# Module Definition Form (MDF)

| Module code: MOD007073 | **Version:** 3 **Date Amended:** 09/May/2024 |
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| 1. Module Title |
|---|
| Cognitive Neuroscience |

| 2a. Module Leader |
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| Peter Bright |

| 2b. School |
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| School of Psychology and Sport Science |

| 2c. Faculty |
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| Faculty of Science and Engineering |

| 3a. Level |
|---|
| 6 |

| 3b. Module Type |
|---|
| Standard (fine graded) |

| 4a. Credits |
|---|
| 15 |

| 4b. Study Hours |
|---|
| 150 |

**5. Restrictions**

| Type | Module Code | Module Name | Condition |
|---|---|---|---|
| Pre-requisites: | None | | |
| Co-requisites: | None | | |
| Exclusions: | None | | |
| **Courses to which this module is restricted:** | | | |

## LEARNING, TEACHING AND ASSESSMENT INFORMATION

### 6a. Module Description

This module will provide an overview of current approaches in cognitive neuroscience, including neuroimaging, electrophysiology, cortical stimulation and lesion-deficit techniques and their application for solving important theoretical debates in the literature. Key areas covered include executive function and the frontal lobes, visual object processing and conceptual knowledge, memory and forgetting, and distributed vs modular models of cognition. Common conditions such as aphasia, amnesia, agnosia and dementia will be discussed.

To advance our knowledge about the neural bases of cognition, rigorous methodological control, well developed theory with testable predictions, and inferences drawn on the basis of a range of methods are required. Students will learn about the underlying principles in functional imaging, including the blood oxygen level dependent (BOLD) signal used in fMRI, stages of image processing and statistical analysis, and the extent to which findings derived from these methods can advance theoretical understanding in psychology. Students will explore the brain using software available in the department, and carry out basic structural and functional MRI analyses on existing data. Since the module familiarises students with the most widely employed methods in cognitive neuroscience, common neuropsychological syndromes, key theoretical debates and standard assessment procedures in clinical neuropsychology, students who want to pursue postgraduate study and/or a career in cognitive or clinical neuroscience may benefit from successful completion of this course.

### 6b. Outline Content

- Introduction to methods and their applications in cognitive neuroscience and neuropsychology
- Brain neuroanatomy
- Amnesia, agnosia, frontal lobe deficits, neurodegenerative disorders.
- Critical evaluation of syndromes and therapeutic approaches in neurorehabilitation
- Cognitive and neurobiological models of cognitive processing in humans
- Relationship between brain, cognition and behaviour

### 6c. Key Texts/Literature

The reading list to support this module is available at: https://readinglists.aru.ac.uk/

### 6d. Specialist Learning Resources

Face to face students - Neuropsychological tests (e.g. Boston Aphasia Battery, Wisconsin Card Sorting Test, WAIS); software (e.g., MATLAB, MRIcron).

| 7. Learning Outcomes (threshold standards) | | |
|---|---|---|
| **No.** | **Type** | **On successful completion of this module the student will be expected to be able to:** |
| 1 | Knowledge and Understanding | Critically evaluate cognitive and neurobiological models of cognitive processing and appreciate the contribution of cognitive neuroscience methods for understanding how the brain supports cognition. |
| 2 | Knowledge and Understanding | Critically evaluate therapeutic interventions applied in neuropsychological rehabilitation. |
| 3 | Intellectual, practical, affective and transferrable skills | Demonstrate an understanding of the use of tests and methods applied in the brain sciences and be able to construct appropriate testing procedures for assessing cognition. |
| 4 | Intellectual, practical, affective and transferrable skills | Synthesize information, critically evaluate it and draw appropriate conclusions with respect to the relationship between brain structures, cognition and behaviour |

| 8a. Module Occurrence to which this MDF Refers | | | | |
|---|---|---|---|---|
| **Year** | **Occurrence** | **Period** | **Location** | **Mode of Delivery** |
| 2024/5 | ZZF | Template For Face To Face Learning Delivery | | Face to Face |

| 8b. Learning Activities for the above Module Occurrence | | | |
|---|---|---|---|
| **Learning Activities** | **Hours** | **Learning Outcomes** | **Details of Duration, frequency and other comments** |
| Lectures | 12 | 1-4 | 11 X 1 hour lectures plus 1 hour lecture in TW 12 |
| Other teacher managed learning | 5 | 1-4 | 5 x 1 hour seminars |
| Student managed learning | 133 | 1-4 | 5 hours reading for each lecture (5 x 11 = 55 hours); 9 hours preparation for seminars, 69 hours preparation for assessment |
| TOTAL: | 150 | | |

| 9. Assessment for the above Module Occurrence | | | | | |
|---|---|---|---|---|---|
| **Assessment No.** | **Assessment Method** | **Learning Outcomes** | **Weighting (%)** | **Fine Grade or Pass/Fail** | **Qualifying Mark (%)** |
| 010 | Coursework | 1-4 | 50 (%) | Fine Grade | 30 (%) |
| **Portfolio (1500 words)** | | | | | |
| **Assessment No.** | **Assessment Method** | **Learning Outcomes** | **Weighting (%)** | **Fine Grade or Pass/Fail** | **Qualifying Mark (%)** |
| 011 | Examination Cambridge | 1-4 | 50 (%) | Fine Grade | 30 (%) |
| **Examination: 1.5 hours examination during examination weeks** | | | | | |

**In order to pass this module, students are required to achieve an overall mark of 40% (for modules at levels 3, 4, 5 and 6) or 50% (for modules at level 7*).**

**In addition, students are required to:**
**(a) achieve the qualifying mark for each element of fine graded assessment as specified above**
**(b) pass any pass/fail elements**

**[* the pass mark of 50% applies for all module occurrences from the academic year 2024/25 – see Section 3a of this MDF to check the level of the module and Section 8a of this MDF to check the academic year]**