

TENSS 2018 Final schedule

DATE	DAY	TIME SLOT	MAIN RESPONSIBLE	GROUPS	VENUE	CONTENT
31/5/2018	0	19:30 – 20:30	Dinner			
		20:30 – 21:30	Florin, Raul, Adam			Introduction to the course and the people
1/6/2018	1	08:00 – 09:00				Morning run/swim
		09:00 – 10:00				Breakfast
		10:00 – 11:30	Florin Albeanu			Intro to Optics
		11:30 – 11:45				Coffee break
		11:45 – 13:00	Adriana Dabacan			Optical elements and intro to image formation
		13:00 – 14:00				Lunch
		14:00 – 16:30	TAs	ABCD	LH	Simple microscopes : Lenses and image formation properties
		16:30 – 16:45				Coffee break
16:45 – 18:00	Priyanka			Koehler Illumination; numerical aperture and resolution		

18:00 – 20:30	TAs	ABCD	LH	Bench-top koehler microscopes – depth of field and aperture
20:30 – 21:30				Dinner
21:30 – 23:00	TAs	ABCD	LH	Bench-top koehler microscopes – depth of field and aperture

2/6/2018	2	08:00 – 09:00			Morning run/swim
		09:00 – 10:00			Breakfast
		10:00 – 11:00	TAs		Recap of concepts from Day 1
		11:00 – 11:15			Coffee break
		11:15 – 13:00	Florin Albeanu		Wide-field fluorescence microscopy: basic concepts and resolution
		13:00 – 14:00			Lunch
		14:00 – 16:30	TAs	ABCD	Convert bench-top koehler microscopes to epi-fluorescence
		16:30 – 16:45			Coffee break

	16:45 – 18:30	Petr Z			Detecting signals: Noise, Cameras, PMTs and diodes, Introducing lab session on noise measurements
	18:30 – 20:30	TAs	ABCD	LH	Noise measurements, measure PSFs using fluorescent beads
	20:30 – 21:30				Dinner
	21:30 – 24:00	TAs	ABCD	LH	Discussion, analysis, continue Labs

3/6/2018	3	08:00 – 09:00			Morning run/swim	
		09:00 – 10:00			Breakfast	
		10:00 – 11:15	Juan Burrone		Fluorescent probes: GFP, calcium indicators vs. voltage dyes, synaptophluorins	
		11:15 – 11:30			Coffee break	
		11:30 – 13:00	Tomas, Goncalo, Rob	ABCD	LH	Programming I: Basics
		13:00 – 14:00			Lunch	

14:00 – 17:30	Tomas, Goncalo, Rob	ABCD	LH	Programming II: Arduinos
17:30 – 17:45				Coffee break
17:45 – 20:30	Tomas, Goncalo, Rob	ABCD	LH	Programming III: Matlab and Data acquisition
20:30 – 21:30				Dinner
21:30 onwards	TAs	ABCD	LH	Image fixed brain slices on the bench-top fluorescence microscopes. Analyze noise and PSF measurements, compile results and make presentations.

4/6/2018	4	08:00 – 09:00			Morning run/swim
		09:00 – 10:00			Breakfast
		10:00 – 11:30	ABCD	LH	Student presentations (10 + 5 minutes): PSFs, noise characterization of wide-field microscopes
		11:30 – 13:00			Free time to relax
		13:00 – 14:00			Lunch

14:00 – 20:30

Free time to relax

20:30 onwards

Dinner, Student chalks* and party after

5/6/2018

5

08:00 – 09:00

Morning run/swim

09:00 – 10:00

Breakfast

10:00 – 11:30

Tobias Rose

Intrinsic Imaging - Principles and Intro to Lab session - practical aspects and comparison with whole brain wide field fluorescence imaging

11:30 – 11:45

Coffee break

11:45 – 13:00

Florian Engert

Scanning and confocal microscopy

13:00 – 14:00

Lunch

14:00 – 16:30

TAs

AB

Bunker

Set up microscopes for intrinsic and widefield fluorescence imaging and determine optimal imaging parameters

