

Biological, Biomedical and Social Aspects of Aging

Rutgers **16:761:610** Spring 2016

RWJMS **V12A** Research Tower, 675 Hoes lane West, Bush Campus Piscataway

Tuesday & Thursday 1:00-2:30 PM

Overall goal of the course: This is an advanced lecture/discussion format course (32 hours over 14 weeks) that covers aging and aging related disease from a 360 degrees angle. Topics range from the history and the economics of aging to theories of aging to neurodegenerative diseases. The course is also aimed at filling a gap, since there is no course dedicated to aging in the curriculum, despite the relevance of this process to human societies. The course is divided into 5 blocks and included are discussions of the impact of aging on modern societies, physiology of senescence, molecular mechanisms of aging, the aging brain and neurodegeneration. A total of 21 formal lectures (+ an introduction) will be given by faculty members, and a total of 5 journal articles covering the five major topics of the course will be assigned to participating students for critique and discussion. There will be a mid-term examination and a final examination. The exams can cover material presented in both formal lectures and discussion papers. Each exam will count for 35% of the total grade. The averaged scores from the 4 summary critiques will constitute 20% and class participation will count the remaining 10% of the final grade.

| Date | Lecture | Instructor |
|--------------|---|--------------|
| Jan 19 | Introduction | Sesti |
| 1. Jan 21 | Economics of aging | Rubin |
| 2. Jan 26 | Sociology of aging | Carr |
| 3. Jan 28 | History of aging | Schoen |
| 4. Feb 2 | Philosophy of aging | Temkin |
| 5. Feb 4 | Journal club | Sesti |
| 6. Feb 9 | Metabolism of aging 1: caloric restriction | Comoletti |
| 7. Feb 11 | Metabolism of aging 2: insulin IGF-1-like pathway | Runnels |
| 8. Feb 16 | Metabolism of aging 3: electron transport chain | Kahn |
| 9. Feb 18 | Journal club | Sesti |
| 10. Feb 23 | Telomere shortening | Shao |
| 11. Feb 25 | Free radical theory | Rossi-George |
| 12. March 1 | DNA damage | Xia |
| 13. March 3 | Reproductive cell-cycle | Schindler |
| 14. March 8 | Stem cells theory of aging | Zhang |
| 15. March 10 | Mid Term Exam | |
| 16. March 12 | Spring Break | |
| 17. March 22 | Chemical changes | Auerbach |
| 18. March 24 | Genetic changes | Driscoll |
| 19. March 29 | Neurophysiological changes | Rossi-George |
| 20. March 31 | Structural changes | Shumyatsky |
| 21. April 5 | Journal club | Sesti |
| 22. April 7 | Psychology of aging | Kusnecov |

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| 23. April 12 | Alzheimer | Chen |
| 24. April 14 | Parkinson | Dobkin |
| 25. April 19 | Huntington | Rasin |
| 26. April 21 | MS and ALS | Dreyfus |
| 27. April 26 | Journal club | Sesti |
| 28. May 3 | Final Exam | |

Course coordinator:

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Participants

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