11110LSSN515600 學習記憶神經科學 (2 credits)

Lecture:
Chun-hui Chang (張鈞惠)

Time: F3F4Fn (9/16-12/2)
Classroom: LSII-218

Textbook: The Principles of Learning and Behavior, 7th edition

Grading policy:
(1) In class chapter discussion (60%)

(2) Literature presentation (30%)
Literatures should be selected from the field of Behavioral Neuroscience "Learning and Memory". Suggested journals: Nature Neuroscience, Neuron, Journal of Neuroscience, Neurobiology of Learning and Memory, Frontiers in Behavioral Neuroscience, Behavioural Brain Research. They need to be published within 2 year (after September 1, 2020)

Everyone needs to upload the literature to be presented to eeclass website by 11/4 (week 8)

(3) Discussion and feedback on literature presentation (10%)

Everyone needs to come up a question, your experimental design to address the question, and your hypothesis, to the literature presented by others. The response needs to be upload to eeclass website before the class

Time: F3F4Fn (12/9-1/13)
Classroom: LSII-218

Grading policy:

(1) Proposal: Oral presentation (40%) + Written proposal (40%)
    Based on the literature chosen and presented, prepare a formal research plan.

(2) In class discussion and feedback on proposal presentation (20%)

Materials:
Course materials can be found on the NTHU's E-learning website, https://eeclass.nthu.edu.tw/

About the Proposal:
The research plan should consist of in the order of all the following components:

A. Specific Aims (one page is recommended)
Outline the broad, long-term objectives; then, list and describe concisely and realistically what the specific research is intended to accomplish and any hypotheses to be tested. Avoid giving a long list of aims that are unachievable and over ambitious.
B. Background and Significance (Part B+C: do not exceed 6 pages)
Briefly sketch the background of the present proposal, critically evaluate existing knowledge, and specifically identify the gaps which the project is intended to fill. State concisely the importance of the research described in this application, especially in terms of scientific contribution, uniqueness and originality.
C. Previous and Current Studies (Part B+C: do not exceed 6 pages)
A report of the Principal Investigator's previous studies and all current projects and sources of funding pertinent to the application is required. For a new application, the applicants' preliminary studies will help to demonstrate the experience and competence of the investigators. For a competing renewal application, preliminary studies may help establish the feasibility and importance of the renewal application. Appropriate publications and manuscripts submitted or accepted for publication may be listed.
D. Research Design and Methods
Describe the research design and the procedures to be used to accomplish the specific aims of the project. Include the means by which the data will be collected, analyzed, and interpreted. Provide information on statistical analysis whenever applicable. Describe any new methodology and its advantage over existing methodologies. This section however should NOT be just a compilation of protocol and methods. It should also present the logic strategy of the research plan. For instance, one may discuss the sensitivity, the specificity and logistics of an enzyme assay, not just the incubation conditions, the concentration of the buffers, etc.
E. Anticipated Results
Estimate the extent to which anticipated results would satisfy the original hypothesis and how those results would be important for planning the next steps in the research plan. Discuss the potential pitfalls, difficulties and limitations of the proposed procedures and provide alternative approaches if the original approaches do not work.
*** The absolute maximum number of pages for part (A) to (E) is 13 pages, single spaced, font size of 12 point.***
F. References
Include a complete list of references at the end, no page limits

Schedule:

Week	Date	Topic
學習記憶神經科學（2 學分）		
1	9/16	Introduction of the class
2	9/23	Chapter 2: Elicited Behavior, Habituation, and Sensitization Chapter 3: Classical Conditioning: Foundations (Part 1)
3	9/30	Chapter 3: Classical Conditioning: Foundations (Part 2) Chapter 4: Classical Conditioning: Mechanisms
4	10/7	Chapter 5: Instrumental Conditioning: Foundations Chapter 6: Schedules of Reinforcement and Choice Behavior (Part 1)
5	10/14	Chapter 6: Schedules of Reinforcement and Choice Behavior (Part 2) Chapter 7: Instrumental Conditioning: Motivational Mechanisms
6	10/21	Chapter 8: Stimulus Control of Behavior Chapter 9: Extinction of Conditioned Behavior (Part 1)
7	10/28	Chapter 9: Extinction of Conditioned Behavior (Part 2) Chapter 10: Aversive Control: Avoidance and Punishment
8	11/4	
9	11/11	Literature presentation
10	11/18	Literature presentation
11	11/25	Literature presentation
12	12/2	Literature presentation
學習記憶神經科學-研究計畫寫作（1 學分）		
13	12/9	Oral presentation
14	12/16	Oral presentation
15	12/23	Oral presentation
16	12/30	Oral presentation
17	1/6	
18	1/13	In class proposal editing