CD

LH

Scanning bench top – Walking the beam and assembling benchtop scanning systems

16:30 – 17:00				Coffee break
17:00 – 19:30	TAs	AB	Bunker	Image intrinsic optical and fluorescence signals, analyze acquired signals
		CD	LH	Introduce image formation in scanning systems and write Scanning software
19:30 – 20:30	TAs	AB	Bunker	Analysis demo - Intrinsic and WF calcium imaging
		CD	LH	Continue writing scanning software
20:30 – 21:30				Dinner
21:30 – 22:30	Petr Z			Optogenetics
22:30 onwards	TAs	AB	LH	Data analysis of widefield data and making presentations
		CD	Reception	Continue writing scanning software

6/6/2018	6	08:00 – 09:00		Morning run/swim
		09:00 – 10:00		Breakfast
		10:00 – 11:30	Florian	Multiphoton Microscopy

11:30 – 11:45				Coffee break
11:45 – 13:00	Fred Marbach			Fiber Photometry
13:00 – 14:00				Lunch
14:00 – 16:30	TAs	AB	LH	Scanning bench top – Walking the beam and assembling benchtop scanning systems
		CD	Bunker	Set up microscopes for intrinsic and widefield fluorescence imaging and determine optimal imaging parameters
16:30 – 17:00				Coffee break
17:00 – 19:30	TAs	AB	LH	Introduce image formation in scanning systems and write Scanning software
		CD	Bunker	Image intrinsic optical and fluorescence signals, analyze acquired signals
19:30 – 20:30	TAs	AB	LH	Continue writing scanning software
		CD	Bunker	Analysis demo - Intrinsic and WF calcium imaging
20:30 – 21:30				Dinner

21:30 – 22:30 Florin 1p Patterned Stimulation

22:30 onwards TAs AB Reception Continue writing scanning software
CD LH Data analysis of widefield data and making presentations

7/6/2018

7

08:00 – 09:00

09:00 – 10:00

Morning run/swim

Breakfast

10:00 – 11:30

Student presentations (10 + 5 minutes):
Widefield imaging

11:30 – 11:45

Coffee break

11:45 – 13:00

Ruben Portugues

Light sheet and Light Field microscopy

13:00 – 14:00

Lunch

14:00 – 16:00

Priyanka, Fred

AB

Reception

Building a two-photon microscope –
setup schematic

Petr, Mitra

CD

LH

Wavefront shaping and SLMs

16:00 – 16:15

Coffee break

16:15 – 19:00	TAs	AB	Reception	Building a two-photon microscope – excitation optics
	Petr	CD	LH	Analyze 2p data I - process calcium imaging data
19:00 – 19:15				Coffee break
19:15 – 20:30	TAs	AB	Reception	Building a two-photon microscope – collection optics
	Petr	CD	LH	Analyze 2p data I - process calcium imaging data
20:30 – 21:30				Dinner
21:30 onwards	TAs	AB	Reception	Finish building two-photon microscope and image fixed samples
	Petr	AB	LH	Automating and Streamlining analysis: Overview of existing image analysis pipelines

8/6/2018	8	08:00 – 09:00		Morning run/swim
		09:00 – 10:00		Breakfast
		10:00 – 11:30	Benjamin Judkewitz	Adaptive Optics

11:30 – 11:45				Coffee break
11:45 – 13:00	Chris Xu			3p microscopy
13:00 – 14:00				Lunch
14:00 – 16:00	Petr, Mitra	AB	LH	Wavefront shaping and SLMs
	Priyanka, Fred	CD	Reception	Building a two-photon microscope – setup schematic
16:00 – 16:15				Coffee break
16:15 – 19:00	Petr	AB	LH	Analyze 2p data I - process calcium imaging data
	TAs	CD	Reception	Building a two-photon microscope – excitation optics
19:00 – 19:15				Coffee break
19:15 – 20:30	Petr	AB	LH	Analyze 2p data II - combining behavior and imaging data
	TAs	CD	Reception	Building a two-photon microscope – collection optics
20:30 – 21:30				Dinner

21:30 onwards	Petr	AB	LH	Automating and Streamlining analysis: Overview of existing image analysis pipelines
	TAs	CD	Reception	Finish building two-photon microscope and image fixed samples

