

Australasian Course in Advanced Neuroscience

2025 COURSE PROGRAM



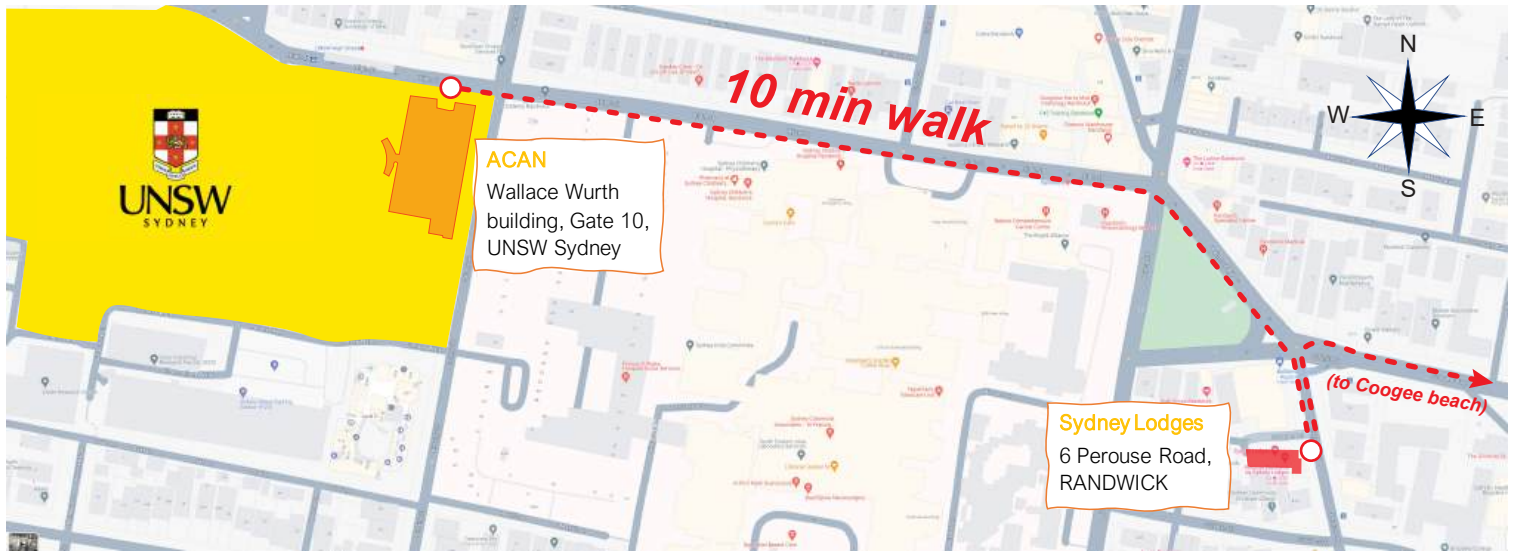
ACAN2025

## Table of Contents

<b>Course Site Map &amp; Commute</b> .....	<b>2</b>
<b>Floor Plan</b> .....	<b>3</b>
<b>Program</b> .....	<b>4</b>
Welcome   Sunday 19 Jan.....	4
<b>Theme 1   Neurons &amp; Networks</b> .....	<b>5</b>
Monday 20 Jan – Fundamentals of Electrophysiology .....	5
Tuesday 21 Jan – Building Blocks of Neurons .....	6
Wednesday 22 Jan – Neuronal Communication .....	7
Thursday 23 Jan – Neuronal Communication (Message Plasticity).....	8
Friday 24 Jan – Neuronal Operation .....	9
Saturday 25 Jan – Neuronal Function .....	10
<b>Theme 2   Networks &amp; Systems</b> .....	<b>11</b>
Monday 27 Jan – Controlling Neurons with Light .....	11
Tuesday 28 Jan – Measuring Neural Function with Light .....	12
Wednesday 29 Jan – Multiphoton Imaging .....	13
Thursday 30 Jan – Mesoscopic Neural Systems .....	14
Friday 31 Jan – Microscopic Neural Systems .....	15
Saturday 01 Feb – Wrap Up! .....	16
<b>Theme 3   Systems &amp; Behaviour</b> .....	<b>17</b>
Monday 03 Feb – Learning & Behaviour .....	17
Tuesday 04 Feb – Setting up Brain Systems .....	18
Wednesday 05 Feb – Learning & Neuromodulation (I) .....	19
Thursday 06 Feb – Learning & Neuromodulation (II) .....	20
Friday 07 Feb – Systems Failure .....	21
Saturday 08 Feb – Wrap Up! .....	22
<b>Course Faculty</b> .....	<b>23</b>
Board of Directors   Coordinators   Lecturers .....	23
Instructors.....	24



COURSE **SITE MAP & COMMUTE**



ACAN (Wallace Wurth building)



Entry vial UNSW **Gate 10**

Sydney Lodges (Perouse Randwick)



