

Course Title/Code:	Advanced Statistical Methods II (MMPH6150)
Department:	School of Public Health
Objective:	<ol style="list-style-type: none"> 1. Explain the frequentist and Bayesian approaches to statistical inference. 2. Conduct appropriate descriptive and inferential analyses of quantitative data using the statistical software package R. 3. Apply linear and additive models and correctly explain and interpret their methods and results. 4. Apply data resampling techniques to estimate the uncertainty in parameter estimates.
Content:	<ol style="list-style-type: none"> 1. Frequentist inference, interval estimation and hypothesis testing 2. Partial least square and LASSO regression 3. Regression discontinuity design 4. Marginal structural model 5. Bootstrap method 6. Survival analysis, multiple imputation 7. Longitudinal analysis 8. Bootstrap method 9. Bayesian inference
Learning Outcomes:	<p>By the end of this course, students should be able to:</p> <ol style="list-style-type: none"> 1. Explain the frequentist and Bayesian approaches to statistical inference. 2. Conduct appropriate descriptive and inferential analyses of quantitative data using the statistical software package R. 3. Apply linear and additive models and correctly explain and interpret their methods and results. 4. Apply data resampling techniques to estimate the uncertainty in parameter estimates.
Prerequisite:	Introduction to Biostatistics (MMPH6002); Advanced statistical methods I (MMPH6117)
Duration:	3 hours/week; 30 contact hours
Continuous sasessment/ Examination ratio:	Coursework: 30% Examination: 70%
Examination Method:	Data analysis assignment in class with data sets given one week in advance (2 hours)
Remarks:	Approval from the School must be sought prior to enrollment.