Brain Energy Metabolism in Health and Diseases
Gulcin Pekkurnaz, Ph.D.

GENERAL INFORMATION:

Course description: The underlying causes of metabolic and neurodegenerative disorders are complex, though these conditions have recently been attributed to changes in brain energy metabolism dysregulation. In this course, we will explore the principles of brain energy metabolism in health and diseases through a critical reading of primary research literature.

Contact:
Instructor: Assistant Prof. Gulcin Pekkurnaz (gpekkurnaz@ucsd.edu)
In Person Class Schedule:
Fridays 9:00-10:20am
ATTENDANCE IS REQUIRED!
In person class location: YORK3010

COVID-19 Campus resources and guidelines:
https://returntolearn.ucsd.edu/return-to-campus/campus-repopulation/index.html

You are ONLY allowed to use ChatGPT and other AI tools for proofreading and editing.
Academic Integrity Policy FA23 states that no student shall: allow any academic work or academic credit to be completed or obtained, in part or in whole, for themselves by another (human or machine/artificial intelligence; plagiarize or copy the work of others (human or machine) and submit it as their own work; or, employ aids (including artificial intelligence) in undertaking course work or in completing any assessment that are not authorized by the instructor.
https://academicintegrity.ucsd.edu/excel-integrity/index.html

Virtual/In person Office Hours: Every week the presented group will have an hour meeting with me (TBD) to go over the presentation and answer questions. For other meetings, the best way to contact me is by e-mail to schedule a meeting. **Please remember to include BIPN194/BGGN 284 in the subject line of the emails concerning this class.**

Syllabus: *(subject to change)*

DATE		LECTURE TOPIC	GROUP
September	**29**	How to read a research paper?	
October	**6**	Introduction to Brain Energy Metabolism	
	13	Advances in Brain Metabolism Imaging	**1**
	20	Nutrient Sensing in the Brain	**2**
	27	Diabetes and the Nervous System	**3**
November	**3**	Aging and Brain Metabolism	**4**
	10	NO LECTURE – Veterans Day Holiday	
	17	Brain Regulation of Appetite and Satiety	**5**
	24	NO LECTURE – Thanksgiving Holiday	
December	**1**	Brain Metabolism Failure in Neurodegenerative Diseases	**6**
	8	Poverty and the Developing brain	**7**
	12	***Final Exam Assignment due***	

Course format:
The first introduction "Brain Energy Metabolism" lecture will be given by Dr. Pekkurnaz. All other lectures will be student-led discussions of the primary research literature. A primary research article will be assigned for the entire class to read. PDFs of the required reading material will be posted on the Canvas. Additional recommended reading material will also be available on Canvas to provide background information about the lecture topic. Students will be graded based on their preparation for the topic covered in each class. Each week students should expect to spend at least 4.5 hours for course material reading, in-class discussion and assignment preparation.

Presenters: Students will take turns to present the assigned primary research literature in small groups. Each student will present only once (as part of one presenter group). The presentation should be a single file and in projector-compatible slide format (i.e. powerpoint, keynote, google slides). Each group member is required to contribute equally to the oral presentations. Each group will have 45-50 minutes for presentation and 20-30 minutes for discussions. Presentations should include background knowledge, discussion of the key scientific question, critical analysis of the methods and data. Grades will be based on the overall presentation/slide quality and each student's ability to answer questions posed by the instructor and the students. Please use the following link to sign up for the group presentations.
https://docs.google.com/spreadsheets/d/1vjISnMRUa2OgWqrNZPXSgIeHjfCsolfhktkkn_KSiaM/edit?usp=sharing

Non-presenters: Prior to each class, students are required to read and write a one-page summary of the primary research article covered in the class. These assignments are due on Saturday, before each class. Late or email submissions will cause students to lose points. Each assignment should end with 3 key questions that will be part of the in-class discussion. **Please use 1" margin, single space, Arial/Times or similar font and font size 11 for the writing assignment.** For your assignments, at least have 3 paragraphs to cover: Introduction, Results and Discussion sections of the research article. Results section should describe the experimental details and main findings of the article. Review articles are additional material for you to read – like textbook.

Evaluation: Attendance is mandatory for this course. The students will be heavily evaluated based on their presentations, writing assignments and participation in discussions. The final exam will be a 5-6 pages review article writing assignment (including references and a summary figure/table) based on the topics covered in the course.
In addition to the final assignment, MSc. students are also required to write up a research article critique (one-page summary - and when you are selecting the research article, imagine that research article will be discussed as part of this class next year).

Grading:

Attendance	9%
In-class discussion participation	6%
Research article summary	30%
Group presentation	30%
Final exam (review article writing)	25%

Presentation guidelines and other resources:
https://www.ibiology.org/professional-development/scientific-presentations/

https://web.stanford.edu/class/ee384m/Handouts/HowtoReadPaper.pdf

https://blogs.lse.ac.uk/impactofsocialsciences/2016/05/09/how-to-read-and-understand-a-scientific-paper-a-guide-for-non-scientists/

http://www.donnavandergrift.com/uploads/1/3/3/4/13345738/writingsummary.pdf

https://www.ncbi.nlm.nih.gov/pubmed/