Entry via **Perouse Road**

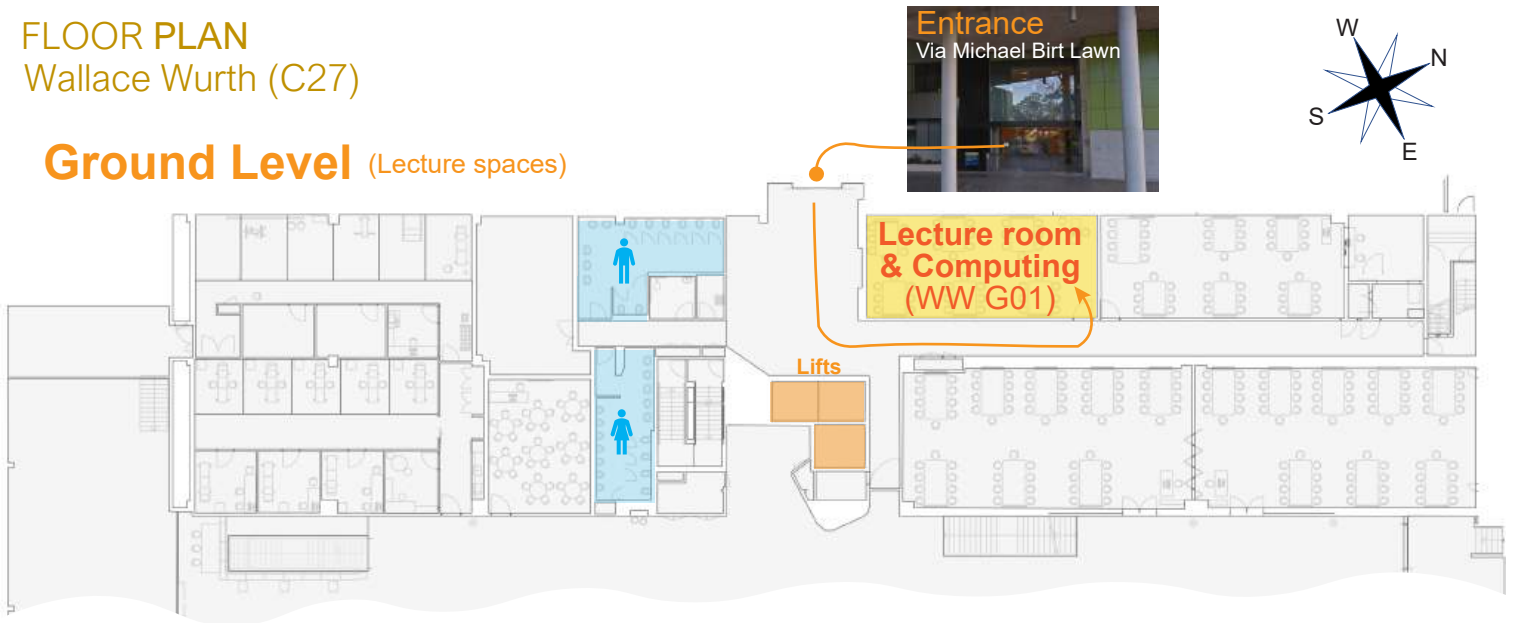
Coogee beach (follow Coogee beach Rd)



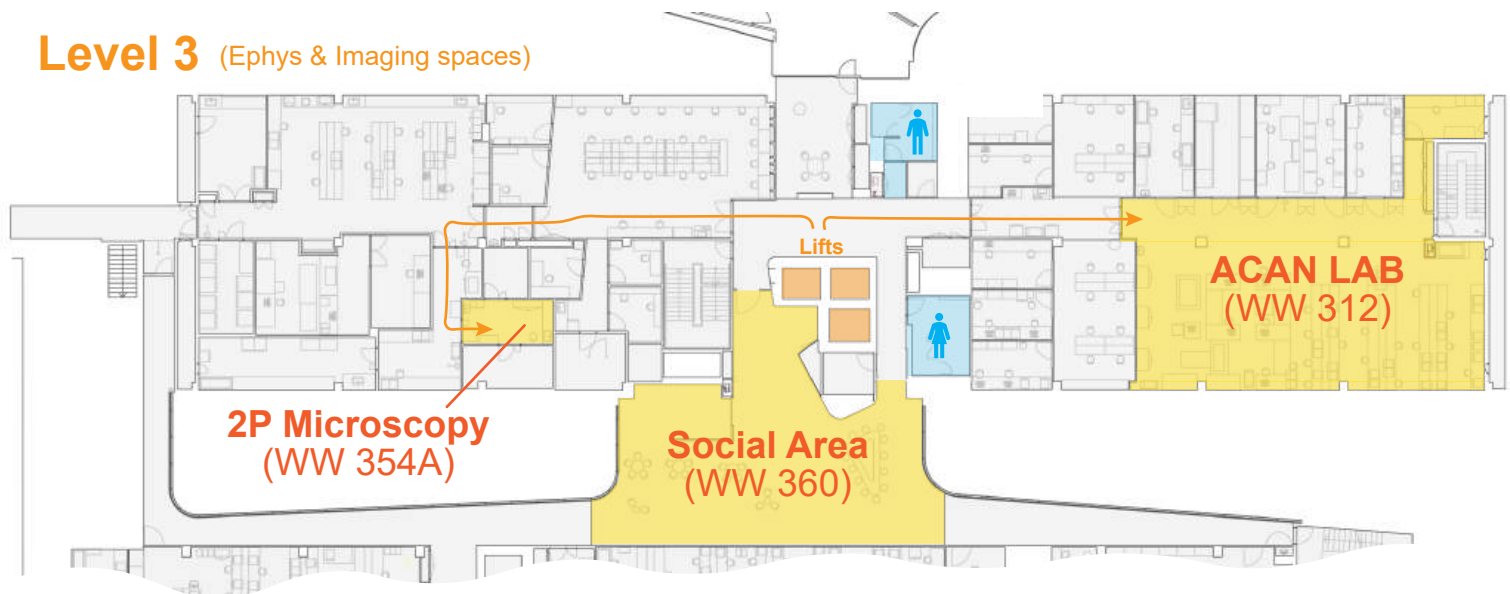
# 2025 | AUSTRALASIAN COURSE IN ADVANCED NEUROSCIENCE

