

Time series models for ecologists: course timetable

Andrew Parnell

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Module pre-requisites can be found [here](#). All the raw files and code can be found [here](#). Click ‘Download ZIP’ near the top right if you want an offline version of the material

Monday 26th June

Time	Class
9:00-10:00	Introduction, example data sets Class 1
10:00-10:30	Coffee break
10:30-11:30	Revision: likelihood and inference Class 2
11:30-11:45	Break
11:45-12:45	Revision: linear regression and GLMs Class 3
12:45-14:00	Lunch
14:00-15:00	Tutor-guided practical: Loading data in R and running simple analysis Practical 1
15:00-15:30	Coffee break
15:30-17:00	Self-guided practical: Analysing some example data sets Practical 2

Tuesday 27th June

Time	Class
9:00-10:00	Auto-regressive models and random walks Class 1
10:00-10:30	Coffee break
10:30-11:30	Moving averages and ARMA Class 2
11:30-11:45	Break
11:45-12:45	Integrated models and ARIMA Class 3
12:45-14:00	Lunch
14:00-15:00	Tutor-guided practical: the forecast package in R Practical 1
15:00-15:30	Coffee break
15:30-17:00	Self-guided practical: Fitting ARIMA models with forecast Practical 2

Wednesday 28th June

Time	Class
9:00-10:00	Including covariates: ARIMAX models Class 1
10:00-10:30	Coffee break
10:30-11:30	Model choice and forecasting Class 2
11:30-11:45	Break
11:45-12:45	Creating bespoke time series models using Bayes Class 3
12:45-14:00	Lunch
14:00-15:00	Tutor-guided practical: a walkthrough example time series analysis Practical 1

Time	Class
15:00-15:30	Coffee break
15:30-17:00	Self-guided practical: finding the best time series model for your data set Practical 2

Thursday 29th June

Time	Class
9:00-10:00	Modelling with seasonality and the frequency domain Class 1
10:00-10:30	Coffee break
10:30-11:30	Stochastic volatility models and heteroskedasticity Class 2
11:30-11:45	Break
11:45-12:45	Fitting Bayesian time series models Class 3
12:45-14:00	Lunch
14:00-15:00	Tutor-guided practical: fitting time series models in JAGS and Stan Practical 1
15:00-15:30	Coffee break
15:30-17:00	Self-guided practical: start analysing your own data set

Friday 30th June

Time	Class
9:00-10:00	Models for continuous time series: Brownian Motion and Ornstein Uhlenbeck processes Class 1
10:00-10:30	Coffee break
10:30-11:30	State-space and change point models Class 2
11:30-11:45	Break
11:45-12:45	Multivariate time series models and co-integration Class 3
12:45-14:00	Lunch
14:00-17:00	Open session: analyse your own data set