

Module Specification

Neuroscience and Neuropharmacology

Version: 2025-26, v4.0, Approved

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Part 1: Information

Module title: Neuroscience and Neuropharmacology

Module code: USSKCA-15-3

Level: Level 6

For implementation from: 2025-26

UWE credit rating: 15

ECTS credit rating: 7.5

College: College of Health, Science & Society

School: CHSS School of Applied Sciences

Partner institutions: None

Field: Applied Sciences

Module type: Module

Pre-requisites: Cells, Biochemistry and Genetics 2025-26, Human Biological Systems 2025-26

Excluded combinations: None

Co-requisites: None

Continuing professional development: No

Professional, statutory or regulatory body requirements: None

Part 2: Description

Overview: The human brain is the most complex structure in the known universe, and we have barely scratched the surface of understanding it. This module will look at the evidence for our current understanding of the human brain, at a cellular, molecular and system level, and focus on new advances in our knowledge of neurological diseases and potential therapies.

Pre-requisites: Students must have passed either USSJRU-30-1 Human Biological Systems or USSKA4-30-1 Cells, Biochemistry and Genetics before starting this module.

Features: Not applicable

Educational aims: This module is research and evidence-based. We will explore how we have come to our current understanding of human neuroscience, focussing on experimental evidence and recent advances. The module aims to teach critical thinking and give students the tools to analyse peer-reviewed publications, and to question current model and propose new research questions.

Outline syllabus: The topics reflected in the module content may vary year on year depending on emerging or topical areas of interest and staff expertise. An effort will be made to deliver contemporary research findings in all cases. An indicative content is indicated below:

Physiology of the central nervous system.

Neurotransmitters & neurotransmission: neurotransmitter criteria, classical neurotransmitters, novel/putative neurotransmitters, process of neurotransmission, use of neurotoxins and other neurochemicals as pharmacological tools for research.

Synaptic plasticity and the cellular basis of memory formation.

Neurodegeneration, its cellular basis, current research and treatment strategies.

Endogenous neuropharmacology: glutamate as a neurotransmitter and as an excitatory neurotoxin, endogenous pain pathways, selected endogenous neuropharmacology of relevance to clinical/illegal/social drug use.

Clinical application of neurologically active compounds, including novel therapeutic approaches.

Non-clinical application of neuroactive compounds e.g. psychoactive drugs for pleasurable gain.

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Blood brain barrier and strategies to enhance drug delivery to the brain/Therapeutic advances in neuropharmacology.

Part 3: Teaching and learning methods

Teaching and learning methods: Taught sessions include facilitated activities such as interactive lectures, tutorials, seminars, workshops, debates, case studies, problem based learning etc. as appropriate.

This contact time will also be underpinned by provision of online material including for example additional recorded media, case studies/additional reading and online quizzes.

Module Learning outcomes: On successful completion of this module students will achieve the following learning outcomes.

MO1 Evidence an in-depth understanding of molecular and cellular neuroscience/neuropharmacology, including its relevance to disease, therapeutics and drugs of abuse.

MO2 Critically evaluate current and historical evidence and data relating to the molecular and cellular function of neurones and the nervous system, including contemporary models for synaptic transmission, plasticity, neurodegeneration and therapeutics.

Hours to be allocated: 150

Contact hours:

Independent study/self-guided study = 114 hours

Face-to-face learning = 36 hours

Reading list: The reading list for this module can be accessed at

readinglists.uwe.ac.uk via the following link <u>https://uwe.rl.talis.com/modules/usskca-15-3.html</u>

Part 4: Assessment

Assessment strategy: The assessment task for this module is a written assignment (1500 words).

A data gathering and analysis exercise covering the breadth of material taught during the course and linking diverse topics together coherently. This assessment is designed to test the breadth and depth of students' knowledge, as well as their ability to find, analyse, synthesize and summarise information critically, including published research data.

Opportunities for formative assessment and feedback are built into the scheduled learning during tutorial and workshop activities. This may take the form of structured activities, discussion of current research, analysis of evidence and critical thinking.

There will be an opportunity to submit part of their assignment as a formative assessment in advance of the deadline, so that feedback can be provided as a learning opportunity, allowing them to apply enhanced understanding to the assignment as a whole.

Assessment tasks:

Written Assignment (First Sit)

Description: Written assignment (1500 words), potentially with accompanying audio clips (to ensure authenticity) Weighting: 100 % Final assessment: Yes Group work: No Learning outcomes tested: MO1, MO2

Written Assignment (Resit)

Description: Written assignment (1500 words), potentially with accompanying audio clips (to ensure authenticity) Weighting: 100 % Final assessment: Yes Group work: No Learning outcomes tested: MO1, MO2

Part 5: Contributes towards

This module contributes towards the following programmes of study: Biological Sciences [Frenchay] BSc (Hons) 2023-24 Biological Sciences [Frenchay] MSci 2023-24 Biomedical Science [Frenchay] BSc (Hons) 2023-24 Biomedical Science [Frenchay] MSci 2023-24 Forensic Science [Frenchay] BSc (Hons) 2023-24 Forensic Science [Frenchay] MSci 2023-24 Biomedical Science [Sep][PT][Frenchay][6yrs] BSc (Hons) 2020-21 Biomedical Science [Sep][PT][Frenchay][6yrs] BSc (Hons) 2021-22 Biomedical Science {Foundation} [Sep][SW][Frenchay][5yrs] BSc (Hons) 2021-22 Biomedical Science [Sep][PT][Frenchay][8yrs] MSci 2020-21 Biomedical Science [Sep][PT][Frenchay][8yrs] MSci 2021-22 Biomedical Science {Foundation} [Sep][SW][Frenchay][6yrs] MSci 2021-22 Forensic Science {Foundation} [Sep][SW][Frenchay][5yrs] BSc (Hons) 2021-22 Forensic Science {Foundation} [Sep][SW][Frenchay][6yrs] MSci 2021-22 Forensic Science {Foundation} [Frenchay] BSc (Hons) 2022-23 Forensic Science [Frenchay] BSc (Hons) 2022-23 Biological Sciences {Foundation} [Frenchay] BSc (Hons) 2022-23 Biological Sciences [Frenchay] BSc (Hons) 2022-23 Biological Sciences {Foundation} [Sep][SW][Frenchay][6yrs] MSci 2021-22

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Forensic Science {Foundation} [Frenchay] MSci 2022-23

Forensic Science [Frenchay] MSci 2022-23

Biological Sciences (Foundation) [Frenchay] MSci 2022-23

Biological Sciences [Frenchay] MSci 2022-23

Biological Sciences {Foundation} [Sep][SW][Frenchay][5yrs] BSc (Hons) 2021-22

Biomedical Science [Frenchay] BSc (Hons) 2022-23

Biomedical Science {Foundation} [Frenchay] BSc (Hons) 2022-23

Biomedical Science [Frenchay] MSci 2022-23

Biomedical Science {Foundation} [Frenchay] MSci 2022-23