## FLOOR PLAN Wallace Wurth (C27)

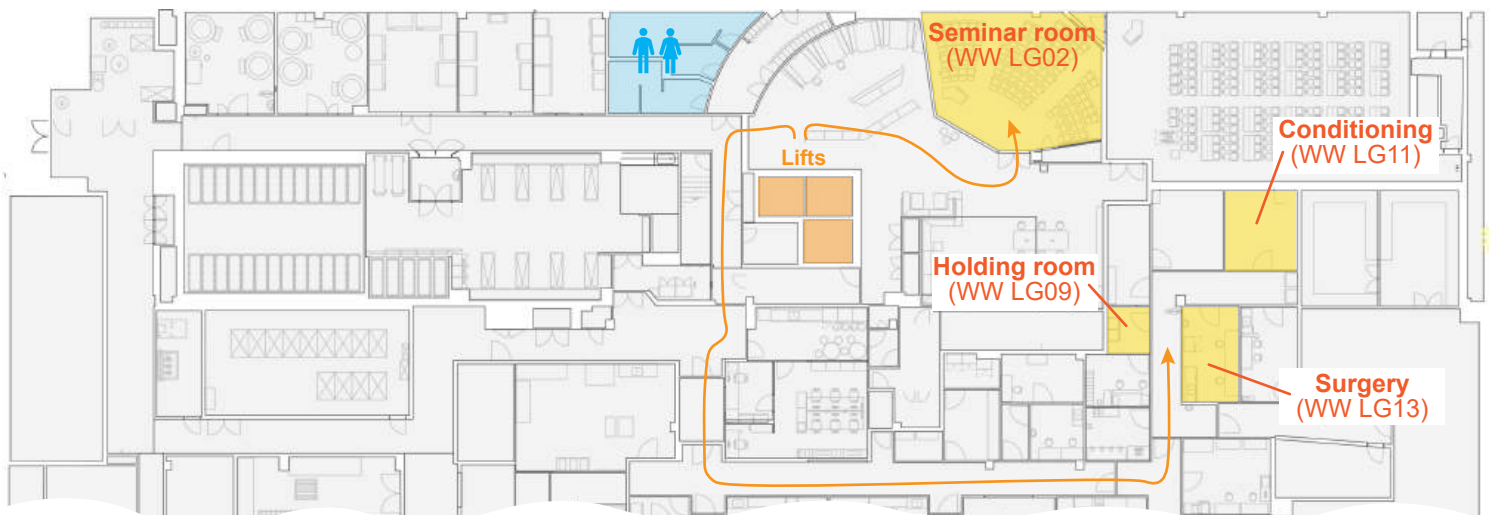
### Ground Level (Lecture spaces)



### Level 3 (Ephys & Imaging spaces)



### Lower Ground (Behaviour & Surgery spaces | Seminar spaces)



Welcome | Sunday 19 JANUARY

## EVENING SESSION

The Lounge @ UNSW

17:30 – 18:15

Welcome drinks | Course Introduction

Alan Finkel                      *ACAN Founder*  
Janet Keast                        *ANS President*  
Greg Stuart                        *ACAN Chair*  
Jay Bertran-Gonzalez        *Course Director*  
Lee Fletcher                      *Co-director*  
Kate Poole                         *Co-director*  
John Power                        *Co-director*  
Elena Bagley                      *Co-director*  
ACAN Faculty and Students

18:30 – 20:30

The Lounge @ UNSW

WELCOME DINNER

Students and Faculty



# THEME 1 | NEURONS & NETWORKS

Monday 20 JANUARY

## FUNDAMENTALS OF ELECTROPHYSIOLOGY

07:30 – 08:15

Breakfast (Perouse Randwick)

### SUNRISE SESSION

Lecture Room (WW G01)

08:30 – 09:00

**Introduction to Theme**

**Lee Fletcher** | *Monash University* (VIC)

09:00 – 10:15

**The Golden Rules of Electrophysiology**

**John Bekkers** | *Eccles Institute of Neuroscience ANU* (ACT)

10:15 – 10:45

Coffee Break

### MORNING SESSION

Lecture Room (WW G01)

10:45 – 12:00

**Practical Aspects of Patch Clamp Recordings**

**Kate Poole** | *UNSW Sydney* (NSW)

12:00 – 13:00

Lunch (UNSW Food Court)

### AFTERNOON PRAC

ACAN Lab (WW 312)

13:00 – 13:30

**Pre-Lab Debrief** | **Cherry Mao** (Florey VIC), **Alex Tang** (UWA WA), **Ben Lau** (UNSW NSW), **Tobias Bluett** (UQ QLD), **Bryony Winters** (USyD NSW), **Lee Fletcher** (Monash VIC)

14:00 – 18:00

**Lab: Meeting the rigs** | *All groups*

### EVENING WORKSHOPS

ACAN Lab (WW 312)

15:00 – 18:00

**Neuro-Electronics Workshop** | *Group A*

**Ian Forster** | *Florey Institute of Neuroscience* (VIC)

18:30 – 19:30

Dinner (Social area – WW 360)

### SUNSET SESSION

Lecture Room (WW G01)

19:30 – 22:00

**Student Presentations**



# THEME 1 | NEURONS & NETWORKS

Tuesday 21 JANUARY

## BUILDING BLOCKS OF NEURONS

07:30 – 07:55

Breakfast (Perouse Randwick)

### SUNRISE SESSION

Lecture Room (WW G01)

09:00 – 10:15

**The Electrical Structure of The Neuron**

**Greg Stuart** | *Monash University (ANU)*

10:15 – 10:45

Coffee Break

### MORNING SESSION

Lecture Room (WW G01)

10:45 – 12:00

**Voltage-gated Ion Channels and Excitability**

**Bill Connelly** | *University of Tasmania (TAS)*

12:00 – 13:00

Lunch (UNSW Food Court)

### AFTERNOON PRAC

ACAN Lab (WW 312)

13:00 – 13:30

**Pre-Lab Debrief** | **Cherry Mao** (Florey VIC), **Alex Tang** (UWA WA),  
**Ben Lau** (UNSW NSW), **Tobias Bluett** (UQ QLD),  
**Bryony Winters** (USyD NSW), **Lee Fletcher** (Monash VIC)

13:30 – 18:00

**Lab: Current and voltage relationships in neurons** | *All groups*

### EVENING WORKSHOPS

ACAN Lab (WW 312)

15:00 – 18:00

**Neuro-Electronics Workshop** | *Group B*

**Ian Forster** | *Florey Institute of Neuroscience (VIC)*

18:30 – 19:30

Dinner (Social area – WW 360)

### SUNSET SESSION

ACAN Lab (WW 312)

19:30 – Late.

