

### **Course Overview**

If you currently use PowerLab systems with LabChart software in your electrophysiology research, this course will ensure you are getting maximum potential from LabChart. You will receive advice on the best LabChart setup for your particular measurements — from biopotentials and evoked responses to more intricate intracellular and extracellular recordings. You will also experience a range of specialised LabChart analysis features applicable to your research.

As well as extensive instruction by ADInstruments staff, you will be guided through a series of exercises on relevant data files to consolidate your learning. There will be opportunity to discuss your experimental setup's specific requirements. You will have access to your own hardware terminal throughout the course, and a limit of four participants will ensure that you receive the level of attention you require.

### **Who should attend?**

This course would be useful for all electrophysiologists and neurophysiologists who are confidently acquiring data, but wish to use greater functionality within LabChart software. This course will assume some experience with PowerLab systems and LabChart (equivalent to our LabChart training courses I & II), and will suit users who need an intensive course for learning how to use the features that enhance LabChart's potential for displaying and analysing electrophysiological data. It will also suit researchers who are interested in developing the range of parameters that they measure.

### **Learning Outcomes**

At the end of this training course you will be able to:

- Use LabChart tools designed to increase accuracy when recording electrophysiological signals
- Make use of relevant formatting, display and processing features in LabChart
- Understand and use the specialised recording and analysis extensions and modules

## Course Agenda

### LabChart Features for Electrophysiological Signals

- Display features including Scope View
- Cyclic Measurements including detection customisation for your waveform
- Channel Calculations including digital filters and smoothing
- Extracting data for further analysis
- Relevant Extensions including Telegraph, Fast Response Output and file type options

### Measuring Biopotentials

- Creating the correct settings for your biopotential signals
- LabChart features for EMG including RMS and ARV
- Filtering options for EEG
- Spectral analysis and Spectrogram

### Measuring Evoked Responses

- Using Scope View to overlay and average evoked responses
- Extracting relevant parameters to Data Pad
- Peak Analysis Module for evoked responses

### Extracellular Recordings

- Creating the correct settings for your waveform
- Whole nerve recordings - integrating and rectifying
- Peak Analysis Module for monophasic action potentials
- Spike Histogram Module for single unit recordings including amplitude and rate meter histograms and cross-correlation histogram

### Intracellular and Patch Clamp Recordings

- Creating the correct settings for your signal type
- LabChart features for intracellular recordings including Cyclic Measurements and Data Pad options
- LabChart features for patch clamp experiments

### Controlling External Devices with LabChart

- Stimulator – preset and customisable waveforms
- Using the Event Manager and Fast Response Output extensions

### Improving LabChart Functionality

- Export options for use with other analysis programs
- Find LabChart features, extensions and modules in the Feature Manager