

PSY D67S Psychobiology of Aging and Selected Disease States

Spring, 1996 Room S208, WED 12-2 P.M.

Instructor: Professor Gwen. O. Ivy

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Office Hours: W: 2-3, TH: 5-6, or by appointment

COURSE DESCRIPTION:

Aging is a complex biological phenomenon which is, at present, a universal and inevitable fact of life. The goal of this course is to characterize the morphological, biochemical and physiological changes in aging neural tissue, as well as to delineate various behavioral and cognitive deficits that occur with age. We will explore the association between cognitive deterioration and age related neuropathologies. Further, we will define the relationship of phenomena which occur during normal aging to those which occur in a number of related disease states, such as Alzheimer's disease, Down's syndrome, Parkinson's disease and Neuronal Ceroid Lipofuscinosis, with the aim of achieving a better understanding of factors which may cause aging at the cellular level. Finally, we will evaluate the validity of several current unifying hypotheses of aging and will describe current and future prospects for research on the underlying mechanisms of aging using animal models.

ORGANIZATION

The course will meet weekly for two hours and will consist of lectures by the instructor, as well as oral presentations by members of the class. Discussion will follow each presentation. Each person will select a topic from a list compiled by the instructor and will write a 15-20 page term paper (typed, double spaced, submitted in duplicate) and present a 20-30 minute talk to the class on that topic with a typed summary to be distributed to the class. The student will be required to place one representative research or review article on his or her topic on reserve in the library (for the class) and to provide one copy of same for the instructor at least one week prior to the oral presentation. References for 1991, 1992 and 1994 topics are listed (not copied) in the Bladden Library to get you started on your literature search. There is no textbook.

EVALUATION

Term Paper (due April 11 in class):	25%
Oral Presentation, includes summary handout and article placed on reserve	15%
Midterm (essay, short answer): 2 hrs:	20%
Final Exam (essay, short answer): 3 hrs:	20%
Final Exam (essay, take home portion)	15%
Class Participation: (Includes questions, comments and presence in class)	5%

1996 PSY D67S SCHEDULE OF TOPICS TO BE COVERED

<u>DATE</u>	<u>GENERAL TOPIC</u>	<u>SPECIFIC TOPIC</u>
Jan 10	Introduction	** Overview of course and Selection of paper topics
Jan 17	Morphological and some biochemical and physiological changes in neural tissue with age;	A. Age pigments B. Dolichols C. Amyloid and senile plaques
Jan 24	heritable diseases with some similarities to aging: Lectures by G. Ivy	D. Dendritic changes E. Synaptic changes F. Neuroplasticity changes in sprouting G. Neuroplasticity changes in LTP
Jan 31		H. Changes in glial cells I. Cytoskeletal changes
Feb 7		J. Cell loss K. Gross brain changes L. Progeria, Werner's syndrome and NCL disease
	<u>Student Oral Presentations:</u>	
Feb 14	Sensory, motor and cognitive changes with age	1. Sensory deficits, aging of sense organs 2. Motor deficits, aging of motor systems: G. Ivy 3. Cognitive changes in aging and multi-infarct dementia and Alzheimer's disease 4. AD and Down's syndrome: morphological changes in brain
Feb 21	READING WEEK!!! NO CLASS!!!	
Feb 28	MIDTERM EXAM!!!	MIDTERM EXAM!!!
Mar 7	Changes in anatomy and in neurotransmitter systems in aging, AD, and PD	5. Cholinergic systems in aging and Alzheimer's disease 6. Dopaminergic systems in aging and Parkinson's disease 7. Blood Brain barrier in aging and AD
Mar 14	Theories on mechanisms underlying the aging process	8. Free radical hypothesis of aging 9. Mitochondria and aging 10. DNA damage and repair

1996 PSY D67S SCHEDULE OF TOPICS TO BE COVERED (continued)

<u>DATE</u>	<u>GENERAL TOPIC</u>	<u>SPECIFIC TOPIC</u>
Mar 21	Theories, cont'd	11. Pathogenesis of AD: Paul Murphy
Mar 28	Theories, cont'd	12. Genetic theories of aging; cell culture 13. Drugs and other interventions in the aging process: l-deprenyl, Vitamin E, centrophenoxine 14. Metabolic rate and aging
April 4	Theories, cont'd	15. CJD, Scrapie and other non conventional virus diseases <u>or</u> : Immune function and aging 16. Dietary restriction and its mechanisms for prolonging life 17. Changes in protein turnover and enzyme activities with age
Apr 6	Theories, cont'd	18. Proteinase inhibitor model, decreased proteolysis causes aging: G. Ivy 19. Summary, Conclusion, Discussion: Everyone!