**Lab After-hours** | *All groups*



# THEME 1 | NEURONS & NETWORKS

Wednesday 22 JANUARY

## NEURONAL COMMUNICATION

07:30 – 08:45

Breakfast (Perouse Randwick)

### SUNRISE SESSION

Lecture Room (WW G01)

09:00 – 10:15

**Axons and Signal Transmission**

**Maarten Kole** | *University of Utrecht, Netherlands Institute of Neuroscience* (Netherlands)

10:15 – 10:45

Coffee Break

### MORNING SESSION

Lecture Room (WW G01)

10:45 – 12:00

**Neurotransmission and Synaptic Function**

**Karl Iremonger** | *University of Otago* (NZ)

12:00 – 13:00

Lunch (UNSW Food Court)

### AFTERNOON PRAC

ACAN Lab (WW 312)

13:00 – 13:30

**Pre-Lab Debrief** | **Cherry Mao** (Florey VIC), **Alex Tang** (UWA WA), **Ben Lau** (UNSW NSW), **Tobias Bluett** (UQ QLD), **Bryony Winters** (USyD NSW), **Lee Fletcher** (Monash VIC)

13:30 – 18:00

**Lab: Action potential dynamics** | *All groups*

### EVENING WORKSHOPS

ACAN Lab (WW 312)

15:00 – 18:00

**Solutions and Slicing Workshop** | *Group 1*

**Yossi Buskila** | *Western Sydney University* (NSW)

18:30 – 19:30

Dinner (UNSW Social area)

### SUNSET SESSION

ACAN Lab (WW 312)

19:30 – Late.

**Lab After-hours** | *All groups*





# THEME 1 | NEURONS & NETWORKS

Thursday 23 JANUARY

COMMUNICATION: MESSAGE PLASTICITY

07:30 – 08:45

Breakfast (Perouse Randwick)

**SUNRISE SESSION**

Lecture Room (WW G01)

09:00 – 10:15

**Synaptic Dynamics and Plasticity**

**Elena Bagley** | *University of Sydney (NSW)*

10:15 – 10:45

Coffee Break

**MORNING SESSION**

Lecture Room (WW G01)

10:45 – 12:00

**Neuronal Mechanisms of Learning and Memory**

**Cliff Abraham** | *University of Otago (NZ)*

12:00 – 13:00

Lunch (UNSW Food Court)

**AFTERNOON PRAC**

ACAN Lab (WW 312)

13:00 – 13:30

**Pre-Lab Debrief** | **Cherry Mao** (Florey VIC), **Alex Tang** (UWA WA),  
**Ben Lau** (UNSW NSW), **Tobias Bluett** (UQ QLD),  
**Bryony Winters** (USyD NSW), **Lee Fletcher** (Monash VIC)

13:30 – 18:00

**Lab: Excitatory and Inhibitory Synaptic Potentials** | *All groups*

**EVENING WORKSHOPS**

ACAN Lab (WW 312)

15:00 – 18:00

**Solutions and Slicing Workshop** | *Group 2*

**Yossi Buskila** | *Western Sydney University (NSW)*

**In Vivo Recording Workshop** | *Group 1*

**Saba Gharaei** | *Eccles Institute of Neuroscience ANU (ACT)*

18:30 – 19:30

Dinner (The Spot)

**SUNSET SESSION**

Seminar Room (WW LG02)

19:30 – 20:30

**Special Lecture Interrogation of neuronal dysfunction**

**Chris Reid** | *Florey Institute of Neuroscience (VIC)*

20:30 – Late.

Post Lecture Discussion / Lab



# THEME 1 | NEURONS & NETWORKS

Friday 24 JANUARY

## NEURONAL OPERATION

07:30 – 08:45	Breakfast (Perouse Randwick)
<b>SUNRISE SESSION</b>	Lecture Room (WW G01)
09:00 – 10:15	<b>Dendritic Integration</b> <b>Stephen Williams</b>   <i>Monash University (VIC)</i>
10:15 – 10:45	Coffee Break
<b>MORNING SESSION</b>	Lecture Room (WW G01)
10:45 – 12:00	<b>In Vivo Patch Clamp and recording techniques</b> <b>Saba Gharaei</b>   <i>Eccles Institute of Neuroscience ANU (ACT)</i>
12:00 – 13:00	Lunch (UNSW Food Court)
<b>AFTERNOON PRAC</b>	ACAN Lab (WW 312)
13:00 – 13:30	<b>Pre-Lab Debrief</b>   <b>Cherry Mao</b> (Florey VIC), <b>Alex Tang</b> (UWA WA), <b>Ben Lau</b> (UNSW NSW), <b>Tobias Bluett</b> (UQ QLD), <b>Bryony Winters</b> (USyd NSW), <b>Lee Fletcher</b> (Monash VIC)
13:30 – 18:00	<b>Lab: Neural Circuits</b>   <i>All groups</i>
<b>EVENING WORKSHOPS</b>	ACAN Lab (WW 312)
15:00 – 18:00	<b>Solutions and Slicing Workshop</b>   <i>Group 3</i> <b>Yossi Buskila</b>   <i>Western Sydney University (NSW)</i>  <b>In Vivo Recording Workshop</b>   <i>Group 2</i> <b>Saba Gharaei</b>   <i>Eccles Neuroscience Institute (ACT)</i>
18:30 – 19:30	Dinner (UNSW Social area)
<b>SUNSET SESSION</b>	ACAN Lab (WW 312)
19:30 – Late.	<b>Lab After-hours</b>   <i>All groups</i>



