Fundamentals of Neuroscience (2F03)

Winter 2008-2009 Location: CNH/104 Tue, Wed and Fri 12:30 pm-1: 20 pm.

Course Outline

Course Instructor: Dr. Ullal, G.

Contact: Department of Psychology, Neuroscience and Behaviour.

Tel. 21331; email: ullalg@mcmaster.ca

Office Hours: ***Students are encouraged to remain in-touch with me or the TAs. There are no specific "Office Hours". Please feel free to email either me or the TAs and make an appointment for any day during the week. Around the mid-term examinations and before the final examination special time-slots will be provided.***

Teaching Assistants:

1. Alison Fenny fenneyal@mcmaster.ca
2. Christal Sookram csookram7@gmail.com
3. Edith Kolozsi kolozse@univmail.cis.mcmaster.ca
4. Regan E. Patrick regan_patrick123@yahoo.com

Course Objectives:

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

The text book for the course: Dale Purves *et al.* Neuroscience 4th Edition, Sinauer Associates Inc. USA. 2008. The chapters pertaining to each lecture are indicated in the Schedule below.

Journal Articles for Home-Assignment: Two journal articles will be reviewed in the course. The PDF format of the papers will be posted on the WebCT very soon

NOTE: **Examinations are entirely based on lectures.** The lectures will cover material from the textbook as well as from outside sources. Important PowerPoint slides for the lecture will be posted prior to every class on the WebCT. Students are advised to make their own notes in class.

Details of the assignment papers will be posted on the WebCT shortly.

NOTE:

a. Students are required to study the article and address a few questions pertaining to it in the form of home-assignments. The questions will be provided.
b. Both the assignments **together**, will be worth **20%** of the final grade.
c. **The assignments must be submitted prior to the specified dates.** They may be submitted in class. A penalty of 10% /day will be applied for delayed submission. After the 3rd day, the assignment will get a zero. In the event of an illness or any legitimate reasons, an official permission should be routed through the Administration excusing the delayed submission.
d. The assignments must be typed, with double-line spacing. Emailing of assignments is not permitted.
e. Language will not be an issue in the marking. Point-form of answers would do.

Evaluations

1. **First midterm examination:** The midterm examinations will be worth **20%** of the final grade. Only material covered in class in all the lectures prior to 1st midterm examination will be on 1st midterm examination. Besides **multiple choice questions** there will be a few **short answer** type questions comprising of definitions and some important concepts discussed in class. **Material from the assignment will NOT be tested.**
2. **Second midterm examination:** The midterm examinations will be worth **20%** of the final grade. Only material covered in class in all the lectures after the 1st midterm examination and prior to 2nd midterm examination will be tested. Besides **multiple choice questions** there will be a few **short answer** type questions comprising of definitions and some important concepts discussed in class. **Material from the assignment will NOT be tested.**
3. **Final examination:** It will be worth **40%** of final grade. It will test the material covered in the entire course with a greater emphasis on what is covered after the 2nd midterm examination. It will be worth **40%** of final grade. It will test the material covered in the entire course. Besides **multiple choice questions** there will be a few **short answer** type questions comprising of definitions and some important concepts discussed in class. **Material from the assignments will NOT be tested.**
4. Dates for the midterm examinations are indicated in the List of Lectures below. Date for the final examination will be determined by the Registrar's Office.
5. **Assignments:** There will be **TWO** home assignments, **together** worth **20%** of the final grade. They will be based on two journal articles. **They have to be submitted by the absolute deadlines indicated in the table of schedule provided below. Material from the assignments will NOT be tested on any of the examinations.**

   Remarking of Assignments or Short Answers: Requests for remarking of an Assignment or a Short Answer is only considered after a student provides a written request giving the reasons for the request to either, Dr. Ullal or the TAs.

MISSED EXAMINATIONS: There will **NOT** be a re-examination for missing any of the midterm examinations. However, if a student misses any examination owing to an illness or any other legitimate reason, the final examination will be rated proportionately higher provided an official permission is routed through the University Administration. No examination will be re-scheduled unless there is cancellation of the class by the University.

CONFLICT OF EXAMINATIONS: Since the midterm examinations are conducted during the regular class-hour, if any other examination conflicts with this examination, please contact the authorities conducting the other examination.

"IMPORTANT ANNOUNCEMENTS": Important announcements regarding the course will be periodically posted in the **Announcement Box** of the course WebCT. Please remain updated.

