PSYC2111 – Perception, Learning and Behavioural Neuroscience

Unit of Study Code: PSYC2111

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Format of Unit:
2 x 1 hour lectures/week x 13 weeks
1 x 1 hour tutorial/week x 12 weeks

Credit Point Value:
4 Credit Points

Qualifying:
12 credit points of First Year Psychology including PSYC 1001 and PSYC 1002

Assessment:
Classwork:
25% of total mark: 1,000 words Laboratory Report
Due Date: Friday 12 May (Week 10)

25% of total mark: Tutorial Quiz
29 May – 2 June (Week 13)

Examination:
50% of total mark: Multiple-choice questions

Evaluation of teaching and learning:
Date: Week 13
Type: General Student Feedback Questionnaire

Unit of study general description:
The first half of the course (13 lectures) expands on topics introduced in first year Learning and Motivation, with an emphasis on behavioural principles and findings which have important practical implications. The second half of the course (13 lectures) follows first year Psychobiology and Sensory Systems, developing a number of themes from that course and introducing new ones. The emphasis is on understanding the brain mechanisms underlying behaviour, perception and cognition.
Teaching outcomes:

1. Understanding basic properties of conditioning, especially instrumental learning.
2. Understanding some of the neurochemical bases of reinforcement, addiction and anxiety.
3. Understanding comparative studies of complex learning, problem solving and memory.
4. Awareness of the relationship between theoretical research and practical applications of behavioural and physiological findings.
5. Understanding basic processes of human visual perception and perception of emotion.
6. Understanding basis properties of olfaction.
7. Understanding the basics of human brain imaging techniques.
8. Understanding the neural basis of human communication.
9. Awareness, and some hands-on experience, of animal-based behavioural research.
10. Skill in reporting experimental work using standard conventions.

Evidence of learning:

Achieving a Pass standard in the examination demonstrates success in achieving outcomes 1 – 8. In addition, successful achievement of Outcomes 1, 9 and 10 is shown by completion of the laboratory report at a Pass standard and of Outcomes 2, 4, 5, 6, 7 and 8 by a Pass mark in the Tutorial Quiz.

SYLLABUS

Fundamental principles of instrumental conditioning based on animal research, involving both positive and aversive events, and their neural and pharmacological bases; social learning; fear, anxiety and stress; applications of research on learning; comparative studies of memory and other cognitive processes; psychopharmacology of addiction and of anxiety; olfactory systems; human visual perception of objects and faces, and underlying brain mechanisms; communication and expression of emotion, and their neural bases.

TIMETABLE

<table>
<thead>
<tr>
<th>WEEK</th>
<th>LECTURES</th>
<th>TUTORIALS</th>
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<tbody>
<tr>
<td>1</td>
<td>1. Instrumental conditioning</td>
<td>No meeting</td>
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<td>2. Partial reinforcement and extinction</td>
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<td>2</td>
<td>3. Comparative studies of memory</td>
<td>Intro to animal laboratory</td>
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<td>4. Time, number and order</td>
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<td>3</td>
<td>5. Spatial learning and navigation</td>
<td>1st practical: Habituation and</td>
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<td>6. Communication and language</td>
<td>magazine training</td>
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<td>4</td>
<td>7. Evolution and intelligence</td>
<td>2nd practical: Establishing an</td>
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<td>8. Fear: Measurement and conditioning</td>
<td>instrumental response</td>
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<td>5</td>
<td>9. Aversive conditioning and consequences</td>
<td>3rd practical: Partial</td>
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<td>10. Fear, defence and recuperation</td>
<td>reinforcement</td>
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<td>6</td>
<td>11. Fear, anxiety, stress and distress</td>
<td>4th practical: Schedules of</td>
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<td>12. Social learning and imitation</td>
<td>reinforcement</td>
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<td>7</td>
<td>13. The analysis of behaviour and its applications</td>
<td>5th practical: Extinction and</td>
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<td>14. Neural basis of instrumental reinforcement</td>
<td>conditioned reinforcement</td>
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<td>8</td>
<td>15. Reinforcing properties of addictive drugs</td>
<td>6th practical: Comparing the</td>
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<td>16. Neurochemical basis of fear and anxiety</td>
<td>effectiveness of two reinforcers</td>
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<td>9</td>
<td>17. Neural basis of learning and memory</td>
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<td>10</td>
<td>18. Pharmacology of learning and memory</td>
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<td>11</td>
<td>19. Neurobiology of the olfactory system</td>
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<td>20. Olfactory learning and memory</td>
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<td>12</td>
<td>21. Emotion conditioning and human disorders</td>
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<td>22. Visual perception of objects and faces</td>
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<td>13</td>
<td>23. Facial expression of emotion</td>
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<td>24. Disorders of visual perception</td>
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<td>14</td>
<td>25. Human communication</td>
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<td>26. Neural basis of communication signals</td>
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* Details on tutorials for Weeks 9 – 12 will be given later.
TEXT

There is no required textbook for this course. However, it is highly recommended that students obtain copies of two books. References to these will be given in lectures.

(This text will be particularly useful in Weeks 1-7 and will also be used in the 3rd Year course on 'Learning and Motivation')

(This text will be particularly useful in Weeks 7-13 and will also be used in the 3rd Year course on 'Behavioral Neuroscience')

REFERENCES

Where possible references for lecture and tutorial material will be from the two texts above. In addition, some reference will be made to the following sources:

