PSYC2111 – Learning, Neuroscience and Perception

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
Tutorial sizes: maximum of 20 students per group

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 11 May (Week 10)

25% of total mark: Tutorial Quiz
28 May – 31 May (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

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<tr>
<th>WEEK</th>
<th>LECTURES</th>
<th>TUTORIALS</th>
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| 1    | 1. Instrumental conditioning  
2. Partial reinforcement and extinction | No meeting |
| 2    | 3. Comparative studies of memory  
4. Time, number and order | Intro to animal laboratory |
| 3    | 5. Spatial learning and navigation  
6. Communication and language | 1st practical: Habituation and magazine training |
| 4    | 7. Evolution and intelligence  
| 5    | 9. Aversive conditioning and consequences  
10. Fear, defence and recuperation | 3rd practical: Partial reinforcement |
| 6    | 11. Fear, anxiety, stress and distress  
12. Social learning and imitation | 4th practical: Schedules of reinforcement |
| 7    | 13. The analysis of behaviour and its applications  
14. Neural basis of instrumental reinforcement | 5th practical: Extinction and conditioned reinforcement |
| 8    | 15. Reinforcing properties of addictive drugs  
16. Neurochemical basis of fear and anxiety | 6th practical: Comparing the effectiveness of two reinforcers |
| 9    | 17. Neural basis of learning and memory  
18. Pharmacology of learning and memory | 7th practical: Neural basis of addiction |
| 10   | 19. Neurobiology of the olfactory system  
20. Olfactory learning and memory | 8th practical: Cognitive enhancers |
| 11   | 21. Emotion conditioning and human disorders  
22. Visual perception of objects and faces | 9th practical: Face perception |
| 12   | 23. Facial expression of emotion  
24. Disorders of visual perception | 10th practical: Emotion and facial expressions of emotion |
| 13   | 25. Human communication  
26. Neural basis of communication signals | Tutorial quiz and course evaluation |
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:

