

KINESIOLOGY AND HEALTH SCIENCE – York University
KINE 4225 3.0 – Principles of Neuro-motor learning

Winter 2015

Course learning objectives: This course reviews fundamental concepts and principles underlying how the human brain modifies and adapt movements of the body, particularly those of the arm. The course also examines motor adaptation: how the central nervous system reorganizes itself to learn new motor skills and to recalibrate reflexes and motor-control systems when growth, aging or injury alters the body and limbs.

Specific learning objectives:

- describe the processes and brain areas involved in adapting or learning new skills
- describe and compare key principles/features/models of motor learning
- design, conduct and analyze an experiment investigating reach adaptation

Prerequisites: AS/SC/KINE 3020.03 or permission of Course Director

Course Directors: Denise Henriques
124A Farquharson
736-2100, ext. 77215
Office hours: By appointment
deniseh@yorku.ca

Course website: This course is run through moodle.

Lectures: January 4th – March 30th, 2016
11:30 - 1:00 p.m. Mondays & Wednesdays
Lectures: SC 218
Lab: the Hebb Lab - BSB 159
Optional lab (for analysis): Chemistry 125 and 125A

Course reader: Course notes and reading list will be posted on Moodle.

Course Evaluation

Midterm	Wed Jan 27 th	20%
Research project proposal	Feb 3 rd or earlier. You can start collecting once I approve your project.	5%
Research project paper	April.	45%
Research project presentation	March 16 th -30 th	20%
Attendance	On Key dates	10%

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CLASS SCHEDULE: Winter 2014

This is a tentative schedule since this course is being developed for the first time. However, the lab dates are booked for us, so we should use them – there is NO Camtasia in the Hebb Lab and these times are meant for you to learn how to design and run your experiment, and then free time to recruit naïve participants (not classmates) for you to run. Be prepared to run experiments outside class hours as well.

Lectures (SC 218): **Jan 4, 6, 11, 13, 18, 20**

- these lectures will cover the necessary subject matter
- Jan 20th to explain the assignment

Lab (Hebb lab in BSB): **Jan 25**

- Jan 25th I will go through how to run the program for the assignment for designing and running your own experiment, including an example. **ATTENDANCE IN AN ABSOLUTE MUST.**

Lecture (SC 218): **Jan 27** MIDTERM on material covered in January.

Lab (Hebb lab in BSB): **Feb 1, 3, 8, 10**

- Feb 1, 3, 8 – you should be designing your specific experiment and send me your proposal for my approval. The sooner you submit this to me, the sooner I can give feedback and the go-ahead.
- You should review the
- Feb 8th – start running your experiment on naïve participants if you get my approval. Consider recruiting participants and running your experiment outside class hours.

Running experiments: You should be running your experiment/collecting as soon as you get the approval up until ideally March 2nd (to give yourself some time to analyse your data and interpret your results). Be prepared that much of your collecting will occur outside class times when the Hebb lab is free and you are able to recruit naïve participants. The schedule for the Hebb lab is here (i.e., room 159 is free 8am to 7pm whenever there is no class scheduled).
<http://psycentre.apps01.yorku.ca/drpl/?q=node/17517>

Reading week: Feb 16-20 (Hebb lab should be free for more data collecting).

Lab (Hebb lab in BSB): **Feb 23, 25,**

- you should try to finish running all your experiments before March 2nd.

Classroom (SC 218): **March 2**

- March 4th. Now that many of you have a near complete or complete dataset, I will show you the best strategy for analysing and plotting your data and interpreting your results. You **WILL NEED MY GUIDANCE** since each project is unique and may require combining and analysing the data. So please attend classes so we can discuss how best to analyse and plot your data. I will not be too keen to help you with this “after” class hours if you don’t bother to show up during class time.
- Keep in mind this is not a statistics class. The expectation is that you already know how to run an ANOVA based on whatever statistical package you prefer and have learnt in the past (e.g., SPSS, SAS, Excel, R).

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Note: March 6th is the last day to drop course without receiving a grade

Lab (Hebb lab in BSB): **March 9, 14,**

- extra week of data collection if necessary, but ideally you should be analysing your data either in this lab or in the computer lab in the Chemistry building (I will be at the Chemistry building to provide guidance with analyses)

Classroom (SC 218): **March 16, 21, 23, 28, 30,**

- March 16th: Presentations begin and run until last class on March 30th

Research project paper

The paper should include

- 1) Introduction. Describe the goal of your experiment, and background information (similar studies).
- 2) Methods. Describe your task, your participants (see other published paper for how they do it), how you will analyse your data
- 3) Results. This should include at least three main plots of your results (clearly labelled and with figure legends) and the statistical reports and description.
- 4) Discussion/Conclusion. You should begin by summarizing your results. Describe how your results compared to result of those published in the literature (perhaps 2-4). Describe some of the limitations of your study.
- 5) Reference: Cite your references

You are invited to submit (by email) your project paper any time after your presentation (by email or dropbox link; softcopy only), but no later than April 17th. I recommend to aim for the last day of class so you don't have to work on this assignment during exams. Your submission should be sent (by email, or via dropbox link if it's large) no later than midnight April 17th. You will be penalized by 10% for lateness. Each day thereafter which it is not received, you will be penalized a further 10%.

