The Cerebellum: Is it Just for Motor Control? AS.080.370(01): Fall 2018

Instructor:
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Alternative Course Titles

- The cerebellum: It's not just for breakfast anymore
- The cerebellum: WTF?

Courtesy of Dr. Catherine Stoodley

My Background

- PhD: UMASS, Amherst, Psychology
- Stanford University, 1993
  - Assistant Professor, Radiology
  - Functional MRI: New research tool launched new career

Lobular Patterns of Cerebellar Activation in Verbal Working-Memory and Finger-Tapping Tasks as Revealed by Functional MRI

John E. Desmond, John D. E. Gabrieli, Anthony D. Wagner, Bruce L. Ginier, and Gary H. Glover

Neural substrates underlying human delay and trace eyeblink conditioning

Dominic T. Cheng, John E. Disterhoft, John M. Power, Deborah A. Ellis, and John E. Desmond

Course Organization

- Lectures (from me and a few guest lectures)
- Paper discussions
- Student Presentations
  - Society for Neuroscience-style slide (powerpoint) presentation

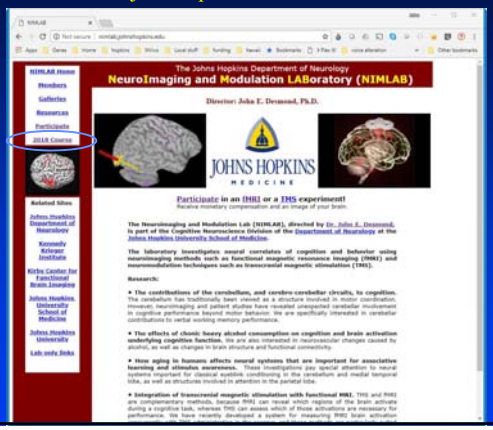
Grading

- 20% Participation
- 40% Midterm
- 40% Final (non-cumulative)

Participation

- Paper discussions on most Tuesdays
- Participation = contribution to discussion, voluntarily and/or via instructor selection + class presentation
- Attendance and participation in paper discussions and class presentation counts toward participation portion of grade

Website: nimlab.johnshopkins.edu -- click on "2018 Course"



The Cerebellum: Is it Just for Motor Control?

AS.080.370: Fall 2017

This website will be used to post lecture notes and papers for discussion.

Messages:

Update: 8/29/2017 7:50 PM

Welcome!! This page will be updated periodically with pdf links to lecture notes and papers that will be discussed in class. Also, please see links below for syllabus and additional information on grading policy.

Instructor: Dr. John E. Desmond ← Email link

Course syllabus is here. ← Syllabus and grading info download

Additional information on grading is here.

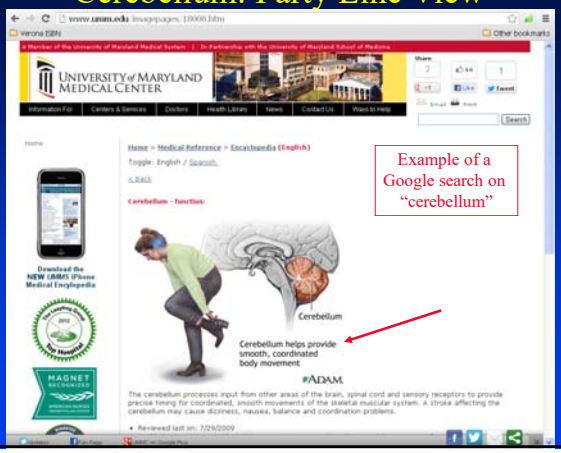
Tue Sep 5: Course Introduction: Intro Slides. Lecture 01. Cerebellar Anatomy. Theory. Lecture notes: For Lectures 1 and 2 with one slide per page, click here.

Today's lecture notes (will try to provide these in advance)

Course Objectives

- Provide overview of cerebellar anatomy and circuitry
- Describe motor aspects of cerebellum, motor symptoms, some theories of cerebellar function
- Survey evidence for cerebellar involvement in functions other than classical motor control

Cerebellum: Party Line View



Example of a Google search on "cerebellum"

Non-classical motor topics

- Sensory acquisition
- Timing
- Classical conditioning
- Verbal working memory
- Language
- Executive function
- Neuropsychiatric disorders

Goals

- Give you more knowledge about cerebellum than you had before
- Give you an appreciation that there are many mysteries regarding cerebellar function, and that shedding light on those mysteries is an area of active research
- Develop skills in reading research papers
- Develop skills in conference-style oral presentations

Class Presentation Format

- Introduction
  - Background on an issue or problem
- Purpose
  - …of the present study
- Hypothesis
  - if there is one
- Methods
  - Subject info, procedures, variables measured, how data are analyzed
- Results
  - Statistical test results, graphics
- Discussion
  - e.g., how does the present study relate to other studies
- Conclusions
  - Summary of the take-home message

