

PHYS 411 Time Series Analysis - Fall 2022

Instructor: Johannes Gemmrich

Gemmrich@uvic.ca

Available for discussions/questions: by appointment

Lectures: 9:30 – 10:20 Tue, Wed, Fri

Course information: bright.uvic.ca

Grading: Assignments (5): 40%

Mid term exam: 16%

Class participation: 4%

Term project: 40%

Late hand in (without previous discussion with me): -10%/day

Text book: The course does not follow a specific textbook. Suggestions for (online) textbooks are listed on the course Brightspace page.

Material on the course Brightspace page

Course outline:

- 1) Introduction to time series analysis
- 2) Univariate statistics
- 3) Bivariate statistics
- 4) Time series, correlations
- 5) Data interpolation, gridding
- 6) Fourier series, Fourier transform
- 7) Power spectra estimation
- 8) Data filtering
- 9) Selected topics:
 - Principal component analysis
 - Wavelets
 - Empirical Mode decomposition