Consent forms also need to be submitted to me (preferably on the day you present) or to my mailbox in Bethune 357 no later than April 17th or you will also be penalized.

Research project presentation

The format of the presentation will partly depend on the final class size. If we are not too many, 10 minute powerpoint presentations would be preferable. Or if we are too many, we may need to present posters instead, or a mix of both. I will let you know by the March 9th (a couple days after the drop date). Either way, you need to send a copy of either your PPT or poster at least 24 hours before your presentation.

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_Same as above in calendar format.

	Monday	Wednesday
Jan 4, 6	Lecture (SC 218)	Lecture
Jan 11, 13	Lecture	Lecture
Jan 18, 20	Lecture	Lecture – begin to describe goal of assignment
Jan 25, 27	Hebb Lab (excl., BSB 159) – describe how to design and run your experiment using the software. ATTENDANCE mandatory.	MIDTERM.
Feb 1, 3	Hebb Lab (excl.) – begin designing your experiment. Submit your proposal when you are ready. ATTENDANCE mandatory.	Hebb Lab (shared) – Last day to submit your proposal. You can begin collecting (running your experiments) as soon as you receive approval, both during class hours and outside class hours.
Feb 8, 10	Hebb Lab (excl.) – test/run experiments both during class hours and outside class hours. Hebb Lab extended hours for us: 10:30-2:30pm	Hebb Lab (shared until 2:30 pm) – run experiments both during class hours and outside class hours.
Feb 15-19	READING WEEK. But Hebb lab should be free for running your experiments.	
Feb 22, 24	Hebb Lab (excl.) – run experiments both during class hours and outside class hours. Hebb Lab extended hours for us: 10:30-2:30pm	Hebb (excl.) – run experiments both during class hours and outside class hours. Hebb Lab extended hours for us: 10:30-2:30pm
Feb 29, March 2	Hebb Lab (excl.) – run experiments both during class hours and outside class hours. Ideally, you should finish up collecting so you can starting analysing	Lecture (SC 218). Now that you should have most of your data collected; I will guide you how to screen and structure your data to analyse to answer the research questions. ATTENDANCE mandatory.
March 7, 9	Hebb lab (shared) or Chemistry building lab (125 and 125A) for analyzing your data (or last minute collection)	Hebb lab (shared) or Chemistry building lab (125 and 125A) for analyzing your data (or last minute collection)
March 14, 16	Hebb lab (shared) or Chemistry building lab (125 and 125A) for analyzing your data (or last minute collection)	SC 218: Presentations begin.
March 21, 23	SC 218: Presentations.	SC 218: Presentations.
March 28, 30	SC 218: Presentations.	SC 218: Presentations.

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IMPORTANT GENERAL COURSE INFORMATION FOR STUDENTS

All students are expected to familiarize themselves with the following information, available at:
<http://www.yorku.ca/secretariat/senate/committees/ascp/documents/CourseInformationForStudentsAugust2012.pdf>

- York's academic honesty policy and procedures / academic integrity website
<http://www.yorku.ca/academicintegrity/students/index.htm>
- Course requirement accommodation for students with disabilities, including physical, medical, systemic, learning and psychiatric disabilities www.yorku.ca/disabilityservices
- Student conduct standards <http://www.yorku.ca/secretariat/legislation/senate/harass.htm>
- Religious observance accommodation

RE-EVALUATION POLICY

During the term:

Any requests for remarking of assignments or in-class tests must be received by the course instructors within 7 days of the item's mark being posted, along with the "Evaluation item remark request" form, which can be found on the course website. Please note that your mark may be **raised, lowered, or confirmed**.

Re-appraisal of a final grade:

Any requests for re-appraisal of a final mark must be received by the course instructors within 7 days of the final grade posting, along with the "Evaluation item remark request" form, which can be found on the course website. Please note that your mark may be **raised, lowered, or confirmed**. If the result is still unsatisfactory, requests for a reappraisal of the final grade for a completed course are the responsibility of the Undergraduate Director. You must submit in writing a formal request for a **final grade reappraisal** to the KINE undergraduate Office. The 'Reappraisal of Final Grades' form can be picked up at the KINE Undergraduate Office.

For further details: www.registrar.yorku.ca/policies/grade.htm