PS3037 Perception
Module Booklet 2014-15

Prof. Julie M. Harris (jhl81@st-andrews.ac.uk)
Tue 28th Oct – Tue 25th Nov, 2014

9am-11am Lectures in Purdie Building (Chemistry) Lecture Theatre B
2pm-5pm Afternoon sessions, Psychology Old Library (you will be asked to attend either 2pm-3.30pm, or 3.30pm-5pm).

Your are expected to attend both morning and afternoon sessions. If you are a Joint Honours student and have a timetable clash with the above afternoon timings, please talk to the lecturer as soon as possible.

In this course I will cover several core areas of visual perception in detail. The main focus will be on understanding the ways in which behavioural methods can make powerful predictions that allow us to devise and develop theories of how visual information is processed by the human visual system.

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
<th>Lab/Session</th>
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<tbody>
<tr>
<td>2</td>
<td>4/11</td>
<td>Spatial vision</td>
<td>Lab 2: Using a Staircase Method to measure contrast sensitivity. This lab uses the FrACT software to measure contrast sensitivity using sinusoidal gratings. You will also explore simulated central visual field loss.</td>
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<tr>
<td>3</td>
<td>11/11</td>
<td>Vision and experience</td>
<td>Reading a research paper: Tactual session on reading for Perception. We will explore a specific paper, identifying how to effectively extract the science from the study.</td>
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<tr>
<td>4</td>
<td>18/11</td>
<td>Depth and Motion</td>
<td>Presentations*: Winawe 2008, on motion after effects from static scenes.</td>
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<tr>
<td>5</td>
<td>25/11</td>
<td>Colour and lightness</td>
<td>Presentations*: Hong &amp; Blake, 2008, on how colour constancy techniques can explore the processing level at which synaesthesia takes place.</td>
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<tr>
<td>2/12</td>
<td>Revision session</td>
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* Read the paper ahead of the session.

Reference Text: Foundations of Sensation and Perception, George Mather (2nd edition is preferred, but edition 1 is very similar)

Assessment

There will be a 2 hour examination, during the examination period, which will provide 100% of the assessment for this course.

Course reading

As well as the main textbook, each week there will be set readings linking the lecture material to recent research in the topic area. All the material, including papers presented in the afternoons, and practical classes, is examinable.

This reading list should not discourage you from further reading around the topics.


Week 1

Mather, Chapter 1, ‘General Principles’

Some general alternative reading can be found on a web-based vision book, “The Joy of Visual Perception”. Many of the sections will be relevant to this course:

http://www.yorku.ca/eye/loc-sub.htm

This web site, by Michael Bach, allows you to explore a wide range of visual illusions, each with some background text, including hypotheses for why they might occur:

http://www.michaelbach.de/ol/

Week 2

Mather, Chapters 7, Visual Physiology, and 8, Spatial Vision


User manual for the Freiburg Vision Test (FrACT):

http://www.michaelbach.de/ot/

Week 3

Mather, Chapter 14, Individual differences


Further reading:
Week 4

Mather, Chapter 11, Visual motion perception
Mather, Chapter 10, Depth perception.


Further reading:


Week 5

Mather, Chapter 12, Colour vision


Further reading:


A website that allows you to simulate colour vision deficits: [http://www.vischeck.com/examples/](http://www.vischeck.com/examples/)