

TIME SERIES BOOTCAMP SEPTEMBER 2018 SYLLABUS

COURSE INFORMATION

Instructor: Charlotte Haley
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SUMMARY

This is an introductory bootcamp in time series analysis, spectrum analysis and filtering. Topics include autocorrelation/partial autocorrelation functions, exploratory methods for time series, ARIMA modeling, Fourier transforms, digital filters, and frequency domain (spectral) methods.

SCHEDULE

Class will be held in Hinds 176 Monday-Friday between September 4-14, 2018. There will be daily lecture, assignment problems, and laboratory time.

Lectures	1:30-3:00pm
Break	3:00-3:15pm
Lab	3:15-4:00pm
Office Hour	4:00-4:30pm

STUDENT EXPECTATIONS

- This course is not graded. Students are expected to complete their exercises on their own or in groups during class time.
- Students are expected to bring their own time series to analyze, or choose an environmental time series available via the website. We will use some of the example data available via the course website for practice and illustration.
- All students will be expected to present their own data analyses in slide form during week 2. Presentations are to be 15 minutes in length with 5 minutes for questions (8-15 slides). There is no auditing this course!
- Students are strongly encouraged to use the free software, R, because of the existence of some great time series and spatial packages. This will allow us to spend more time on concepts.

TOPICS COVERED

We will cover during lectures Sects 1.1-1.5, 2.1-2.3, 3.1-3.5, and 4.1-4.4 of the Shumway and Stoffer 4th edition Springer textbook. This includes topics not limited to:

- Stationarity
- Autocorrelation & Partial Autocorrelation
- Regression
- Autoregressive modeling
- Discrete Fourier Transforms
- Spectral Density

SURVEYS

Students can communicate to the instructor via the anonymous feedback page accessible through the website.