Brain and Behaviour

Category: Psychology
Code: IS285
Level: 5
Credits: 15

Contact details: TUTOR TO BE CONFIRMED. In the meantime, if you have any questions about the syllabus please contact Dr Dave Smalley: davidsm@sussex.ac.uk.

Outline

This 15 credit upper division module explores how knowledge of brain structure and function helps us to understand the production of behaviour. Topics covered include:

- ionic mechanisms underlying the nerve action potential;
- synapses and neurotransmission;
- neuropharmacology of commonly used anxiolytic drugs;
- functional neuroanatomy of the human brain;
- brain development and neurogenetics;
- behavioural genetics;
- sensory and motor systems;
- neural mechanisms in cognition, reward, learning and memory;
- Neuroplasticity.

Module delivery incorporates lectures with small group seminars and practical classes to facilitate a diverse and immersive learning experience. This module has been designed to meet the requirements for accreditation as a core module for psychology majors.

Learning Outcomes

1. Demonstrate an understanding of the relevance of underlying biological phenomena to the explanation of behaviour
2. Describe ways in which commonly used anxiolytic and psychoactive drugs effect brain function and should appreciate how the nervous system contributes to adaptive behaviour.
3. Demonstrate and understanding of the structure and the functioning of fundamental units of the brain.
4. Describe and evaluate the role of an individual difference in at least one area of biological psychology.
Assessment of Learning Outcomes

<table>
<thead>
<tr>
<th>Mode of assessment</th>
<th>Learning outcomes assessed</th>
<th>Duration or word length</th>
<th>Day and week of submission</th>
<th>Submission point</th>
<th>Weighting</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROBLEM SET (NEUROANATOMY)</td>
<td>1, 3</td>
<td>n/a</td>
<td>Thursday W2</td>
<td>ISS Office</td>
<td>15</td>
</tr>
<tr>
<td>PRACTICAL REPORT</td>
<td>2, 4</td>
<td>n/a</td>
<td>Thursday W3</td>
<td>ISS Office</td>
<td>15</td>
</tr>
<tr>
<td>UNSEEN EXAM</td>
<td>1, 3, 4</td>
<td>2 hours</td>
<td>Thursday W4</td>
<td>In class</td>
<td>70</td>
</tr>
</tbody>
</table>

Teaching Structure and Delivery

<table>
<thead>
<tr>
<th>Teaching Method</th>
<th>Session length</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lectures</td>
<td>1 hour</td>
<td>3 x weekly</td>
</tr>
<tr>
<td>Seminars/Practicals</td>
<td>2 hours</td>
<td>3 x weekly</td>
</tr>
<tr>
<td>Independent study</td>
<td>Approx. 108 hours</td>
<td>As required</td>
</tr>
</tbody>
</table>

Seminars and practicals
Seminars for this module will follow directly on from lectures. In seminars, students will engage in exercises intended to help students ‘interrogate’ some of the material covered in prior lectures and associated essential reading. In place of one of the seminars in weeks 2 and 3, students will take practical classes that provide an opportunity to explore some of the techniques used in biological psychology research. On the basis of these practicals, students will complete an assessed practical report.

Prerequisites
There are no strict prerequisites for this module but it is strongly recommended that students have successfully completed a lower division introductory module in psychobiology or neuroscience (or equivalent). Students with no background in either psychology or neuroscience will find this module very challenging to access.
## Module Outline

<table>
<thead>
<tr>
<th>Week</th>
<th>Session</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>Introduction</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Neurodevelopment</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Neurotransmission</td>
</tr>
<tr>
<td>2</td>
<td>4</td>
<td>Chemical signalling</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>Neurogenetics</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>Behavioural genetics</td>
</tr>
<tr>
<td>3</td>
<td>7</td>
<td>Learning and memory</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>Fear and anxiety</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>Neuromodulation</td>
</tr>
<tr>
<td>4</td>
<td>10</td>
<td>Cognition and reward</td>
</tr>
<tr>
<td></td>
<td>11</td>
<td>Sensory and motor systems</td>
</tr>
<tr>
<td></td>
<td>12</td>
<td>Unseen exam</td>
</tr>
</tbody>
</table>

### Attendance policy, class etiquette, academic integrity

Students are expected to attend and engage fully in all lectures, seminars and practicals. In order to do so, they will need to have completed the essential reading before each session.

Consistent with all teaching at the University of Sussex, strict adherence to the principles of academic integrity is expected and suspected plagiarism will be dealt with by our academic misconduct panel.
Reading

Core text

The core text for this module is recommended for purchase:


Additional reading

A range of additional readings are available for students to help them to further explore the subject areas covered.

Neurodevelopment


Neurotransmission


Chemical Signalling


Neurogenetics; Learning and Memory

Various internet resources are provided on the Study Direct site (that partners the Brain and Behaviour module) supplement these sessions

Fear and Anxiety


LeDoux (1998) Fear and the brain: where have we been, and where are we going?. *Biological Psychiatry* 44(12) 1229-1238.


**Neuromodulation**


**Cognition and Reward**


**Sensory and Motor Systems**


---

**University Library**

The Library,  
University of Sussex,  
Brighton  
BN1 9QL

Phone: **01273 678163**  
library@sussex.ac.uk