



C R Rao Advanced Institute of Mathematics, Statistics & Computer Science (AIMSCS)

University of Hyderabad Campus, Gachibowli
Prof. C R Rao Road, Hyderabad, India 500 046
Website: <http://crraoaimscs.org>

SHORT TERM COURSE ON PREDICTIVE ANALYTICS USING APPLIED TIME SERIES METHODS IN BUSINESS AND FINANCE (PAATS - 2015)

By

Prof T. Subba Rao

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and

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About the Course

Time series Methods are often used in the analysis of data when there is temporal correlation in the data. Statistical models can be constructed to explain the correlation structure and these in turn can be used to obtain better forecasts. For example, daily temperatures at a given location, prices of various commodities, stock market prices (BSE index) are specific examples. Our object in this course is to introduce basic ideas of time series, define linear time series models and study their properties and consider their estimation. Forecasting (and evaluating the forecasting errors) using the time series models will be considered. Alternative methods such as neural network methods will also be considered. Whenever possible, the use of R software in the analysis will be demonstrated. Use of Nonlinear time series models (Bilinear time series models, ARCH models etc) will also be discussed.

Registration Fees

The participants are requested to register on line and pay the fee in advance to guarantee a place on the course. The fee is for the whole course. All participants must register (and pay the appropriate fee to guarantee a place on the course). The fee (per person) is charged as follows.

For participants from industry and commercial organizations	Rs 6000/-
For participants from academic institutions (other than UOH and CRRAO AIMSCS)	Rs 3000/-
The participants from the University of Hyderabad and CRRAO AIMSCS are exempted	

The participants can pay the fee through Bank transfer to the account of the CRRAO AIMSCS and the following are the details of the account.

Account Holder Name	C R Rao Advanced Institute of Mathematics, Statistics and Computer Science
Name of the Bank	State Bank of India
Name of the Branch	University of Hyderabad
Account Number	30636141038
IFSC Code of the Branch	SBIN0005916

Interested participants are requested to submit their forms to the following email address paats2015@crraoaimscs.res.in on or before **14th February 2015** to guarantee a place on the course.

Venue: Class Room-1, First Floor, Ramanujan Building, C R Rao AIMSCS



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LECTURE SCHEDULE

Topics	Lectures	Date	Time
Basic definitions, stationarity (second order stationarity, strict stationarity). Definition of autocorrelation. Estimation of mean, variance, autocovariances and correlations, their sampling properties.	Lecture 1	16 th Feb, 2015 (Monday)	3.30 PM to 5.00 PM
	Lecture 2	23 rd Feb, 2015 (Monday)	3.30 PM to 5.00 PM
Linear Time Series Models: White noise (Gaussian white noise). Test for white noise. Harmonic Processes, Autoregressive Models, Moving average Models and autoregressive Moving average Models. The Properties of these models. Brief discussion of invertibility and its relevance	Lecture 3	2 nd March, 2015 (Monday)	3.30 PM to 5.00 PM
	Lecture 4	9 th March, 2015 (Monday)	3.30 PM to 5.00 PM
Estimation of Linear Models, Diagnostic checks. Mean Square error Forecasting, Second order spectral methods.	Lecture 5	12 th March, 2015 (Thursday)	3.30 PM to 5.00 PM
	Lecture 6	16 th March, 2015 (Monday)	3.30 PM to 5.00 PM
Limitations of Linear Models. Introduction to Nonlinear Models, Bilinear models, ARCH models, GARCH models.	Lecture 7	19 th March, 2015 (Thursday)	3.30 PM to 5.00 PM
Neural Network Methods in Banking and Finance.	Lecture 8	23 rd March, 2015 (Monday)	3.30 PM to 5.00 PM
	Lecture 9	30 th March, 2014 (Monday)	3.30 PM to 5.00 PM

Hands on Session will be held by Dr Alok Srivastava and Dr P V Sundaranand of CR Rao AIMSCS. Due to limited number of computers in the lecture hall, the number of places will be limited for the hands on session. So please register early if you wish to attend the hands on session by emailing to hospaats2015@crraoaimscs.res.in on or before 14th Feb, 2015.

For details visit <http://crraoaimscs.org>