

# Somatosensory Systems

## Module Information

2022.01, Approved

### Summary Information

Module Code	7100BRAIN
Formal Module Title	Somatosensory Systems
Owning School	Psychology
Career	Postgraduate Taught
Credits	20
Academic level	FHEQ Level 7
Grading Schema	50

### Teaching Responsibility

LJMU Schools involved in Delivery
Psychology

### Learning Methods

Learning Method Type	Hours
Lecture	20
Practical	15
Seminar	8

### Module Offering(s)

Display Name	Location	Start Month	Duration Number Duration Unit
SEP-CTY	CTY	September	12 Weeks

### Aims and Outcomes

Aims	To provide a comprehensive understanding of the mammalian somatosensory system, from sensory transduction through to central representation in the brain and behaviours - in sickness and health.
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**After completing the module the student should be able to:**

**Learning Outcomes**

Code	Number	Description
MLO1	1	Demonstrate an in-depth understanding of the basic functional anatomy of somatosensory systems, in animals and human primates.
MLO2	2	Identify and communicate the array of research tools and techniques used in the study of the somatosensory system and what knowledge each method provides.
MLO3	3	Critically assess the physiological, behavioural and clinical consequences of damage to or stimulation of components of the system e.g. neuropathic pain.

**Module Content**

Outline Syllabus	This module explores the complexity and heterogeneity of the somatosensory system with a recognition of its multisensory properties and importantly of its discriminative and affective properties. The course will rely on a comparative approach to emphasise species-typical developments in this system, from <i>C. elegans</i> to primates. Research in somatosensation generally focuses on discriminative touch, and more specifically low threshold mechanoreceptors innervated by fast conducting myelinated nerve fibres, but although this will be covered there will be more emphasis on emerging insights into the role of unmyelinated c-fibres in affective states - itch, pain and cutting-edge research into tactile pleasure. This will require an understanding of the ionic basis of electrical signalling, action potential generation, neurotransmitter function and neuroanatomy. With the inputs stage covered the impact of c-fibres on two affective states will be covered - pain and pleasure. Here students will learn about how to measure such states from psychophysics to neuroimaging, and the role of key neurotransmitters such as serotonin, opioids and hormones e.g. oxytocin.
Module Overview	The aim of this comparative module is to provide a comprehensive understanding of the mammalian somatosensory system, from sensory transduction through to central representation in the brain and behaviours – in sickness and health. Teaching will comprise lectures, seminars and practical sessions.
Additional Information	This is one of two strongly comparative modules that will show continuity between species and emphasise the value of multidisciplinary systems based approach to the study of brain and behaviour. The tools and techniques introduced here, along with the training in neuroanatomy provided in the Current Methods in Brain and Behaviour Module, will ensure a strong foundation for the other comparative module, Neuroendocrinology, delivered in semester 2.

**Assessments**

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Module Learning Outcome Mapping
Presentation	Presentation	40	0	MLO1, MLO3, MLO2
Centralised Exam	Examination	60	2	MLO1, MLO3, MLO2

**Module Contacts**

**Module Leader**

Contact Name	Applies to all offerings	Offerings

David Moore	Yes	N/A
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**Partner Module Team**

Contact Name	Applies to all offerings	Offerings
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