

COURSE IMPLEMENTATION DATE:	September 1994
COURSE REVISED IMPLEMENTATION DATE:	
COURSE TO BE REVIEWED:	September 1998
(Four years after implementation date)	(MONTH YEAR format)

OFFICIAL COURSE OUTLINE INFORMATION

Students are advised to keep course outlines in personal files for future use.

Shaded headings are subject to change at the discretion of the department and the material will vary - see course syllabus available from instructor

FACULTY/DEPARTMENT:	MATHEMATICS	
MATH 390		4
COURSE NAME/NUMBER	FORMER COURSE NUMBER	UCFV CREDITS
	TIME SERIES & FORECASTING	
COURSE DESCRIPTIVE TITLE		

CALENDAR DESCRIPTION:

The course is an introduction to the basic ideas on time series analysis and to the Box-Jenkins ARIMA family of models in particular. Observations are assumed discrete and uniformly spaced. Spectral methods are discussed without mathematical depth. The emphasis of the course will be on practical implementation of the methods. Students will have access to software implementing these models, e.g. MINITAB and BMDP. Students will be expected to collate a time series of their own choice, appropriately analyse, report, and construct forecasts for it.

PREREQUISITES: **Math 270, 302**
COREQUISITES:

SYNONYMOUS COURSE(S)	SERVICE COURSE TO:
(a) Replaces: _____ (Course #)	_____
(b) Cannot take: _____ for further credit. (Course #)	_____
	(Department/Program)

TOTAL HOURS PER TERM: 75	TRAINING DAY-BASED INSTRUCTION
STRUCTURE OF HOURS:	LENGTH OF COURSE: _____
Lectures: 45 Hrs	HOURS PER DAY: _____
Seminar: _____ Hrs	
Laboratory: 30 Hrs	
Field Experience: _____ Hrs	
Student Directed Learning: _____ Hrs	
Other (Specify): _____ Hrs	

MAXIMUM ENROLLMENT: _____

EXPECTED FREQUENCY OF COURSE OFFERINGS: _____

WILL TRANSFER CREDIT BE REQUESTED? (lower-level courses only)	<input type="checkbox"/> Yes	<input type="checkbox"/> No
WILL TRANSFER CREDIT BE REQUESTED? (upper-level requested by department)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
TRANSFER CREDIT EXISTS IN BCCAT TRANSFER GUIDE:	<input type="checkbox"/> Yes	<input type="checkbox"/> No

AUTHORIZATION SIGNATURES:

Course Designer(s): _____ Math Curriculum Committee	Chairperson: _____ (Curriculum Committee)
Department Head: _____ Barry Garner	Dean: _____ J.D. Tunstall
PAC Approval in Principle Date: _____	PAC Final Approval Date: October 27, 1993

COURSE NAME/NUMBER**LEARNING OBJECTIVES / GOALS / OUTCOMES / LEARNING OUTCOMES:**

The course is designed to enable students to:

1. Become acquainted with the theoretical and practical difficulties associated with correlated observations, and the standard procedures for analysis of such data;
2. Become familiar with ARIMA models and how to use appropriate software to fit these models to data;
3. Understand the relation of widely used empirical techniques to the mathematical ARIMA models and spectral methods;
4. Be able to construct probabilistic forecasts from time series data.

METHODS:**PRIOR LEARNING ASSESSMENT RECOGNITION (PLAR):**

Credit can be awarded for this course through PLAR (Please check :) Yes No

METHODS OF OBTAINING PLAR:**TEXTBOOKS, REFERENCES, MATERIALS:**

[Textbook selection varies by instructor. An example of texts for this course might be:]

TEXT: TBA

Basic References:

1. Time series analysis, forecasting and control. G.E.P. Box and G.W. Jenkins. (Prentice-Hall, Inc. revised edition 1976)
2. Quantitative forecasting methods. N.R. Farnum and L.W. Stanton. (PWS-KENT Publishing Company, Boston, 1989)

SUPPLIES / MATERIALS:**STUDENT EVALUATION:**

[An example of student evaluation for this course might be:]

Project	10%
Assignments	20%
In-class tests	30%
Final Examination	40%

COURSE CONTENT:

[Course content varies by instructor. An example of course content might be:]

First notions: Methods for forecasting, differencing, regression, moving averages, Fourier methods, Schuster's periodogram, updating, Holt-Winters' exponentially weighted moving averages, seasonality.

Stationarity: the autocorrelation function, the spectral density function, estimates, variances, smoothing.

Linear random shock models: the autoregressive moving average models, the Yule-Walker equations, admissibility and invertibility, differencing.

Minimum mean square error forecasts: stochastic model building and identification, diagnostic checking, monitoring forecasts.

Seasonal forecasting: simple models.

Linear transfer function models: the cross-correlation function, simple models relating two series.