9/6/2018	9	08:00 – 09:00			Morning run/swim	
		09:00 – 10:00			Breakfast	
		10:00 – 11:30	Georg Keller		Research Talk	
		11:30 – 11:45			Coffee break	
		11:45 – 13:00	Tom Mrsic-Flogel		Research Talk	
		13:00 – 14:00			Lunch	
		14:00 – 16:30	TAs Ruben	CD AB	Reception Bunker	In vivo 2p Lab imaging session Light sheet demo
		16:30 – 17:00			Coffee break	
		17:00 – 19:30	Ruben TAs	CD AB	Bunker Reception	Light sheet demo In vivo 2p Lab imaging session

19:30 – 20:30 ~~Sonja Hofer~~

Research Talk

20:30 – 21:30

Dinner

21:30 – 23:30

ABCD

LH

Analysis of 2p imaging data, make presentations

10/6/2018 10

08:00 – 09:00

Morning run/swim

09:00 – 10:00

Breakfast

10:00 – 11:30

Bruno Pichler

Practical considerations for your DIY 2p microscope

11:30 – 11:45

Coffee break

11:45 – 13:00

2p Analysis and make presentations

13:00 – 14:00

Lunch

14:00 – 15:30

Student presentations (10 + 5 minutes):
2p imaging

15:30 – 16:00

Coffee break

16:00 – 17:30

Botond Roska

Research Talk

15:30 – 16:00 Coffee break

18:00 – 20:30 Florian Engert [LASERs](#)

20:30 – 21:30 Dinner

21:30 onwards Free Time

11/6/2018 11 08:00 – 09:00 Morning run/swim
09:00 – 10:00 Breakfast

10:00 – 11:30 Nacho Sanguinetti [Intro to Animal Behavior](#)

11:30 onward Picnic/Barbecue on the hills featuring
speed dating - project discussion

20:30 onwards Dinner and Party

12/6/2018 12 08:00 – 09:00 Morning run/swim
09:00 – 10:00 Breakfast

10:00 – 11:30 Jakob/Jon [Introduction to chronic extracellular recordings](#)

11:30 – 11:45			Coffee break
11:45 – 13:00	Upi Bhalla		Biophysics of neurons
13:00 – 14:00			Lunch
14:00 – 16:30	Mitra / Jon	AB	Ephys I - Backyard Ephys Animal behavior I - Bonsai, and Setting up tracking
	Nacho Sanguinetti	CD	
16:30 – 16:45			Coffee break
16:45 – 19:15	Nacho Sanguinetti	AB	Animal behavior I - Bonsai, and Setting up tracking Ephys I - Backyard Ephys
	Mitra / Jon	CD	
19:15 – 20:30	Jakob/Jon		Drives: ephys and optogenetics in free moving rodents
20:30 – 21:30			Dinner
21:30 – 22:45			Continue Lab sessions / insect recording

13/6/2018 13 08:00 – 09:00

Morning run/swim

09:00 – 10:00			Breakfast
10:00 – 11:30	Marcus S-Jones		Talk on behavior
11:30 – 11:45			Coffee break
11:45 – 13:00	Mike Dickinson		Fly behavior and physiology
13:00 – 14:00			Lunch
14:00 – 16:30	Mitra / Balasz/Pri	AB	Ephys II - Primer on Ephys Acquisition/ Opto
	Nacho / Jon	CD	Animal behavior II - Setting up Servo, Piezo and dry run
16:30 – 16:45			Coffee break
16:45 – 19:15	Nacho / Jon	AB	Animal behavior II -Setting up Servo, Piezo and dry run
	Mitra / Balasz /pri	CD	Ephys II - Primer on Ephys Acquisition / Opto
19:15 – 20:30	Nao uchida		Research Talk
20:30 – 21:30			Dinner

21:30 – 22:45

Continue Lab sessions

14/6/2018	14	08:00 – 09:00			Morning run/swim
		09:00 – 10:00			Breakfast
		10:00 – 11:30	Tomas		Introduction to patch clamp recordings
		11:30 – 11:45			Coffee break
		11:45 – 13:00	Suhasa		Automating patching
		13:00 – 14:00			Lunch
		14:00 – 16:30		AB CD	Ephys + Animal behavior III - Getting Data Patch clamp demo
		16:30 – 16:45			Coffee break
		16:45 – 19:15		AB CD	Patch clamp demo Ephys + Animal behavior III - Getting Data
		19:15 – 20:30	Mike Dickinson		Research Talk

