



brainbox
initiative

**Fundamentals & Applications of
TMS Workshop**
Sample Programme

DAY

1

12:30 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**

- An overview of best safety practices for TMS studies
- How to screen participants for TMS studies
- Common side effects and how to treat them

15:00 Break

15:10 Demonstration: **Single-Pulse TMS**

- Electrode preparation
- Locating a subject's TMS 'hotspot' and coil positioning
- Determining a subject's motor threshold

16:00 Lecture: **An Introduction to Paired-Pulse TMS**

- Insights into intracortical circuitry
- Physiology of cortical circuits investigated with paired-pulse TMS
- Research uses and clinical applications of ppTMS

17:00 Demonstration: **Paired-Pulse TMS**

17:30 End Workshop Day One

Day One



13:00 Lecture: **Introduction to rTMS Techniques: Influences on the Excitability of the Brain**

- Induction of plasticity-life processes via rTMS (intrinsic and extrinsic plasticity)
- Introduction to the range of rTMS protocols & safety considerations
- Effects of rTMS on intracortical excitability and cortico-cortical excitability

14:00 Demonstration: **rTMS Systems & Applications**

14:30 Break

14:40 Lecture: **Experimental Design for Virtual Lesions**

- Applications and summary of TMS in research
- Overview of how TMS is applied, exploring studies that have used TMS as a tool to investigate causal brain-behaviour relations
- Effects of TMS on behaviour (online & offline lesions)

16:10 Group Methods Lab Discussion

- An open forum for delegates to discuss questions from the previous two days' talks, as well as discuss thoughts for any future TMS studies that they may wish to run

17:00 End Workshop Day Two

Day Two

13:00 Lecture: **Latest Advances in TMS**

- An introduction to the latest advanced TMS techniques, and an overview of the current field of research using these methods

13:30 Lecture: **Introduction to TMS Neuronavigation & TMS Robotics**

14:30 Demonstration: **Subject Registration & Coil Calibration in Brainsight TMS Navigation**

14:50 Break

15:00 Lecture: **Selecting Targets in Brainsight TMS Navigation**

15:30 Interactive Demonstration: **Preparing a Project in Brainsight TMS Navigation**

- Delegates will have the opportunity to follow a guided tutorial exploring how to import anatomical data and reconstructions
- Selecting landmarks
- Importing overlays and atlas space registrations
- Selecting stimulation targets and optimising trajectories
- Carrying out current flow modelling techniques

17:00 Workshop Day Three Close