Fundamental neurosciences
2F03
(Dr. Gautam R Ullal)

This course is primarily aimed at offering a glimpse at complex neural systems in normal and diseased states. We will address the neural structures and mechanisms underlying this.

The text book for the course will be *Physiology of Behavior by Neil R. Carlson, 7th Edition (Allyn & Bacon)*. The chapters pertaining to each lecture are indicated in the course plan below. Outlines for the lectures will be provided on the course web page. There will be tutorials to help students understand the concepts better and equip them to prepare for the examinations.

**Assessment:**

There will be 1 Mid-Term and 1 Final Examination. The Mid-term examination counts for 30% of the final grade. Final examination will count for the remaining 70%. The mode of assessment is through Multiple Choice Questions (MCQ).

**Portions for the examinations:**

The Mid-term examination will cover Lectures 1-17 and Chapters 2-7 from the text (Phase I-II). About 75% of the Final examination will cover Chapters 8, 9, 11, 14, 15, 16 & 17 and Lectures 20-37 (Phase III-IV). The remaining 25% will cover the chapters and lectures prior to the mid term examination.

Most of the topics covered in the lecture will have 2 components “Must Know” and “Good to know”. This will be indicated in the “Outlines for the lectures” provided on the web page. About 95% of the MCQs will be from the “Must know”. The remaining 5% will be from the “Good to know” category.

**Grades:**

Finally, all the points will be consolidated, and Grades assigned according to the following conventional scheme:

- 90-100 A+
- 85-89 A
- 80-84 A-
- 77-79 B+
- 73-76 B
- 70-72 B-
<table>
<thead>
<tr>
<th>Grade Range</th>
<th>Grade</th>
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<tbody>
<tr>
<td>67-69</td>
<td>C+</td>
</tr>
<tr>
<td>63-66</td>
<td>C</td>
</tr>
<tr>
<td>60-62</td>
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<td>53-56</td>
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<tr>
<td>50-52</td>
<td>D-</td>
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<tr>
<td>0-49</td>
<td>F</td>
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</tbody>
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Based on individual’s overall performance and special circumstances, the Instructor reserves the right to scale the final marks up or down.

**Message from the Chair of Psychology**
The instructor cannot be responsible for returning long distance calls from students. Any student wishing to reach an instructor is invited to e-mail the instructor.

**Policy Reminder**
Attention is drawn to the *Statement on Academic Ethics* and the *Senate Resolutions on Academic Dishonesty* as found in the Senate Policy Statements distributed at registration and available in the Senate Office. Any student who infringes one of these resolutions will be treated according to the published policy.

**Contacts**
1. Instructor: Gautam Ullal (Email: ullalg@mcmaster.ca)
2. Tutors:
   a) Akrong James
   b) Hopman Romina
   c) Wang Li
   d) Volunteer TA: Paul Henry
COURSE OUTLINE

PHASE: I (FOUNDATION)
1. Introduction 5/Sept/02
2. Investigating the nervous system Cpt 5 9/Sept/02
3. Organization of the nervous system Cpt 3 10/Sept/02
4. Neuron structure Cpt 2 12/Sept/02
5. Electrical properties of a neuron Cpt 2 16/Sept/02
6. Nerve conduction Cpt 2 17/Sept/02
7. Synapse Cpt 2 19/Sept/02
8. Psychopharmacology Cpt 4 23/Sept/02

PHASE: II (SENSORY MECHANISMS)
9. Organisation: Receptors -tracts-thalamus-cortex Cpt 7 24/Sept/02
10. General (cutaneous) sensations Cpt 7 26/Sept/02
11. Vision-1: Eye ball-image capturing Cpt 6 30/Sept/02
14. Vision-4: Cortical processing of images Cpt 6 7/Oct/02
15. Audition-1: Ear-sound capturing Cpt 7 8/Oct/02
16. Audition-2: Organ of Corti- transduction Cpt 7 10/Oct/02
17. Audition-3: Cortical processing of sounds Cpt 7 15/Oct/02
18. Tutorial-1 17/Oct/02
19. MID-TERM MCQ FOR PHASE I & II 21/OCT/02

PHASE: III (MOTOR MECHANISMS)
20. Organisation of motor system Cpt 8 22/Oct/02
21. Tone, posture & equilibrium Cpt 7-8 24/Oct/02
22. Pyramidal system Cpt 8 28/Oct/02
23. Basal ganglia-1: Structure & connections Cpt 8 29/Oct/02
24. Basal ganglia-2: Functions & disorders Cpt 8 31/Oct/02
25. Feedback on Mid Term Test 4/Nov/02
26. Tutorial-2 5/Nov/02
27. Tutorial-3 7/Nov/02
28. Cerebellum -1: Structure & connections Cpt 8 11/Nov/02
29. Cerebellum-2: Functions & disorders Cpt 8 12/Nov/02
30. Practiced movements & apraxia Cpt 8 14/Nov/02
PHASE: IV (BEHAVIOUR)

31. Organisation of limbic system & hypothalamus  Cpt 3  18/Nov/02
32. Learning & memory: Basic mechanism  Cpt 14  19/Nov/02
33. Relational learning and amnesia  Cpt 15  21/Nov/02
34. Arousal & sleep  Cpt 9  25/Nov/02
35. Emotions  Cpt 11  26/Nov/02
36. Laterality in brain functions & communication.  Cpt 16  28/Nov/02
37. Schizophrenia & affective disorders  Cpt 17  2/Dec/02
38. Overview of all lectures  3/Dec/02
39. FINAL TEST (MCQ) : Including I-II Phases (25%) & III- IV Phases (75%)  5/Dec/02