

brainbox

initiative

**Fundamentals & Applications of
TMS**

Sample Programme

- 13:00** Welcome & Introduction
- 13:00** Lecture: **TMS Physiology & Common Measures**
- Physiology of transcranial motor cortex stimulation
 - Basic principles of magnetic and electrical stimulation
 - Physiology of transcranial magnetic and electrical motor cortex stimulation
 - Common measurements and applications of single-pulse TMS
- 14:00** Lecture: **TMS Safety - Contraindications & Ethics**
- 15:00** Demonstration: **Single Pulse TMS**
- 15:20** Break
- 15:30** Lecture: **Paired Pulse TMS**
- Insights into intracortical circuitry
 - Basic principles of paired-pulse TMS
 - Physiology of cortical circuits investigated with paired-pulse TMS
 - Research and clinical applications
- 16:30** Demonstration: **Paired Pulse TMS & TMS Software**
- 17:00** End workshop day one

March 30

- 13:00** Lecture: **Influences on the Excitability of the Brain/ rTMS for the Induction of Plasticity**
- Induction of plasticity-life processes via rTMS (intrinsic and extrinsic plasticity)
 - rTMS protocols
 - Safety
 - Effects on intracortical excitability and cortico-cortical connectivity
 - Note of caution: inter- and intra-individual variability
- 14:00** Demonstration: **rTMS Systems & Applications**
- 14:20** Break
- 14:30** Lecture: **Experimental Design for Virtual Lesions**
- Applications of TMS in Research
 - Overview of how TMS is applied, looking at and discussing studies that have used TMS as a tool to investigate causal brain-behaviour relations
 - Effects on behaviour (online/offline lesions)
- 16:00** Group Methods Lab Discussion
- Delegates will be asked to prepare some preliminary thoughts and ideas for a TMS study that they would like to run, to be discussed with other workshop attendees and course leaders.
- 17:00** End workshop day two

March 31

- 13:00** Lecture: **Introduction to TMS Neuronavigation & TMS Robotics**
- 14:00** Practical Demonstration: **Subject Registration & Coil Calibration in Brainsight TMS Navigation**
- 14:20** Break
- 14:30** Lecture: **Selecting Targets in Brainsight**
- 15:00** Practical Demonstration: **Using Brainsight to select targets, including:**
- Importing overlays
 - Atlas space registrations
 - Optimising trajectories
 - Optimising grids
- 16:20** Break
- 16:30** Practical Demonstration: **Current Flow Modelling in Brainsight**
- 17:00** Wrap Up & Workshop Close

April 1