

Mondays at 10 am, Physiology Main Lecture Theatre

- **Lecture 1 (Monday 17 January 2005).** Cerebral cortex. The two visual streams. Visual streams (1): object processing.
- **Lecture 2 (Monday 24 January).** Visual streams (2): motion processing. Spatial cognition. Parietal cortex.
- **Lecture 3 (Monday 31 January).** Attention. The binding problem.
- **Lecture 4 (Monday 7 February).** Neural basis of memory (1).
- **Lecture 5 (Monday 14 February).** Neural basis of memory (2).
(Reading week)
- **Lecture 6 (Monday 28 February).** The prefrontal cortex.

Objectives. By the end of the course, you should be acquainted with some of the major developments and current theories in cognitive neuroscience. You should be familiar with the principles of cortical information processing; visual processing and its modularity; object perception; spatial cognition; attention; neglect; the binding and selection problems; types of memory; amnesic syndromes; neural structures underpinning memory storage, consolidation, and retrieval; ‘executive’ functions and the contributions of the prefrontal cortex.

- Please note the **early start to the course** and the **unusual venue**.
- Handouts with reading lists and sample essay titles will accompany each lecture topic.
 - I will attempt to **cite** major studies. These will appear in the text e.g. as “(Wiesel & Hubel, 1963)” and the full reference will be in the bibliography at the end of the handout, e.g. as “Wiesel, T. N. & Hubel, D. H. (1963). Single-cell responses in striate cortex of kittens deprived of vision in one eye. *Journal of Neurophysiology* **26**: 1003–1017.” This is a standard citation technique; the idea is (1) that you might get an idea of the development of experimental evidence and theories in the field; (2) you know what I’m basing my claims on, so if you disagree with what I’ve said you can look at the original research literature. I’d encourage you to explore the original literature, but **you are not expected to read everything that’s cited!** Sometimes the original literature may not be in Cambridge.
 - **Suggested reading** is given at the end of the handout, and cited in the same format (i.e. author/year are given in the *Suggested Reading* list and you can look those articles up in the bibliography). I will suggest several articles — often review articles — that I think are interesting and well-written and you can choose how many of those you read (and how much of the *primary*, rather than review, literature you want to explore) according to your interests. Suggested reading should be available from the Psychology library (ask the librarian) if nowhere else.
 - You should be, or become, familiar with how to use the University Library web site to find journals in Cambridge, using the *Cambridge Union List of Serials*, and how to use databases such as **www.pubmed.com**, **webspirs.cam.ac.uk**, **wok.mimas.ac.uk**, **scholar.google.com**, and **www.google.com** to find abstracts and articles.
- Handouts and slides will appear as PDFs at **pobox.com/~rudolf/psychology**. Past exam papers are available from **www.psychol.cam.ac.uk** → Teaching Resources → Examination Details (for Part II Psychology) and **www.bio.cam.ac.uk/teaching/neuroscience** (for Part II Neuroscience).
- The course covers material in both psychology and neuroscience — so don’t let a lack of background in either put you off! Many of you will have done some basic neuroscience previously, either as part of MVST IB, or NST IB Experimental Psychology or Neurobiology. If you haven’t, it may be worthwhile to get hold of previous handouts for these courses, or to read a general neuroscience textbook, and to seek supervisions early. However, I will try to make the course broadly accessible.
- If you wish to have supervision on the course, feel free to drop me an e-mail; Dani Turner (dct23@cam.ac.uk), Elizabeth Shurrell (es359@cam.ac.uk), and Anna Sobolev (aas31@cam.ac.uk) are also happy to supervise.