# THEME 1 | NEURONS & NETWORKS

## Saturday 25 JANUARY

## NEURONAL FUNCTION

07:30 – 08:45

Breakfast (Perouse Randwick)

### SUNRISE SESSION

Lecture Room (WW G01)

09:00 – 10:15

**Neural Coding and Information Theory**

**Ehsan Arabzadeh** | *Eccles Institute of Neuroscience ANU (ACT)*

10:15 – 10:45

Coffee Break

### MORNING SESSION

Lecture Room (WW G01)

10:45 – 12:00

**Understanding neuronal function in the working brain**

**Clarissa Whitmire** | *University of Queensland (UQ)*

12:00 – 13:00

Lunch (UNSW Food Court)

### AFTERNOON PRAC

ACAN Lab (WW 312)

13:00 – 13:30

**Pre-Lab Debrief** | **Cherry Mao** (Florey VIC), **Alex Tang** (UWA WA),  
**Ben Lau** (UNSW NSW), **Tobias Bluett** (UQ QLD),  
**Bryony Winters** (USyd NSW), **Lee Fletcher** (Monash VIC)

13:30 – 18:00

**Lab: Paired / Dendritic recordings** | *All groups*

### EVENING WORKSHOPS

ACAN Lab (WW 312)

15:00 – 18:00

**In Vivo Recording Workshop** | *Group 3*

**Saba Gharaei** | *Eccles Neuroscience Institute (ACT)*

18:30 – 19:30

Dinner (The Spot)

### SUNSET SESSION

Seminar Room (WW LG02)

19:30 – 20:30

**Special Lecture Brain networks and oscillatory activity**

**Matilde Balbi** | *University of Queensland (QLD)*

20:30 – Late.

Post Lecture Discussion

## Sunday 26 JANUARY

## FREE DAY ACTIVITY

## THEME 2 | NETWORKS & SYSTEMS

Monday 27 JANUARY

### CONTROLLING NEURONS WITH LIGHT

07:30 – 08:15	Breakfast (Perouse Randwick)
<b>SUNRISE SESSION</b>	Lecture Room (WW G01)
08:30 – 09:00	<b>Intro to Theme</b> <b>Kate Poole &amp; John Power</b>   <i>UNSW Sydney</i> (NSW)
09:00 – 10:15	<b>Fundamentals of Optics &amp; Microscopy</b> <b>Michael Carnell</b>   <i>UNSW Sydney</i> (NSW)
10:15 – 10:45	Coffee Break
<b>MORNING SESSION</b>	Lecture Room (WW G01)
10:45 – 12:00	<b>Using multiphoton imaging to study cortical processing <i>in vivo</i></b> <b>Lucy Palmer</b>   <i>The Florey Institute of Neuroscience</i> (VIC)
12:00 – 13:00	Lunch (UNSW Food Court)
<b>AFTERNOON PRAC</b>	ACAN Lab (WW 312)
13:00 – 13:30	<b>Pre-Lab Debrief</b>   <i>All groups</i> <b>John Power</b>   <i>UNSW Sydney</i> (NSW)
13:30 – 18:00	<b>Lab: Ca<sup>2+</sup> imaging in brain slices</b>   <i>All groups</i>
18:30 – 19:30	Dinner (UNSW Social area)
<b>SUNSET SESSION</b>	ACAN Lab (WW 312)
19:30 – Late.	<b>Lab After-hours: back at the rig!</b>   <i>All groups</i>

## THEME 2 | NETWORKS & SYSTEMS

Tuesday 28 JANUARY

### MEASURING NEURAL FUNCTION WITH LIGHT

07:30 – 07:55

Breakfast (Perouse Randwick)

#### SUNRISE SESSION

Lecture Room (WW G01)

09:00 – 10:15

**Neuronal Microcircuits and Networks and How to Probe them**  
**Christina Mo** | *Florey Institute of Neuroscience (VIC)*

10:15 – 10:45

Coffee Break

#### MORNING SESSION

Lecture Room (WW G01)

10:45 – 12:00

**Advances in Optogenetics**  
**John Lin** | *University of Tasmania (TAS)*

12:00 – 13:00

Lunch (UNSW Food Court)

#### AFTERNOON PRAC

ACAN Lab (WW 312)

13:00 – 13:30

**Pre-Lab Debrief** | *All groups*  
**Kate Poole and John Power** | *UNSW Sydney (NSW)*

13:30 – 18:00

**Lab: Optical vs electrical stimulation** | *All groups*

18:30 – 19:30

Dinner (UNSW Social area)

#### SUNSET SESSION

ACAN Lab (WW 312)

19:30 – Late.

