



## Department of Psychology

### Psychology 507.36 (L01) – Sensory, Cognitive, and Motor Functions of the Hippocampus Fall 2008

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<b>Instructor:</b>	<b>Dr. Brian H. Bland</b>	<b>Lecture Location:</b>	<b>Admin253</b>
<b>Phone:</b>	403-220-4948	<b>Lecture Days/Time:</b>	MWF @12:00 AM
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<b>Office:</b>	Admin 032		
<b>Office Hours:</b>	By appointment		

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#### Course Description and Goals

The course will review the anatomical, physiological, and pharmacological properties underlying sensorimotor integration of the hippocampal formation as revealed through the study of theta-band oscillation and synchrony. The goal is for course participants to acquire a basic understanding of hippocampal physiology, including the electrophysiological principals of single cell activity, spontaneously occurring field activity, and evoked field potentials.

The course will consist of lectures on Mondays and Wednesdays. Fridays will be reserved for class presentations, class discussions or lab demonstrations.

**Presentations.** Each student will be assigned a journal article ahead of time and will summarize the major points of the paper for the class. Each student will be responsible for 5 presentations, and these will be evaluated based on clarity of presentation and how well questions are handled. Missed presentations will be weighted on remaining presentation.

**Discussions.** The whole class will read the same journal article/review and participate in a general discussion led by the professor. A total of 5 review articles will be discussed.

**Lab Demonstrations.** Students will have the opportunity to view actual ongoing experiments on various aspects of hippocampal physiology in the professor's laboratory.

#### Required Text

Students will read original journal articles and reviews.

#### Evaluation

Mid-term Exam – 10% -October 24, 2008 – Multiple choice and short essay questions.

Presentations – 30%

Discussions -- 10%

Essay - 50% -due Friday November 14, 2008. Topic of your choice in any aspect of hippocampal physiology. Length should be 10 – 12 double spaced pages in a scientific review format (e.g. Brain Research Reviews).To be handed in at the end of the lecture. Emailed assignments will not be accepted. Late assignments will be assessed a penalty of 10% per day (including weekends).

#### Grading Scale

A+	96-100%	B+	80-84%	C+	67-71%	D+	54-58%
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A	90-95%	B	76-79%	C	63-66%	D	50-53%
A-	85-89%	B-	72-75%	C-	59-62%	F	0-49%

As stated in the University Calendar, it is at the instructor's discretion to round off either upward or downward to determine a final grade when the average of term work and final examinations is between two letter grades.

To determine final letter grades, final percentage grades will be rounded up or down to the nearest whole percentage (e.g., 89.5% will be rounded up to 90% = A but 89.4% will be rounded down to 89% = A-).

## Lecture Schedule

### 1. Electrophysiological Recording Theory

- i) basic electrical concepts
- ii) field potential analysis (sources and sinks)
- iii) extracellular recording
- iv) intracellular recording
- v) patch clamp

### 2. Cellular basis of theta-band oscillation and synchrony

- i) hippocampal field activity (theta and large amplitude irregular activity (LIA).
- ii) theta-related cellular activity

### 3. The ascending brainstem hippocampal synchronizing pathways

- i) the rostral pontine region
- ii) the diencephalic region
- iii) the medial septal region

### 4. The ascending brainstem hippocampal desynchronizing pathways

- i) the median raphe

### 5. The sensorimotor integration model of hippocampal function

- i) Type 2 and type 1 theta
- ii) behavioral correlates

## Reappraisal of Grades

A student who feels that a piece of graded term work (e.g., term paper, essay, test) has been unfairly graded, may have the work re-graded as follows. The student shall discuss the work with the instructor within 15 days of being notified about the mark or of the item's return to the class. If not satisfied, the student shall immediately take the matter to the Head of the department offering the course, who will arrange for a reassessment of the work within the next 15 days. The reappraisal of term work may cause the grade to be raised, lowered, or to remain the same. If the student is not satisfied with the decision and wishes to appeal, the student shall address a letter of appeal to the Dean of the faculty offering the course within 15 days of the unfavourable decision. In the letter, the student must clearly and fully state the decision being appealed, the grounds for appeal, and the remedies being sought, along with any special circumstances that warrant an appeal of the reappraisal. The student should include as much written documentation as possible.

## **Plagiarism and Other Academic Misconduct**

Intellectual honesty is the cornerstone of the development and acquisition of knowledge and requires that the contribution of others be acknowledged. Consequently, plagiarism or cheating on any assignment is regarded as an extremely serious academic offense. Plagiarism involves submitting or presenting work in a course as if it were the student's own work done expressly for that particular course when, in fact, it is not. Students should examine sections of the University Calendar that present a Statement of Intellectual honesty and definitions and penalties associated with Plagiarism/Cheating/Other Academic Misconduct.

## **Academic Accommodation**

It is the student's responsibility to request academic accommodations. If you are a student with a documented disability who may require academic accommodation and have not registered with the Disability Resource Centre, please contact their office at 220-8237. Students who have not registered with the Disability Resource Centre are not eligible for formal academic accommodation. You are also required to discuss your needs with your instructor no later than 14 days after the start of this course.

## **Absence From A Test**

Make-up exams are NOT an option without an official University medical excuse (see the University Calendar). You must contact the instructor before the scheduled examination or you will have forfeited any right to make up the exam. At the instructor's discretion, a make-up exam may differ significantly (in form and/or content) from a regularly scheduled exam. Except in extenuating circumstances (documented by an official University medical excuse), a makeup exam is written within two (2) weeks of the missed exam. A completed Physician/Counselor Statement will be required to confirm absence from a test for health reasons. The student will be required to pay any cost associated with the Physician Counselor Statement.

## **Course Credits for Research Participation**

Students in most psychology courses are eligible to participate in Departmentally approved research and earn credits toward their final grades. A maximum of two credits (2%) per course, including this course, may be applied to the student's final grade. Students earn 0.5% (0.5 credits) for each full 30 minutes of participation. The demand for timeslots may exceed the supply in a given term. Thus, students are not guaranteed that there will be enough studies available to them to meet their credit requirements. Students should seek studies early in the term and should frequently check for open timeslots. Students can create an account and participate in Departmentally approved research studies at <http://ucalgary.sona-systems.com>. The last day to participate in studies and to assign or reassign earned credits to courses is **December 4, 2008**.

## **Student Organizations**

Psychology students may wish to join the Psychology Undergraduate Students' Association (PSYCHS). They are located in Administration 170 and may be contacted at 220-5567.

**Student Union VP Academic:** Phone: 220-3911 [suvpaca@ucalgary.ca](mailto:suvpaca@ucalgary.ca)  
**Student Union Faculty Rep.:** Phone: 220-3913 [socialscirep@su.ucalgary.ca](mailto:socialscirep@su.ucalgary.ca)

## **Important Dates**

The last day to drop this course and still receive a fee refund is **September 19, 2008**. The last day to withdraw from this course is **December 5, 2008**.