C8306 Psychobiology (20 credits)

# Lecturers

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# Overview

This core module is required for the Graduate Basis for Chartered Membership by the British Psychological Society (BPS). The purpose of this module is to provide the opportunity for students to learn the basic principles of brain function, and to encourage students to consider the implications of this understanding for their own view of how behaviour is generated. Prior knowledge of Psychology is required, specifically those issues covered in the first and second year modules. Although a prior knowledge of biology is helpful, no prior knowledge of biology is required, as the essential required elements will be covered in the module, either through lecture or through student led reading.

This module constitutes the third year component of the Biological Basis section of the teaching of Psychology for the purposes of BPS accreditation of the BA Psychology degree. Whereas the relationship between the brain and behaviour was explored in the second year module C8201 Cognition & Neuropsychology, C8306 Psychobiology provides an opportunity to learn about how the brain works, and how it carries out the processes underlying sensory perception and movement. The module introduces information and concepts that will be directly useful in some fourth year modules.

# Teaching and Learning

The Teaching and Learning activities for this module consist of in-person lectures, recorded online lectures, supplementary online activities, in-person activities, directed reading, and informal online student discussions. The core textbooks for this module are: `Biopsychology’ (Pinel J) and `Behavioral Neuroscience’ (Breedlove SM and Watson NV). The aim of both the online and in-person lectures will be to clarify difficult concepts in the reading material, to bring the most important issues into focus and to provide additional detail on selected points. Students might also be directed to additional textbooks and/or journal articles of varying degrees of complexity and detail. Throughout the course, particular emphasis will be placed on the insights into behaviour (both normal and abnormal) that are gained by an understanding of brain function and development.

# Timetable

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| **Week of term** | **Date (week beginning)** | **Monday 12-2pm**  GH514 (Graham Hills Building) | **Friday 12-1pm**  RC512 (Royal College Building) |
| 1 | 15th January 2024 | Introduction to the class (VS) | The brain and CNS (TE) |
| 2 | 22nd January 2024 | Neurons, neural communication, and synaptic transmission Part 1 (TE) | Neurons, neural communication, and synaptic transmission Part 2 (TE) |
| 3 | 29th January 2024 | Test 1: Weeks 1-2 content (10%)  *CU315a + 315b (52); CU321a & 321b (48); CU330a & 330b (48); GH560 (32)* | Feeding and appetite (TE) |
| 4 | 5th February 2024 | Advanced techniques and research methods 1 (MPR) | Advanced techniques and research methods 2 (MPR) |
| 5 | 12th February 2024 | Test 2: Weeks 3-4 content (10%)  *CU315a + 315b (52); CU321a & 321b (48); CU330a & 330b (48); GH560 (32)* | Visual system 1 (KF) |
| 6 | 19th February 2024 | Visual system 2 (KF) | Visual system 3 (KF) |
| 7 | 26th February 2024 | Test 3: Weeks 5-6 content (10%)  *CU315a + 315b (52); CU321a & 321b (48); CU330a & 330b (48); GH560 (32)* | Research proposal 1 (KF) |
| 8 | 4th March 2024 | Research proposal 2 (KF) | Hormones and mate choice (VS) |
| 9 | 11th March 2024 | The Stress Response System (VS) | Early Life Stress and Psychopathology (VS) |
| 10 | 18th March 2024 | Alzheimers (MPR) | Independent study |
| 11 | 25th March 2024 | Test 4: Weeks 8-10 content (10%)  *CU315a + 315b (52); CU321a & 321b (48); CU330a & 330b (48); GH560 (32)* | University closed |
| SPRING HOLIDAY | 1st April – 12th April 2024 | | |
| EXAM PERIOD | 15th April 2023 - 17th May 2024 | | |

# Learning outcomes

On completing the module, students should be familiar with the arguments supporting the hypothesis that the brain is the organ of behaviour and of psychological function, and should be aware of the implications of this hypothesis on the generation of behaviour. Students should be able to defend their own viewpoint on this issue by making use of evidence, parsimony and persuasive argument.

## Cognitive skills

1. the ability to put intuitively-held beliefs about the causes of behaviour in perspective and to consider the implications of the empirical results in neuroscience and psychology for beliefs about the causes of behaviour
2. the ability to reconsider their own hypotheses in the light of new evidence or in the light of a more persuasive argument.
3. the ability to evaluate new evidence

## Knowledge and understanding

1. to promote an understanding of the basic principles of brain function.
2. to raise awareness of the relationship between behaviour, psychological states and brain function.

# Module materials

It is expected that students will learn most of the material and concepts with the help of the lectures, supplementary online materials, recommended readings, and additional resources found by the student. The content of the lectures will supplement and guide students’ reading. The lectures provide a starting point for learning; a scaffold on which to build understanding.

There are two lecture slots per week in this module: one two-hour session and one one-hour session.

**Module Textbooks**

* Breedlove, S.M. and Watson, N.V. (2017). Behavioral Neuroscience, 8th edition, Sinauer Associates:Sunderland.
* Pinel, J.P.J. (2007). Biopsychology. Boston: Pearson, Allyn and Bacon.

**Additional texts that you may find useful**

* Banich, M.T. (2004). Cognitive Neuroscience and Neuropsychology, Boston:Houghton Mifflin Co.
* Bear, M.F., Connors, B.W. and Paradiso, M.A. (2007). Neuroscience: Exploring the Brain, Philadelphia:Lippincott.
* Kolb, B. and Whishaw, I.Q. (2006). An Introduction to Brain and Behaviour, 2nd edition, Worth Publishers:New York.
* Kandel, E.R., Schwartz, J.H. and Jessell, T.M. (2000). Principles of Neural Science, 4th edition, New York:McGraw-Hill.
* Squire, L.R., Berg, D., Bloom, F., du Lac, S., and Ghosh, A. (2008). Fundamental Neuroscience, Boston:Academic Press.

# Assessment

The module is assessed by a final examination (60%), and four class tests (40%). The final examination contributes 60% towards the final module mark, and the four tests contribute 40% towards the final module mark (10% for each test). The final examination is held in April/May, with an opportunity to resit in August.

The regulations of University of Strathclyde and of the School of Psychological Sciences and Health require that students attend lectures, seminars, tutorials, and practical modules regularly and perform satisfactorily in the associated work. Students who fail to engage with lectures or who have not participated in module tests may be excluded from the degree examination. Any student with coursework outstanding at the time of the examination will receive a fail for the examination performance and will not be able to obtain a pass at the resit examination unless the outstanding work completed to a satisfactory standard has been submitted.

**Feedback**

Students will receive feedback on their performance in many forms and at various points during the semester. Students will receive individual marks on module tests. General feedback on final exam performance will be provided to the module.

# Employability

C8306: Psychobiology provides students with skills that will be useful beyond the undergraduate context: the ability to re-evaluate intuitively-held beliefs in the light of new evidence; the ability to discern the relevant detail from a large body of knowledge; the ability to take notes during a lecture, etc.