**Lab After-hours** | *All groups*

## THEME 2 | NETWORKS & SYSTEMS

Wednesday 29 JANUARY

### MULTIPHOTON IMAGING

07:30 – 08:45	Breakfast (Perouse Randwick)
<b>SUNRISE SESSION</b>	Lecture Room (WW G01)
09:00 – 10:15	<b>Neuronal Calcium Signalling</b> <b>John Power</b>   UNSW (NSW)
10:15 – 10:45	Coffee Break
<b>MORNING SESSION</b>	Lecture Room (WW G01)
10:45 – 12:00	<b>Wide-Field Imaging</b> <b>Jack Waters</b>   Allen Brain Institute (USA)
12:00 – 13:00	Lunch (UNSW Food Court)
<b>AFTERNOON PRAC</b>	Imaging Labs (TNF [WW 354A] & Katharina Gaus Facility)
13:00 – 14:30	<b>Intravital Imaging (TNF)</b>   Group 1 <b>2P imaging (KGLMF)</b>   Group 2 <b>Spinning disk microscopy (KGLMF)</b>   Group 3
14:45 – 16:15	<b>Intravital Imaging (TNF)</b>   Group 2 <b>2P imaging (KGLMF)</b>   Group 3 <b>Spinning disk microscopy (KGLMF)</b>   Group 1
16:30– 18:00	<b>Intravital Imaging (TNF)</b>   Group 3 <b>2P imaging (KGLMF)</b>   Group 1 <b>Spinning disk microscopy (KGLMF)</b>   Group 2
18:30 – 19:30	Dinner (The Spot)
<b>SUNSET SESSION</b>	Seminar Room (WW LG02)
19:30 – 20:30	<i>Special Lecture</i> <b>Neuron-Glia interactions <i>in vivo</i></b> <b>Hiro Wake</b>   National Institute for Physiological Sciences (JAPAN)
20:30 – Late.	Post Lecture Discussion



## THEME 2 | NETWORKS & SYSTEMS

Thursday 30 JANUARY

### MESOSCOPIC NEURAL SYSTEMS

07:30 – 08:45

Breakfast (Perouse Randwick)

#### SUNRISE SESSION

Lecture Room (WW G01)

09:00 – 10:15

Using Brain organoids to Model Disease

Lezanne Ooi | *University of Wollongong* (NSW)

10:15 – 10:45

Coffee Break

#### MORNING SESSION

Lecture Room (WW G01)

10:45 – 12:00

Light-sheet Imaging of Whole Brain Networks in Zebra Fish

Ethan Scott | *University of Melbourne* (VIC)

12:00 – 13:00

Lunch (UNSW Food Court)

#### AFTERNOON PRAC

Imaging Labs (TNF [WW 354A] & Katharina Gaus Facility)

13:00 – 14:30

Light sheet imaging of organoids (KGLMF) | *Group 1*

Whole-field imaging of organoids (KGLMF) | *Group 2*

Organoid Multielectrode Array recording (KGLMF) | *Group 3*

14:45 – 16:15

Light sheet imaging of organoids (KGLMF) | *Group 1*

Whole-field imaging of organoids (KGLMF) | *Group 2*

Organoid Multielectrode Array recording (KGLMF) | *Group 3*

16:30– 18:00

Light sheet imaging of organoids (KGLMF) | *Group 1*

Whole-field imaging of organoids (KGLMF) | *Group 2*

Organoid Multielectrode Array recording (KGLMF) | *Group 3*

18:30 – 19:30

Dinner (The Spot)

#### SUNSET SESSION

Lecture Room (WW G01)

19:45 – 21:15

Data Analysis Tutorial

## THEME 2 | NETWORKS & SYSTEMS

Friday 31 JANUARY

### MICROSCOPIC NEURAL SYSTEMS

07:30 – 08:45

Breakfast (Perouse Randwick)

#### SUNRISE SESSION

Lecture Room (WW G01)

09:00 – 10:15

**Probing Synaptic Function with Super-Resolution Microscopy**  
**Fred Meunier** | *University of Queensland* (QLD)

10:15 – 10:45

Coffee Break

#### MORNING SESSION

Lecture Room (WW G01)

10:45 – 12:00

**The Molecular Structure of Learning and Memory**  
**Victor Anggono** | *University of Queensland* (QLD)

12:00 – 13:00

Lunch (UNSW Food Court)

#### AFTERNOON PRAC

Imaging Lab (Katharina Gaus Light Microscopy Facility)

13:00 – 14:30

**TIRF Microscopy (KGLMF)** | *Group 1*  
**Super-resolution imaging (KGLMF)** | *Group 2*  
**Super-resolution analysis pipeline (WW G01)** | *Group 3*

14:45 – 16:15

**TIRF Microscopy (KGLMF)** | *Group 2*  
**Super-resolution imaging (KGLMF)** | *Group 3*  
**Super-resolution analysis pipeline (WW G01)** | *Group 1*

16:30– 18:00

**TIRF Microscopy (KGLMF)** | *Group 3*  
**Super-resolution imaging (KGLMF)** | *Group 1*  
**Super-resolution analysis pipeline (WW G01)** | *Group 2*

18:30 – 19:30

Dinner (UNSW Social area)

#### SUNSET SESSION

Seminar Room (WW LG02)

19:30 – 20:30

**Special Lecture Shining a Light on Survival**  
**Yeka Aponte** | *NIDA/NIH* (USA)

20:30 – Late.

Post Lecture Discussion





# THEME 2 | NETWORKS & SYSTEMS

## Saturday 1 FEBRUARY

## WRAP UP!

07:30 – 08:45

Breakfast (Perouse Randwick)

### MORNING

ACAN Lab (WW 312) | Lecture Room (WW G01)

09:00 – 12:00

**Data Analysis** | *All Groups*

12:00 – 13:00

Lunch (UNSW Social Area)

### AFTERNOON

Lecture Room (WW G01)

13:00 – 15:00

**Data Presentations** | *All students*

18:30 – 19:30

Dinner

### SUNSET SESSION

Seminar Room (WW LG02)

19:30 – 20:30

*Special Lecture* **Decoding the Brain**  
**Matthew Larkum** | *Humboldt Universität (Germany)*

20:30 – Late.

