

***NRO D65S PATHOLOGIES OF THE NERVOUS SYSTEM***

***SPRING, 2002    ROOM B364, THURS. 4-6 P.M.***

***INSTRUCTOR: PROFESSOR GWEN O. IVY***

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***OFFICE HOURS: THURSDAY AFTER CLASS UNTIL .....?, OR BY APPOINTMENT***

***COURSE DESCRIPTION:***

The goal of this course is to characterize the morphological, biochemical and physiological changes that occur in neural tissue under a wide variety of pathological conditions. We will explore the association between cognitive deterioration and various neuropathologies. Further, we will define the relationship of numerous and diverse phenomena which occur during normal aging to those which occur in a number of related disease states, such as Alzheimer disease, Down syndrome, Parkinson disease and Huntington's disease. Finally, we will evaluate the validity of several current unifying hypotheses of the pathogenesis of selected diseases and will elucidate 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 20 page term paper (typed, double spaced, submitted in duplicate) and present a 20 minute talk to the class on that topic with a typed summary to be distributed to the class. Approximate 10 minutes of questions and discussion will follow. 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 two weeks prior to the oral presentation. Note: Copies may be made for individual class members. There is no textbook. (Literally, **NO** comprehensive text on Neuropathology, which includes up-to-date material on the variety of disorders, experimental approaches and numerous and diverse cellular and organismic phenomena that we cover in this course, exists !...at least not at a price that you could afford! )

**EVALUATION:**

Term Paper ( 2 copies due April 6 <sup>th</sup> ):	30%
Oral Presentation, includes summary handout and article placed on reserve	15%
Midterm (essay, short answer): 2 hrs. week of Feb. 26 <sup>th</sup> , 5-7 p.m.	25%
Final Exam (essay, short answer): 3 hrs. During Exam Period	25%
Class Participation: (Includes questions, comments and presence in class)	5%

***SCHEDULE OF TOPICS TO BE COVERED***

<u>DATE</u>	<u>GENERAL TOPIC</u>	<u>SPECIFIC TOPIC</u>
Jan. 10	Introduction	Course overview/Selection of paper topics
Jan. 17	Normal aging versus pathological conditions; types of nervous system cells and their responses to stress.	
Jan. 24	Stress and cellular death: Apoptosis and Necrosis Unconcontrolled cell growth: Nervous system tumors	
Jan. 31	Nervous system tumors; Vascular disorders	
Feb.7	Vascular disorders: Stroke and its consequences Ischemia and excitotoxicity	
Feb. 14	Introduction to neurologic infections. Prion diseases: Creutzfeldt Jacob disease and Scrapie.	
Feb. 18 -23	<b><i>READING WEEK !!!! NO CLASS !!!</i></b>	
Week of Feb. 25	<b><i>MIDTERM EXAM - , 5-7 P.M. (TBA)</i></b>	
<b><u>Student Oral Presentations:</u></b>		
Feb. 28	Neurologic infections:	<ol style="list-style-type: none"> <li>1. Bacterial Meningitis</li> <li>2. Fungal infections: Aspergilosis and Candidiasis, a septate hyphae and a yeast.</li> <li>3. Parasitic infection: Malaria</li> <li>4. Metazoan infections: nematodes, Tapeworms, etc.</li> </ol>
Mar. 7	“	<ol style="list-style-type: none"> <li>5. Viral infections : intro., general pathological features.</li> <li>6. Neuropathology in HIV</li> <li>7. Poliomyelitis: Infantile paralysis, Heine-Medin disease</li> <li>8. Herpes simplex I And II (related to chicken pox and Herpes zoster)</li> </ol>

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| Mar. 14 | Demyelinating diseases                                       | <ul style="list-style-type: none"> <li>9. Multiple sclerosis: human pathology</li> <li>10. Experimental pathology and mechanisms of disease<br/>( EAE: experimental autoimmune encephalomyelitis)</li> <li>11. Encephalomyelitis</li> <li>12. Leucoencephaly (damage to wm vasculature)</li> </ul> |
| Mar. 21 | Neurodegenerative disorders, including neurogenetic diseases | <ul style="list-style-type: none"> <li>13. Down Syndrome</li> <li>14. Alzheimer disease</li> <li>15. Parkinson disease</li> <li>16. Pick's disease</li> </ul>  |
| Mar. 28 | “  | <ul style="list-style-type: none"> <li>17. Huntington disease</li> <li>18. Progressive supranuclear palsey</li> <li>19. Progressive monoclonic epilepsy</li> <li>20. Freidriech's Ataxia</li> </ul>  |
| April 4 | “  | <ul style="list-style-type: none"> <li>21. Amyotrophic Lateral Sclerosis (Lou Gehrig's disease)</li> <li>22. Cortical cerebellar degeneration</li> <li>23. Spinal muscular atrophies</li> </ul>  |
- Nervous System manifestations of systemic disease:
- 24. Renal disease (dialysis dementia)
  - 25. Liver disease (hepatic encephalopathy)
  - 26. Diabetes Mellitus (ketoacidosis, diabetic coma, edema)