20:30 – 21:30

Dinner

21:30 –
onwards

Data Sanity Check and/or Getting
better data

15/6/2018

15

08:00 – 09:00

Morning run/swim

09:00 – 10:00

Breakfast

10:00 – 11:30

Raul (Adri & Vlad)

Analysis - Single neurons and
population activity

11:30 – 11:45

Coffee break

11:45 – 13:00

Hannah Monyer

TBA

13:00 – 14:00

Lunch

14:00 – 15:30

Jon/Mitra

Analysis tutorial

15:30 – 18:00

TA's

AB

Data analysis

TA's

CD

Data analysis

18:00 – 18:15

Coffee break

18:15 – 19:30

AB

Ephys + Animal behavior IV - Data and
Analysis

		19:30 - 20:30	Balazs	CD	Ephys + Animal behavior IV - Data and Analysis
		20:30 - 21:30			Research Talk
					Dinner
		21:30 - 22:45	Open Mike		Lobby projects to Mike and continue Lab sessions

16/6/2018	16	08:00 - 09:00			Morning run/swim
		09:00 - 10:00			Breakfast
		10:00 - 11:15	Wolf Singer		TBA
		11:30 - 13:00			Finish analysis of ephys + behavior
		13:00 - 14:00			Lunch
		14:00 - 15:15	Christian Machens		Theory talk - 2
		15:15 - 15:30			Coffee break
		15:30 - 17:00	Christian Machens		Theory talk tutorial (PCA)
		17:00 - 20:30			Make presentations and analyze data

20:30 – 21:30

Dinner

21:30 –
onwards

Finalize student projects/ Make
presentations

17/6/2018

17

08:00 – 09:00

Morning run/swim

09:00 – 10:00

Breakfast

10:00 – 11:30

ABCD

Student presentations - behavior and
physiology

11:30 onwards

Trip to Cluj and Turda

20:30 –
onwards

Dinner and Party

18/6/2018

18

08:00 – 09:00

Morning run/swim

09:00 – 10:00

Breakfast

10:00 – 11:00

Raul Muresan

Neural oscillations: generation,
function, estimation

11:00 – 12:00

Michale Fee

Song birds

12:00 – 13:00

Early lunch

13:00 – 15:00	TAs Tomas & Suhasa	AB CD	Student Projects In vivo patching
15:00 – 15:15			Coffee
15:15 – 17:15	TAs Tomas & Suhasa	CD AB	Student Projects In vivo patching
17:15 – 17:30			Coffee
17:30 – 20:30	TAs		Student Projects
20:30 – 21:30			Dinner
21:00 – 23:00	TAs		Student Projects

19/6/2018	19	08:00 – 09:00		Morning run/swim
		09:00 – 10:00		Breakfast
		11:00 – 12:00	Santiago Canals	Combining multiple techniques to record and analyze brain networks
		12:00 – 13:00		Lunch
		13:00 – 18:00		Group Experiments

18:00 – 20:30

Group Experiments

20:30 – 21:30

Dinner

21:00 – 23:00

Group Experiments

20/6/2018

20

08:00 – 09:00

Running around

09:00 – 10:00

Breakfast

10:00 – 12:00

Group Experiments

12:00 – 13:00

Lunch

13:00 – 18:00

Group Experiments

18:00 – 20:30

Group Experiments

20:30 – 21:30

Dinner

21:00 – 23:00

Student presentations - group projects

21/6/2018

21

08:00 – 09:00

Morning run/swim

09:00 – 10:00

Breakfast

10:00 – 11:45

Informal chalk board talks by students (10 + 5 minutes): Very brief intro to current research work and defend future proposals to use knowledge acquired at the course

11:45 – 12:00

Coffee

12:00 – 13:30

Informal chalk board talks by students continue

13:30 – 14:30

Lunch

14:30 – 16:00

Round up and feedback

Evening
onwards

Music, movies, swim and party
