

Syllabus

Psych 768 - The Aging Brain

Class: Tuesday 1:30-4:30, Conference Room, Arch Lab

Instructor: P.M. Greenwood

Office: 2060 David King Hall, 703-993-4268

Email: pgreenw1@gmu.edu

Office Hours: Thursday 2:00-4:00 or by appointment

Course Description: This course will consider the brain changes accompanying both normal and pathologic aging, with course content guided both by extant theories of the basis of brain aging and Alzheimer's Disease (AD) and by new work in each. The emphasis will be on brain change but cognitive aging will also be discussed. The format of the class will be lectures designed to provide needed background for subsequent class discussion of each topic.

Grading: As this is a small seminar requiring active discussion, each member's participation is essential and will form part of the grade. Students will take turns leading the discussions. Everyone is expected to read the assigned articles each week and to submit answers – both in advance of class -- to a few short questions about the articles. 30% of the grade will be based on class participation (leading discussion, joining in the discussion in class, providing written answers to advance questions on time). 35% of the grade will be based on a presentation to be given at the exam period, and 35% will be based on a final paper. Grades will be assigned as follows: 90-100 A; 80-89 B; 70-79 C; 60-69 D; below 60 F.

Attendance Policy: Due to the importance of discussion, students will be expected to be in class each week.

Text: none. Articles will be either in pdf format or available for photocopying. For pdfs papers will be posted on the course Web-CT site.

Honor Code: All provisions of the GMU Honor System and Code will be followed in this class. The Honor Code can be found at (<http://www.gmu.edu/facstaff/handbook/aD.html>).

Schedule:

8/29 Introduction, gross anatomy and function, fine anatomy, neurotransmission

9/5 Overlapping pathologies of brain aging and AD (Gomez-Isla; Braak & Braak; Klein)

9/12 Evidence of brain plasticity in adults (Buell & Coleman; Sterr et al; Elbert et al; Jones & Pons; Florence et al; Draganski et al.)

- 9/19 Theories of aging. Cholinergic and Dopaminergic Hypotheses (Terry et al; Hof & Morrison; Bartus et al.; Gallagher & Colombo) and region-based hypotheses (Cabeza et al., 2002; Reuter-Lorenz et al., 2000)
- 9/26 Theories of AD: Amyloid Cascade, Baptists and Tauists (Hardy & Selkoe,; Knowles et al., Naslund et al.; Cleary et al)
- 10/3 Alternate theories: Oxidative stress, “2-hit” hypothesis (Zhu, Smith et al; Mattson; Bartzokas; Sarter)
- 10/10 Columbus Day break
- 10/17 SfN – no class – email in proposed paper topics
- 10/24 Resistance to decline: Brain Reserve & Plasticity (Stern et al; Snowden et al; Whalley et al; Wilson et al)
- 10/31 Neurogenesis (Kempermann et al; Rakic; Gould; Eriksson)
- 11/7 Cognitive Aging: Cognitive changes
- 11/14 Cognitive Aging: Individual differences and genetics (Greenwood et al., 2003; Reiman et al 2004; Cohen et al., 2003; Greenwood et al., 2005; Cotman and Berchtold, 2002; Teter & Finch, 2004
- 11/21 Cognitive Aging: Capacity, Training (Nyberg et al., (2004) Verhaeghen et al., (2004); Baltes et al., (1989) Barrett et al., (2004).
- 11/28 Plasticity in AD
- 12/5 and 12/12 presentations