

**Epi-on-the-Island**  
**Multivariate Visualization and Analysis**  
**18-22 June 2018**

**Tentative Schedule**

Day	Time	Lecture	Laboratory
Mon	8:30 - 10:00	Introduction to the course [all] Introduction to visualisation [CR]	Motivating examples [CR]
	10:30 - 12:00	Introduction to Python/Jupyter [GM]	Basic python [GM]
	1:30 - 3:00	Introduction to Pandas and Seaborn [GM/CR]	Pandas lab [GM]
	3:30 - 5:00	Some closing demos of more 'advanced' visualisation [CR]	Seaborn lab [GM]
	5:00 - 6:00	Get familiar with participants' data, and assist with data import, etc. [all]	
Tues	8:30 - 10:00	Multivariate distance measures, multidimensional scaling and unsupervised hierarchical clustering [HS]	
	10:30 - 12:00		Hierarchical clustering lab [HS/GM]
	1:30 - 3:00	Partition-based clustering, and other general issues around clustering [CR]	
	3:30 - 5:00		Partition-based and other clustering lab [CR/GM]
	5:00 - 6:00	Discuss data structure/quality with participants in relation to their study [all]	
Wed	8:30 - 9:15	Introduction to dimension reduction approaches, especially principal components analysis [HS]	
	9:15 - 10:00		Principal components analysis lab [all]
	10:30 - 12:00	Multiple correspondence analysis [CR]	
	1:00 - 2:00		Multiple correspondence analysis lab [CR/GM]

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	2:00 - 3:00	Discussion of normalization, rotation, and data requirements for dimension reduction approaches [HS]	
	3:30 - 5:00		Dimension reduction techniques and links back to clustering algorithms lab [all]
	5:00 - 6:00	Participants free to work on own data [all]	
Thur	8:30 - 10:00	Introduction to classification based on categorical outcomes, including regression and support vector machine techniques, as well as dimension reduction for predictors [HS]	
	10:30 - 12:00		Classification with predictor dimension reduction lab [HS/GM]
	1:30 - 2:30	Classification and regression trees and random forests, as well as other ensemble methods [CR]	
	3:00 - 4:00		Classification using RF and comparing results from a range of classification methods lab [CR]
	4:00 - 5:00	Measures of ‘success’ for classification and multivariate methods in general [HS/CR]	<i>Time of general discussion and questions around any aspect of the course.</i>
	Evening	Course dinner	
Fri	8:30 - 10:00		Participants work on own or provided data
	10:30 - 12:00		Participants work on own or provided data
	1:30 - 3:00	Presentations by participants	
	3:30 - 5:00	Presentations by participants; Course wrap-up	