MCMASTER UNIVERSITY GRADING SCALE:

Grade	Equivalent Grade Point	Equivalent Percentages
A+	12	90-100
A	11	85-89
A-	10	80-84
B+	9	77-79
B	8	73-76
B-	7	70-72
C+	6	67-69
C	5	63-66
C-	4	60-62
D+	3	57-59
D	2	53-56
D-	1	50-52
F	0	0-49

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Schedule of lecture topics and reading

NOTE

1. **The topics listed for the lectures below will follow the dates against them approximately.**
2. **Only what is taught in class will be tested.**

Session Number	DATE	TOPIC	Suggested reading in TEXT
1	6th January	Introduction to the course	
2	7th January	Introduction to the nervous System	Ch 1
3	9th January	Investigating the nervous system-1	Ch 1
4	13th January	Investigating the nervous system-2:	Ch 1
5	14th January	Investigating the nervous system-3	Ch 1
6	16th January	Investigating the nervous system-4	Ch 1
7	20th January	Organization of the nervous system: Macro Level- 1 Gross Anatomy	Ch 1
8	21st January	Organization of the nervous system: Macro Level- 2 Meninges and CSF	Ch 1
9	23rd January	Organization of the nervous system: Macro Level- 3 Cerebral Blood Flow	Ch 1
10	27th January	Organization of the nervous system: Macro Level- 4 Blood-Brain Barrier	Ch 1

11	28th January	Organization of the nervous system: Micro Level- 1 Glia, Neuron, Axon Transport and the Signalling Endosome **1st Assignment due**	Ch 2-8
12	30th January	**1st Midterm examination**	**Lecture 1 to 11 (including 11)**
13	3rd February	Organization of the nervous system: Micro Level- 2 Membrane Potentials	Ch 2-8
14	4th February	Organization of the nervous system: Micro Level- 3 Nerve Conduction	Ch 2-8
15	6th February	Organization of the nervous system: Micro Level- 4 Impulse to Synapse	Ch 2-8
16	10th February	Organization of the nervous system: Micro Level- 5 The 'Ways' of a Synapse and Synaptic Plasticity	Ch 2-8
17	11th February	Organization of the nervous system: Micro Level- 6 Neurogenesis	Ch 2-8 and Ch 9

		Somatic sensation-1	
18	13th February	Somatic Sensation-2	Ch 9
19	24th February	Sensory Mechanism: Pain	Ch 10
20	25th February	Sensory Mechanism: Vision-1	Ch 11
21	27th February	Sensory Mechanism: Vision-2	Ch 11
22	3rd March	Sensory Mechanism: Vision-3	Ch 12
23	4th March	Sensory Mechanism: Audition-1	Ch 13
24	6th March	Sensory Mechanism: Audition-2	Ch 13
25	10th March	Vestibular system-1 **2nd Assignment due**	Ch 14
26	11th March	Vestibular system-2	Ch 14
27	13th March	**2nd Midterm examination**	**Lecture 13 to 26 (including 26)**
28	17th March	Organization of Motor System	Ch 16-17
29	18th March	Pyramidal System and Cortical Controls-1	Ch 16-17
30	20th March	Pyramidal System and Cortical Controls-2	Ch 16-17
31	24th March	Extrapyramidal System and the Basal Ganglia-1	Ch 18
32	25th March	Extrapyramidal System and the Basal Ganglia-2	Ch 18
33	27th March	Cerebellum-1	Ch 19

34	31st March	Cerebellum-2	Ch 19
35	1st April	Speech	Ch 27
36	3rd April	Sleep	Ch 28
37	7th April	Review (pending time-constraints)	

NOTE ABOUT THE FINAL EXAMINATION

- Dates for the final examination will be announced by the University.
- The final examination is **cumulative**. It will cover the **entire material** covered in the lectures.
- Final examination follows similar pattern as the midterm examinations. There will be both **multiple choice questions** as well as **short answer** type questions on the final examination.

NOTE ABOUT ACADEMIC INTEGRITY

You are expected to exhibit honesty and use ethical behaviour in all aspects of the learning process. Academic credentials you earn are rooted in principles of honesty and academic integrity.

Academic dishonesty is to knowingly act or fail to act in a way that results or could result in unearned academic credit or advantage. This behaviour can result in serious consequences, e.g. the grade of zero on an assignment, loss of credit with a notation on the transcript (notation reads: "Grade of F assigned for academic dishonesty"), and/or suspension or expulsion from the university.

It is your responsibility to understand what constitutes academic dishonesty. For information on the various types of academic dishonesty please refer to the Academic Integrity Policy, located at http://www.mcmaster.ca/academicintegrity

The following illustrates only three forms of academic dishonesty:

1. Plagiarism, e.g. the submission of work that is not one's own or for which other credit has been obtained.
2. Improper collaboration in group-work.
3. Copying or using unauthorized aids in tests and examinations.

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.