

From the Eye to the Brain: How do Humans see?

Date	12 June 2016	Time	10.00 -16.45
Venue	Madingley Hall Madingley Cambridge		
Academic Director	Dr Lee de-Wit	Course code	1516NDX053

Director of Programmes Emma Jennings

For further information on this course, please contact Clare Kerr, Public Programmes Coordinator
01223 746237 clare.kerr@ice.cam.ac.uk

To book See: www.ice.cam.ac.uk or telephone 01223 746262

Tutor biographies

Lee studied Experimental Psychology at the University of Bristol, and then an Economic and Research Council funded Masters (with Charles Fernyhough) and PhD (with David Milner FRS and Robert Kentridge) at Durham University. Lee then worked as a post-doctoral researcher at the University of Leuven working on the Gestalt Revision program of Johan Wagemans, on which he is now a co-PI. Lee has also spent time as a visiting researcher with Geraint Rees at the Institute of Cognitive Neuroscience (UCL), Glyn Humphreys at the University of Oxford, and Catherine Tallon-Baudry at the University Hospital Pitié-Salpêtrière in Paris. In addition to teaching at ICE, Lee is a Teaching Fellow at University College London.

Day school content:

Visual perception starts with the conversion of light hitting the retina into electrical signals to send to the brain, but it certainly doesn't stop there. Almost a third of the cortex of the brain is required to process and interpret the electrical signals encoded on the retina of the eye. Following brain damage patients can have profound deficits to visual perception even though their eyes can be perfectly functional. These deficits can be surprisingly specific, such that patients might not be able to recognize faces, but can see almost everything else. These deficits can help to inform us how visual processing normally takes place in the brain. Modern neuroimaging can also help us to understand how different areas of the brain are active when we see different things. Simple behavioural illusions can also bring to life the ways in which human vision is much more than just a case of 'sensing' what hits the retina on the eye, but that visual perception is shaped by what we know and have experienced in the past. We will illustrate the power of illusions in shaping our understanding of the eye and brain by focusing on the famous 'hollow face illusion'. We will conclude with some more philosophical questions regarding what human visual perception is for, and how the human eye and brain enables us to achieve that.

Programme:

09:30	Terrace bar open for pre-course tea/ coffee
10:00 – 11:15	The Human Eye: Converting Light to Electrical Signals
11:15	Coffee
11:45 – 13:00	The Visual Brain 1: Organizing Visual Input
13:00	Lunch
14:00 – 15:15	The Visual Brain 2: Vision for Action and Vision for Perception
15:15	Tea
15:30 – 16:45	What is Vision for?
16:45	Day school ends

Reading and resources list

Listed below are a number of texts that might be of interest for future reference, but do not need to be bought (or consulted) for the course.

Author	Title	Publisher and date
Richard Gregory	<i>Eye and Brain: The psychology of seeing</i>	Princeton University Press, 2015
Stephen Palmer	<i>Vision Science: Photos to Phenomenology</i>	MIT Press, 1999

Additional information

There is a lovely video illustrating the 'hollow face illusion' on QI:
(<https://www.youtube.com/watch?v=ORoTCBrCKIQ>).

Venue

Details of how to find Madingley Hall can be found on our website:
<http://www.ice.cam.ac.uk/who-we-are/how-to-find-the-institute>

Refreshments

Tea and coffee and lunch will be provided. If you have any specific dietary requirements or allergies and have not already advised us, please inform our Admissions Team on ice.admissions@ice.cam.ac.uk or +44 (0)1223 746262.

Note Students of the Institute of Continuing Education are entitled to 20% discount on books published by Cambridge University Press (CUP) which are purchased at the Press bookshop, 1 Trinity Street, Cambridge (Mon-Sat 9am – 5:30pm, Sun 11am – 5pm). A letter or email confirming acceptance on to a current Institute course should be taken as evidence of enrolment.

Information correct as of: 05 April 2016