Pick up your Tool: Validity, Reliability & Diagnostic Accuracy

		Topic	Date	Hours
Day 1		Types of validity & reliability	Mon 16 June: 7 – 9 PM	2
Day 2		Questionnaire validation	Thu 19 June: 7 – 9 PM	2
Day 3		Agreement statistical analysis 1	Mon 23 June: 7 – 9 PM	2
Day 4		Agreement statistical analysis 2	Thu 26 June: 7 – 9 PM	2
Day 5		Diagnostic accuracy statistical analysis	Mon 30 June: 7 – 9 PM	2
Day 6		Practice	Thu 3 July: 7 – 9 PM	3

Validity:
- Interval Vs external validity
- Construct validity
  - Face validity
  - Content validity
  - Predictive validity
  - Concurrent validity
  - Convergent validity
  - Discriminant validity
- Inference validity

Reliability:
- Test-retest reliability
- Internal consistency
- Parallel forms & Split half
- Inter/intra observer agreement

Questionnaire validation:
- Data collection methods
- Patients reported outcome measures (PROMs)
- PROM cycle
- Develop new PROMs or modify an existing
- Translating questionnaire
- Cross culture validation

Testing systematic bias
- McNemar test
- Cochran Q
- Paired student test
- Repeated measure ANOVA
- Wilcoxon signed rank test
- Friedman test

Testing agreement:
- Cohen kappa
- Weighted kappa
- Fleiss/Randolph kappa
- Bland Altman plot
- Lin's concordance coefficient

- Intra-class correlation coefficient
- Kendall's W

Diagnostic accuracy measures

- Sensitivity & specificity
- Positive and Negative Predictive Values (PPV & NPV)
- Likelihood ratios
- Fagan's nomogram
- ROC analysis and AUC
- Pre & post test probability

Application: Running statistical test on SPSS and other free software