

*** Textbooks can be added later on depending on the need

INSTRUCTOR CONTACT INFORMATION
Instructor: Dr. Syed Muhammad Ishraque Osman
Email: Syed.Osman@liu.edu

Please put "MDA 625:" in the subject line and your full name at the end of all emails.

Office: Library LIB 302-41
Office Hours: Thursdays, 6:30 pm-8:30 pm
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COURSE DESCRIPTION:

This course first trains students on the fundamental big data and machine learning concepts needed for the role of a Data Scientist in companies. Then, this course equips students with the latest available tools to implement these concepts in answering business questions in a data driven way. This course uses hands-on project in business application of data analytics in an area of student interest, such as consumer behavior analytics, pricing analytics, marketing analytics, social media analytics, or other fields.

COURSE OBJECTIVES:

- Understand a business question (scenario) and construct an analytical framework to answer that question in a data driven way.
- Given the specific type of data (often a limiting factor), choose the right analytical framework and best possible set of models.
- Use software packages for data analytics (from exploratory/descriptive analysis phase to the final estimation phase)
- Provide actionable insights from the available data to the stakeholders in the business.

ASSURANCE OF LEARNING STANDARDS:

- Problem solving in a data driven way
- Analytical skills (conducting research, case analysis, etc.)
- Critical thinking (ability to apply a set of operations to impact an appropriate outcome, examples, etc.)
- Use of software packages and libraries in conducting analysis.
- Development of communication abilities (oral presentation, class demonstration, etc.)
- Learn how to write technical concepts and results for non-technical stakeholders in the business.

GRADING RUBRIC:

HomeWorks/Projects	25%
Flash Coding/Live Coding	25%
Capstone Project 1(Midterm)	25%
Capstone Project 2 (Final)	25%

*Grading composition is tentative and subject to change as seemed proper by the instructor

WEEK	TOPIC	ASSIGNMENTS
1	Course Introduction, Syllabus Data Scientists Toolbox: Causal modeling and Forecasting	
2	Time Series Graphics	Coding Homework
3 & 4	The Forecaster's Toolbox	
4	Judgmental Forecast	Coding Homework
5 & 6	Time Series Regression Models	
7 & 8	Time Series Decomposition	Coding Homework
9 ,10 & 11	Exponential Smoothing	Project 1: Choose and implement appropriate model given the type of data to answer a business question

		and present the results to the stakeholders
12	ARIMA Models	
13	Advanced Forecasting and Machine Learning Models	Programming/ Coding Home Work on these models
14		project 2

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ATTENDANCE

Attendance is mandatory. If a student cannot attend class, she/he should send a proof for the explanation email. Absences without valid excuses exceeding 2 classes will result in a reduction of grade.

ACADEMIC CONDUCT POLICY AND STANDARDS

All students are required to read the LIU Post Pride Student Handbook, where you will find the Academic Conduct Policy regarding A.) Academic Respect for the Work of Others, B.) Academic Self-Respect, C.) Academic Honesty, D.) Academic Originality and E.) Academic Fairness. The LIU Post Pride Student Handbook can be found at url: www.liu.edu/post/communitystandards.

PLAGIARISM

Not only is plagiarism a practice that is unacceptable but also it is condemned in the strongest terms possible on the basis of moral, educational and legal grounds. Under University policy, the offense of plagiarism may be punishable by a range of penalties up to and including failure in the course and expulsion from the University. Detailed information on the policy for plagiarism may be found on the Library section of the LIU Post website at http://liu.cwp.libguides.com/plagiarismprevention

DISABILITY SERVICES

Statement on Disability Support Services

If you are a student with a disability and require accommodations, please contact the Disability Support Services in Post Hall (lower level, East wing) at 299-3057 during the first week of the semester. More specific information on documentation requirements can be obtained by going to the DSS website at http://www.liu.edu/post/learningsupport or emailing Post-learningsupport@liu.edu