

# Information Processing and the Brain 2019/2020

## Structure

Lecturers:

Conor Houghton (9)

Rui Ponte Costa (8)

Cian O'Donnell (2)

### Probabilities and the brain

(lectures 1-9)

1

- › Introduction
- › Information theory
- › Statistical Learning
- › Probabilistic Brain

### Neural circuits and learning

(lectures 11-18)

2

- › Sensory: Visual system
- › Convolution neural networks
- › Sensory: Auditory cortex
- › Recurrent neural networks
- › Supervised, unsupervised and reinforcement learning

### Neural data science

(lectures 19,20)

3

- › Static statistical models
- › Dynamic statistical models

— — — — — → Useful for  
————— → Leads to