SQM Semester 1 (2022/23)
Syllabus

W	Topic	Lectures (1+1 h)	Workshop (1 h)	Readings	Formative (due Mon)	Formative (due Thu)	Summative	S4LR	R4DS	Intensity
1	**Quantitative methods and uncertainty**	Quantitative data analysis, uncertainty, subjectivity, descriptive stats, Open Research. New Statistics	Introduction to R and RStudio, Rmarkdown/ Quarto	- Darwin 2020 (pp1-5 top): positionality - Jafar 2018: positionality				Ch 1	Ch 1, 2	🌶🌶
2	**Data visualisation**	Principles of data viz, types of variables	Plot with ggplot2	- Wickham 2010: GoG	- FM1: Positionality statement (one paragraph) - Retrieving Syllabus (every week)				Ch 3	🌶
3	**Linear models: Basics I**	Linear model	Transform data, simulate data, lm() with continuous outcome and predictors	- Okasha 2006 (Ch 4) realism and antirealism	FM2: Grammar of graphics analysis	FT1: Data viz		Ch 4	Ch 5	🌶🌶
4	**Linear models: Basics II**	Categorical predictors, coding (treatment, sum)	Read and summarise data, contrast coding, lm() with continuous outcome and categorical predictors	- Gelman 2017 (Sec 1-3): virtues beyond objectivity and subjectivity	FM3: What are the consequences of realism vs antirealism on quantitative research? (one paragraph)			Ch 7	Ch 9, 10 and 11	🌶🌶🌶
5	**Linear models: Discrete outcomes**	Binary and count outcomes	glm() with binary and count outcome, log-odds, logit	- Gibbons 1999: social contract		FT2: LM report		Ch 12 and 13		🌶🌶
6	**Catch-up week**			- Crüwell 2019: Open Science - Glass 2008: hypothesis - Turing Way	FM4: Interface of Gelman's "virtues" and Gibbon's "social contract" (one paragraph)					
7	**Linear models: Basics III**	Interactions, centering, standardisation	g/lm() with interactions, plotting interactions, scale()			FT3: Data wrangle + simple modelling		Ch 8 and 5	Ch 12	🌶🌶🌶
8	**Linear models: Hierarchical data**	Fixed and varying effects, pooling and shrinkage	g/lmer(), plotting varying effects					Ch 14 and 15		🌶🌶
9	**Significance testing I**	Statistical inference and NHST	Calculate p-values with lmerTest	- Gigerenzer 2004 (Sec 1-4): mindless statistics		FT4: Modelling	Release data for S1	Ch 9, 10 and 11		🌶🌶🌶
10	**Significance testing II**	Alpha and beta, Type I/II/M/S errors	Power analysis					Ch 9, 10 and 11		🌶🌶
11										
12							S1: Data viz and modelling			