PSYCHOLOGY 4BN3: Seminar in Behavioural Neuroscience

Plasticity and Perceptual Learning

Plasticity, then, in the wide sense of the word, means the possession of a structure weak enough to yield to an influence, but strong enough not to yield all at once. – William James

GENERAL COURSE INFORMATION

Class meeting time/place: Wednesdays, 9.30-12.30, PC 204

Instructor: Prof. AB Sekuler
Office: PC 305
Phone: 905-525-9140 x27944
Email: sekuler@mcmaster.ca
Office hours: Tuesdays, 10-11, and by appointment.

TA: Jesse Husk
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Office hours: By appointment.

COURSE EVALUATION

N.B. Prof. Sekuler reserves the right to alter the readings, and the weightings, details, and/or due-dates of assignments as she deems necessary due to unforeseen circumstances.

Oral presentations (2 @ 10% = 20%)
Reaction papers (7 @ 5% = 35%)
Term paper (30%)
Class participation (15%)
Bonus marks (max 2%)

Oral presentations. Beginning January 15, each student will be required to give two oral presentations (students will work in groups of 2-3 for each presentation). In preparation for their presentations, students are expected to gain expertise beyond the core readings assigned to the class by reviewing additional materials (determined by the students and in consultation with the instructors). The presentation entails briefly summarizing and integrating the readings for that week, and leading the class discussion of those readings. Students must meet with Prof. Sekuler at least a week before their oral presentation, and provide Prof. Sekuler with a list of additional materials and a rough outline for their presentation. When appropriate, presenting students, in conjunction with Prof. Sekuler, will determine specific questions for reaction papers (see below).

Reaction papers. Each week, students may submit one short (max 3 pages) reaction paper, commenting on the readings for that week's class. When specific questions are assigned in advance, the papers should answer those questions. Otherwise, the papers should comment on the strengths and weaknesses of the experiments/theories and the connections across readings, and pose questions for
further research based on the critiqued readings. Critiques should be as specific as possible – both in
the discussion of previous work and in the proposal of future experiments. When writing reaction
papers, students should assume that the reader is familiar with the relevant readings (i.e., extended
summaries of the articles are discouraged). If students submit more than 7 reaction papers, only the
top 7 marks will count toward the final mark. Reaction papers are due at the beginning of each class.
Late reaction papers will not be accepted. Presenters do not complete reaction papers on the weeks of
their presentations.

Term paper. A final term paper is due on April 9, 2003. The main text of the term paper should be a
maximum of 15 pages. The purpose of the term paper is provide an integrative review of a research
area within plasticity and perceptual learning, and to propose an original experiment (or series of
experiments) related to that area. The format of the paper should be that of a standard experimental
psychology report, but with a "Predictions" section replacing the standard "Results" section. Topics
for the term paper are not limited to those covered by the reading in this class, but all topics must be
approved by Prof. Sekuler in advance (no later than March 5). Late papers will be penalized 10% per
day late.

Class participation. Because this is a seminar class, it is essential that all students actively participate
in the discussions of weekly topics. Simply attending class is not enough to earn a good mark.
Students are expected not only to complete all readings before class, but to have thought in-depth
about the readings, and to come prepared with relevant questions/comments/ideas for discussion.

Bonus marks. Students can obtain a maximum of 2 bonus marks for attending approved colloquia and
submitting a critique to Jesse Husk via email within one week of the colloquium. Each critique will
count as one bonus mark (1%). Late critiques and critiques not sent via email will not be accepted.
The critique should include a brief summary of the colloquium and questions/comments you have
about the content and presentation. Approved colloquia: Departmental Colloquia, Behavioural
Neuroscience Seminars, Animal Behaviour and Learning Seminars, and Cognition/Perception
Seminars. Note: Colloquium series do not meet every week; watch for postings.

COURSE READINGS
   President and Fellows of Harvard College.


   Eysel, UT (2002). Plasticity of receptive fields in early stages of the adult visual system. pp. 43-65 in

Murphy KM & Mitchell DE (1987) Reduced visual acuity in both eyes of monocularly deprived kittens following a short or long period of reverse occlusion. *Journal of Neuroscience, 7,* 1526-1536.


5. February 5. Cutting off your limb to spite your face: Cortical reorganization after amputation


   Get some REM sleep and consolidate….


9. March 5. Learning leads to cortical reorganization.


10. March 12. Is perceptual learning specific or general?


**13. April 2. Single cell effects.**