Post Lecture Discussion

## Sunday 2 FEBRUARY

## FREE DAY ACTIVITY

# THEME 3 | SYSTEMS & BEHAVIOUR

Monday 3 FEBRUARY

## LEARNING & BEHAVIOUR

07:30 – 08:15	Breakfast (Perouse Randwick)
<b>SUNRISE SESSION</b>	Lecture Room (WW G01)
08:30 – 09:00	<b>Intro to Theme</b> <b>Jay Bertran-Gonzalez</b>   UNSW Sydney (NSW)
09:00 – 10:15	<b>Associative Learning and Behaviour</b> <b>Nathan Holmes</b>   UNSW Sydney (NSW)
10:15 – 10:45	Coffee Break
<b>MORNING SESSION</b>	Lecture Room (WW G01)
10:45 – 12:00	<b>Interrogating Neural Systems Function with Behaviour</b> <b>Karly Turner</b>   UNSW Sydney (NSW)
12:00 – 13:00	Lunch (UNSW Food Court)
<b>AFTERNOON PRAC</b>	Lecture Room   Computing Lab   Behaviour Lab
13:00 – 18:00	<b>Designing our Behavioural Experiment</b>   <i>Group rotations</i> <b>Jay Bertran-Gonzalez</b>   UNSW Sydney (NSW)   WW G01 <b>Controlling a Conditioning Rig</b>   <i>Group rotations</i> <b>Karly Turner</b>   UNSW Sydney (NSW)   WW G01 <b>Meet Your Mouse &amp; Training Day 1</b>   <i>Group rotations</i> <b>Chelsea Goulton</b>   UNSW Sydney (NSW)   WW LG11
18:30 – 19:30	Dinner (The Spot)
<b>SUNSET SESSION</b>	Seminar Room (WW LG02)
19:30 – 20:30	<b>Special Lecture</b> <b>Origins of the Neuroscience of Associative Learning</b> <b>Simon Killcross</b>   UNSW Sydney (NSW)
20:30 – Late.	Post Lecture Discussion



# THEME 3 | SYSTEMS & BEHAVIOUR

Tuesday 4 FEBRUARY

## SETTING UP BRAIN SYSTEMS

07:30 – 07:55

Breakfast (Perouse Randwick)

### SUNRISE SESSION

Lecture Room (WW G01)

09:00 – 10:15

**Evolution & Development of the Cerebral Cortex**  
**Rodrigo Suárez** | *University of Queensland (QLD)*

10:15 – 10:45

Coffee Break

### MORNING SESSION

Lecture Room (WW G01)

10:45 – 12:00

**Studies of Neurogenesis and Neural Circuit Formation**  
**Laura Fenlon** | *University of Queensland (QLD)*

12:00 – 13:00

Lunch (UNSW Food Court)

### AFTERNOON PRAC

ACAN Lab | Computing Lab | Behaviour Lab

13:00 – 18:00

**Training Day 2** | *All Groups* | WW LG11

Prac 3\_1 | **In Utero Electroporation** | *Group 1* | WW 312

Prac 3\_2 | **Advanced Behaviour** | *Group 2* | WW G01

Prac 3\_3 | **In Vivo Fibre Photometry** | *Group 3* | WW LG13

18:30 – 19:30

Dinner (The Spot)

### SUNSET SESSION

Seminar Room (WW LG02)

19:30 – 20:30

**Special Lecture Slow Neurotransmission & Flexible Behaviour**  
**Michael Bruchas** | *University of Washington (USA)*

20:30 – Late.

Post Lecture Discussion

# THEME 3 | SYSTEMS & BEHAVIOUR

Wednesday 5 FEBRUARY

## LEARNING AND NEUROMODULATION (I)

07:30 – 08:45

Breakfast (Perouse Randwick)

### SUNRISE SESSION

Lecture Room (WW G01)

09:00 – 10:15

*Studying Neural Systems in vivo*

**Lizzie Manning** | *University of Newcastle* (NSW)

10:15 – 10:45

Coffee Break

### MORNING SESSION

Lecture Room (WW G01)

10:45 – 12:00

*Capturing Learning through Fibre Photometry*

**Philip Jean-Richard Dit Bressel** | *UNSW Sydney* (NSW)

12:00 – 13:00

Lunch (UNSW Food Court)

### AFTERNOON PRAC

ACAN Lab | Computing Lab | Behaviour Lab

13:00 – 18:00

*Training Day 3* | *All Groups* | WW LG11

Prac 3\_1 | *In Utero Electroporation* | *Group 2* | WW 312

Prac 3\_2 | *Advanced Behaviour* | *Group 3* | WW G01

Prac 3\_3 | *In Vivo Fibre Photometry* | *Group 1* | WW LG13

18:30 – 19:30

Dinner (The Spot)

### SUNSET SESSION

Seminar Room (WW LG02)

19:30 – 20:30

*Special Lecture Why and When is Dopamine Valuable?*

**Melissa Sharpe** | *University of Sydney* (NSW)

20:30 – Late.

