Objective: The objective of this course is to present an overview of the biological changes in people with the passage of time, which affect one's ability to adapt within the environment.

Content: The course is organized on the basis of lecture and class discussion

I. The Human Aging Process
   A. Population Trends
      1. Cultural variations
         a. Environmental
         b. Genetic
      2. Disease vs. Aging
   B. Individual Aging
      1. Variations within and between individuals
      2. Characteristics of aging

II. Biological Theories of Aging
   A. Genetic Control as a Cause of Aging
      1. Programmed intrinsic end point
      2. Immunological
   B. Aging and Embryology

III. Cellular Aging
   A. Nuclear
      1. Nucleoproteins
      2. Nuclear Membrane
   B. Cytoplasm
      1. Mitochondria
      2. Lyosomes and Lipofuscin
      3. Other organelles.

IV. Circulation of Blood and Lymph
   A. General characteristics of the aged cardiovascular system
   B. Events of cardiac contraction
      1. Mechanical events
      2. Electrical events
      3. Circulation
C. Arterial System
   1. Pulmonary
   2. Systemic
   3. Heart
   D. The capillaries and veins

V. Respiratory Function Changes
   A. Morphological
   B. Lung volume changes with age
   C. Changes in lung diffusion with age

VI. Temperature Regulation

VII. Exercise Testing and Physical Activity in the Aged

VIII Muscular Changes
   A. Skeletal Muscle
   B. Neuromuscular transmission
   C. Cardiac and smooth muscle

IX. Bone Changes
   A. Morphological - Metabolic
   B. Osteoporosis
   C. Mechanical loading of Bone

X. Nervous System Changes
   A. Morphological
   B. Metabolic
   C. Central and peripheral function

XI. Urogenital System
   A. Renal function
      1. Morphological,
      2. The senile kidney

XII. Eyes and Ears
   A. Focusing of the eye
   B. Visual acuity
   C. Hearing
## BIOLOGICAL PROCESSES OF AGING

Population Health Sciences 810-155  
Everett Smith 263-2878  E-mail elsmith1@wisc.edu  
4:35-5:45 MW Fall 2007  125 McArdle

<table>
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The first exam will cover 7 lectures. Each lecture is worth 16 points for a total of a 112 points per exam. The two last exams will cover 6 lectures worth 16 points per lecture for a total of 96 points. Your grade will be based on the percentage of the total points (304) you acquire during the semester. I am sure you will have a great semester.