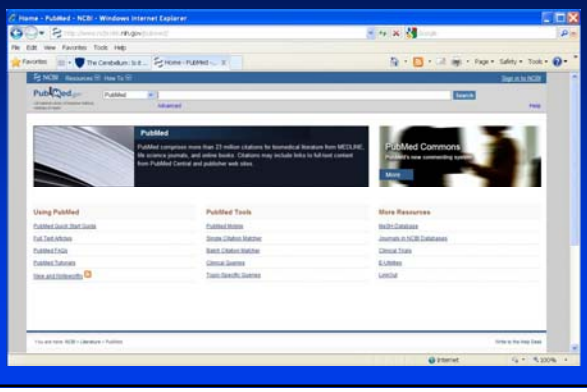
Class Presentations

- Powerpoint preferred
  - If you do not have powerpoint, LibreOffice Impress is OK and it's free
- Email your file to me by deadline
- Ideally, allow a couple of minutes for questions
- It is important to adhere to time constraints

Class Presentations

- Presentation Topic: Anything related to cerebellum that interests you
- Find a paper on Pubmed and present it as if it is your own work
  - A research paper, NOT a review paper
- Pubmed: http://www.ncbi.nlm.nih.gov/pubmed/

Pubmed Site



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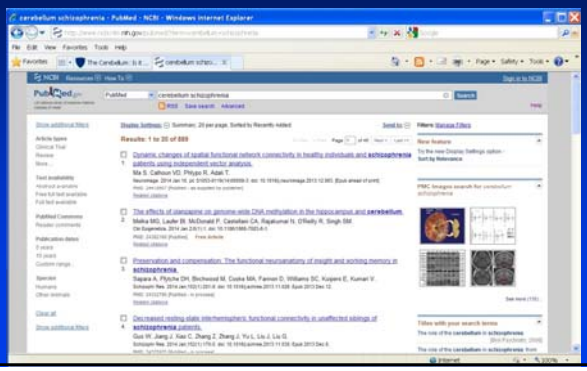

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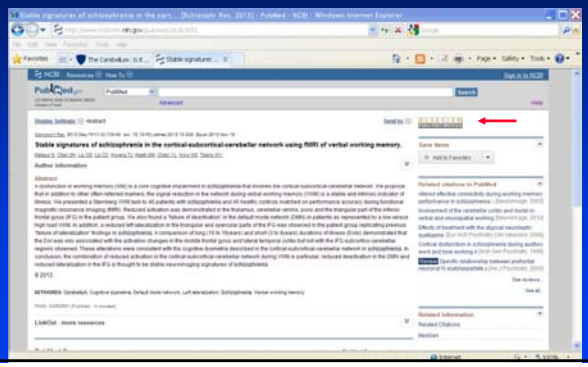
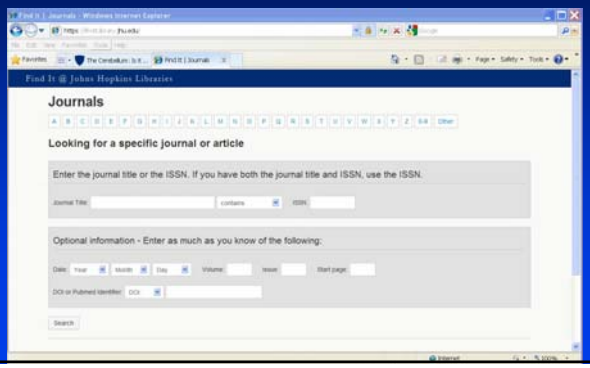


Getting full text of article

- Make sure you are on the Johns Hopkins network
  - …otherwise journals will not recognize the subscription
- If not directly via pubmed's link, try this:
- https://findit.library.jhu.edu/
- Once you have full text pdf, you can copy and paste figures, tables into powerpoint presentation

Getting full text of article



Presentation Schedule

- Oct 25, Nov 8, Nov 15
- Alphabetical order-if you cannot make your scheduled presentation date, email me in advance so we can swap with someone else
- Email the article to me in advance for approval (to avoid duplication)

Presentation Schedule

- Oct 4: Presentation list will be announced
- Oct 9: Notify me if you need a different date
- Email your paper to me for approval 2 weeks in advance of your talk date
- Email your powerpoint presentation to me at least 24 hrs prior to your talk

Paper Discussions

- Read the article and generate in advance - for the Introduction, Methods, Results, and Discussion – at least 2-3 factual questions that could be answered by another student if he/she read the article:
  - e.g., "How was response difficulty quantified?"

Paper Discussions

- In addition be prepared to discuss
  - Each figure and table (e.g., be able to describe the axes, if applicable, and what the figure is trying to show)

Routine for Paper Discussion

- First a student's name is drawn randomly, and then a powerpoint slide will be displayed. That powerpoint slide will say either:
  - Ask a question
  - Describe a figure/table

Routine for Paper Discussion

- If "Ask a Question" a second student's name will be drawn to answer the question given by the first student
  - The first student will evaluate the second student's answer

Routine for Paper Discussion

- So, when you read a paper, keep in mind that you will be generating questions for other students, and that you will be answering questions posed by other students (or me, if needed)