Post Lecture Discussion

# THEME 3 | SYSTEMS & BEHAVIOUR

Thursday 6 FEBRUARY

## LEARNING AND NEUROMODULATION (II)

07:30 – 08:45

Breakfast (Perouse Randwick)

### SUNRISE SESSION

Lecture Room (WW G01)

09:00 – 10:15

**Acetylcholine Systems in the Striatum**

**Nathalie Dehorter** | *University of Queensland* (UQ)

10:15 – 10:45

Coffee Break

### MORNING SESSION

Lecture Room (WW G01)

10:45 – 12:00

**Muscarinic Control of Neural Function and Chemogenetics**

**Leigh Walker** | *The Florey Institute of Neuroscience* (VIC)

12:00 – 13:00

Lunch (UNSW Food Court)

### AFTERNOON PRAC

ACAN Lab | Computing Lab | Behaviour Lab

13:00 – 18:00

**Learning Encoding Test 1** | *All Groups* | WW LG11

Prac 3\_1 | **In Utero Electroporation** | *Group 3* | WW 312

Prac 3\_2 | **Advanced Behaviour** | *Group 1* | WW G01

Prac 3\_3 | **In Vivo Fibre Photometry** | *Group 2* | WW LG13

18:30 – 19:30

Dinner (The Spot)

### SUNSET SESSION

Seminar Room (WW LG02)

19:30 – 20:30

**Special Lecture Dopamine, Acetylcholine and Corticostriatal plasticity**

**John Reynolds** | *University of Otago* (NZ)

20:30 – Late.

Post Lecture Discussion

# THEME 3 | SYSTEMS & BEHAVIOUR

Friday 7 FEBRUARY

## SYSTEMS FAILURE

07:30 – 08:45

Breakfast (Perouse Randwick)

### SUNRISE SESSION

Lecture Room (WW G01)

09:00 – 10:15

**Subcortical Systems and Disease**

**Robyn Brown** | *The Florey Institute of Neuroscience* (VIC)

10:15 – 10:45

Coffee Break

### MORNING SESSION

Lecture Room (WW G01)

10:45 – 12:00

**Synaptic Genes & Cognition**

**Jess Nithianantharajah** | *Florey Institute of Neuroscience* (VIC)

12:00 – 13:00

Lunch (UNSW Food Court)

### AFTERNOON PRAC

Lecture Room | Behaviour Lab

13:00 – 18:00

**Learning Encoding Test 2** | *All Groups* | WW LG11

**INTEGRATIVE WORKSHOP** | WW G01

**Miriam Matamales** | *UNSW Sydney* (NSW)

*Discussion-based session aimed at integrating the fundamental concepts acquired during the course with a novel experimental research program individually or as groups. Students will work on their research question together with faculty.*

18:30 – 19:30

Dinner (UNSW social area)

### SUNSET SESSION

Lecture Room & Computing Lab (WW G01)

19:30 – Late.

**Preparation of Presentations** | *All Groups*



# THEME 3 | SYSTEMS & BEHAVIOUR

## Saturday 8 FEBRUARY

## WRAP UP!

07:30 – 08:45

Breakfast (Perouse Randwick)

### MORNING PRAC

Lecture Room & Computing Lab (WW G01)

09:00 – 12:00

Preparation of Presentations | *All Groups*

Behavioural data processing | *Selected groups*

12:00 – 13:00

Lunch (UNSW Food Court)

### AFTERNOON SESSION

Lecture Room (WW G01)

13:00 – 19:30

Student Presentations | *All students*

Conditioning Experiment Results | *All students*

### SUNSET SESSION

The Lounge @ UNSW

19:30 – 21:00

END OF COURSE DINNER

21:00 – Late.

Drinks at The Spot

## Sunday 9 FEBRUARY

## RETURN HOME

07:30 – 09:00

Breakfast (Perouse Randwick)

09:00 –

Checkout and Safe return home.

## COURSE FACULTY

### BOARD OF DIRECTORS

Jay Bertran-Gonzalez (UNSW)

Kate Poole (UNSW)

Lee Fletcher (Monash)

John Power (UNSW)

Elena Bagley (USyD)

Christina Mo (Florey)

John Lin (UTAS)

Jack Waters (Allen, USA)

Hiro Wake (NIPS, Japan)

Yeka Aponte (NIH, USA)

Lezanne Ooi (UoW)

Ethan Scott (UniMelb)

Fred Meunier (UQ)

Victor Anggono (UQ)

Matthew Larkum (Humboldt, Germany)

Nathan Holmes (UNSW)

Karly Turner (UNSW)

Simon Killcross (UNSW)

Rodrigo Suarez (UQ)

Laura Fenlon (UQ)

Michael Bruchas (UW, USA)

Lizzie Manning (UoN)

Phil JRDB (UNSW)

Melissa Sharpe (USyD)

Nathalie Dehorter (UQ)

Leigh Walker (Florey)

John Reynolds (Otago)

Robyn Brown (Florey)

Jess Nithianantharajah (Florey)

### COORDINATORS

Alex Tang (UWA)

Chelsea Goulton (UNSW)

Beatrice Leung (UNSW)

### LECTURERS

John Bekkers (ANU)

Greg Stuart (Monash)

Bill Connelly (UTAS)

Maarten Kole (Utrecht, Netherlands)

Karl Iremonger (Otago)

Cliff Abraham (Otago)

Chris Reid (Florey)

Stephen Williams (Monash)

Saba Gharaei (ANU)

Ehsan Arabzadeh (ANU)

Clarissa Whitmire (UQ)

Matilde Balbi (UQ)

Michael Carnell (UNSW)

Lucy Palmer (Florey)





## COURSE FACULTY

### LABORATORY INSTRUCTORS

Ian Forster (Florey)

Cherry Mao (Florey)

Alex Tang (UWA)

Benjamin Lau (UNSW)

Tobias Bluett (UQ)

Bryony Winters (USyD)

Yossi Buskila (UWS)

Saba Gharaei (ANU)

Rachel Gormal (UQ)

Dennis Cheung (NIPS, Japan)

Chanchanok Chaichim (AbCellera)

Chelsea Goulton (UNSW)

Christopher Nolan (UNSW)

Thomas Burton (UNSW)

Dylan Black (UQ)

Karly Turner (UNSW)

Phil Jean-Richard Dit Bressel (UNSW)

Leigh Walker (Florey)

Laura Fenlon (UQ)

Rodrigo Suarez (UQ)