A·P·U
ASIA PACIFIC UNIVERSITY
OF TECHNOLOGY & INNOVATION

Time Series Analysis and Forecasting

AQ061-3-M-ODL-TSAF (VE1)

Week 1

Introduction and Module Overview

Lecturer Information

- Lecturer Name:
- Email:
- Consultation Hours: Refer to iConsult

Pre-Requisites For This Module

- Knowledge of simple mathematical / statistical methods and basic computer literacy.

Outcomes Based Education

- OBE is education based on producing particular educational outcomes that:
  - Focus on what students can actually do after they are taught.
  - Expect all learners / students to successfully achieve particular (sometimes minimum) level of knowledge and abilities.

- It's NOT what We want to teach.
- It's WHAT You should learn.

Aims of this Module

- Time Series Analysis and Forecasting introduces predictive analysis based past historical data.
- This module provides the knowledge of identifying time series characteristics, exploring data patterns, forecasting techniques, evaluating forecast errors, Box-Jenkins methodology and volatile models.
- The acquired skills are essential in the learning of higher modules.

Module Learning Outcomes

CLO	Learning Outcomes	Assessment
1	Examine the concepts of time series and forecasting techniques (C4, PLO2)	Class Test
2	Evaluate an appropriate forecasting model to fit real time series data (C5, PLO7)	Individual Assignment (Sect. A)
3	Interpret the forecasting outcomes using statistical software (A3, PLO6)	Individual Assignment (Sect. B)

Mapping of CLO with PLO

	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PLO 11	PLO12
CLO1		✓										
CLO2							✓					
CLO3						✓						

The learning domains are:
PLO2: Cognitive Skills
PLO6: Digital Skills
PLO7: Numeracy Skills

Student Learning Time

- Module Credit Value: 3
- Total Learning Hours: 120 per semester

Lecture	16 hours
Tutorial	6 hours
Practical	0 hours
Others	0 hours
Independent Learning Time	96 hours
Assessment	2 hours
Total Learning Hours	120 hours per semester

Module Content Outline (Please add/reduce the column as needed)

Week	Topic
1-2	Characteristics of Time Series
3-4	Smoothing Techniques
5	Performance Evaluation
6-7	Box-Jenkins Methodology
8	Volatile Models

Assessment Summary (refer to module handbook and module descriptor)

Form of Assessment	Assessment Methods	Hand Out Date	Hand In Date	%
Continuous Assessment	Class Test	8th week	8th week	40%
	Individual Assignment	5th week	8th week	60%
Final Assessment				

Assessment requirement: Include any specific requirement to pass the module (refer to module handbook for the information), such as:

- To pass the module, you must attempt every element of assessment and achieve at least 50% in the module overall.

Expectations

1. Abide by ALL rules and regulations of APU.
2. Proper attire.
3. No speaking of dialects.
4. Attendance is compulsory. Valid Medical Certs must be supported in any absence from class.
5. Three cases of Late will be equal to 1 absence.
6. Use proper academic references – APA Referencing only.
7. Academic Dishonesty / Plagiarism is a serious offence. Any suspicions will be referred to the University's Academic Dishonesty Board.
8. Formal assessments must be submitted on time in the specified format given. Failure to meet deadlines will be treated as non-submission and no marks will be awarded. Incomplete submissions will be subjected to penalty of mark deductions or forfeit.

Other Expectations

- State your expectation of what students need to do or deliver in class, as well as what they need to do out-of-class.
- If group projects are involved, clearly state what is to be expected from each individual (and not be dependent on the group leader)

Achievement Requirements:
Postgraduate Programmes

Marks	Alphabetical Grade	Grading Point	Classification
80-100	A+	4.0	Distinction
75-79	A	3.8	
70-74	B+	3.6	Merit
65-69	B	3.5	
60-64	C+	3.3	Pass
55-59	C	3.2	
50-54	C-	3.0	
40-49	D	2.5	Fail (marginal)
30-39	F+	2.0	Fail
20-29	F	1.5	Fail
10-19	F-	1.0	Fail
0-9	U	0	Unclassified

Reference Materials

Course Materials available in Moodle

- Module handbook
- Module descriptor
- Lecture slides
- Tutorial/Lab materials
- Sample incourse questions & answers
- Sample exam questions & answers

Essential and Further Readings

- Hyndman, R.J. and Athanasopoulos, G. (2021). Forecasting: Principles and Practice, 3rd Edition. Otexts. ISBN: 0987507133
- Chatfield, C. and Xing, H. (2019). The Analysis of Time Series: An Introduction with R, 7th Edition. Chapman and Hall/CRC. ISBN: 1498795633

*Further readings will be assigned from time to time.

Your Valuable Feedback

- You are welcome to discuss your views on this module at any point of time.
- Do fill in anonymous evaluation questionnaires in the student feedback form. There are two points - mid and end of the teaching semester.
- The feedbacks you provide will be constructive for improvement of teaching and module content development.