

School of Kinesiology  
Course Outline  
**Kinesiology 474a**  
SUMMER EVENING, 2002  
PHYSIOLOGY OF EXERCISE & AGEING

**Please note:** You are responsible for ensuring that you have successfully completed all course prerequisites, and that you have not taken an anti-requisite course. Lack of a prerequisite or the completion of an anti-requisite cannot be used as a basis for appeal.

If you are found to be ineligible for a course, you may be removed from it at any time and you will receive no adjustment to your fees. This decision cannot be appealed.

<b>Course Instructor</b>	Albert W. Taylor, PhD, DSc Room 3157 Thames Hall Phone: 661-2111 ext 84144 E-mail: ataylor2@uwo.ca Office hours: Monday and Tuesday, 10:00-1:00
<b>Teaching Assistant</b>	Michel J. Johnson, MSc Room 2300 Sommerville House E-mail: mjjohnso@uwo.ca Office hours: Thursday, 10:00-12:00
<b>Time and Location</b>	On line course

### Course Description

Guidelines and benefits of physical activity programs will be the focus. Physiological responses to acute and chronic exercise in older adults will be examined, including studies of cardiorespiratory fitness, muscle metabolism, the nervous system, and the influence of physical activity on specific chronic diseases of older adults.

## Course Objectives

1. To provide understanding, from a physiological viewpoint, of the exercise capacities and limitations of older adults.
2. To enable students to evaluate the contribution of physical activity to health and functional capacity of the older individual.
3. To encourage students to recognize the specialized activity and training requirements of older adults including those with chronic diseases associated with old age in terms of both exercise prescription and safety.

## Evaluation Procedure

Examination	Scoring
<ul style="list-style-type: none"><li>• Case study report</li><li>• Final examination (2 hours)<ul style="list-style-type: none"><li>○ 4 essay questions</li></ul></li></ul>	<ul style="list-style-type: none"><li>• 20% Due Date: June 1, 2002</li><li>• 80% August 3, 2002</li></ul>

English grammar, syntax and usage will be marked to a maximum of 5% on all assignments and exams.

The penalty for missing deadlines is 5% of the total mark per day late. This course is not eligible for supplemental examinations.

### A- Case study

i) Each student is required to individually complete an assessment of an older adult (aged 65 years or older, and may be someone you know), using several instruments (e.g. Yale Physical Activity Survey for Older Adults, Timed Up and Go Test, Nutrition profile, all are found in the on line material) covering the domains of general health, mobility, and physical activity patterns. From the results of this assessment, you will complete the *Client Report* for your subject. The due date for the Client Report and the completed questionnaires is June 1.

ii) This assignment is worth 20% of your grade and will be marked on a 20 point scale, divided as follows:

- 2 points for completed Evaluation Scales and Calculations
- 2 points for General Information, Fall History, Fracture History, Medications
- 3 points for General Health Observations and Recommendations
- 3 points for Mobility Observations and Recommendations
- 3 points for Physical Activity Observations and Recommendations
- 3 points for Exercise Prescription Recommendations and Considerations
- 2 points for Concluding Remarks, Observations and Recommendations
- 2 points for spelling, grammar, syntax, sentence structure, references, and appropriate text format (APA style or MLA style)

*20 points total*

### **Suggested Reference Texts**

Bar-Or, O, Lamb, D.R., & Clarkson, P.M. Exercise and the Female - A Lifespan Approach. Cooper Publishing, Carmel, Indiana, 1996.

Dychtwald, K. & Fowler, J. Age Waves: The Challenges and Opportunities of an Aging America. Jeremy P. Tarcher, Inc., Los Angeles, California, 1989.

Foot, D.K. & Stoffman, D. Boom, Bust, and Echo: How to Profit from the Coming Demographic Shift. McFarlane, Walter, and Ross, Toronto, 1996.

<sup>1</sup>Govindasamy, P., and D.M. Paterson. Physical Activity and the older adult: a knowledge base for managing exercise programs. Stipes Publishing, Champaign, Illinois, 1994.

McPherson, B.D. Aging as a Social Process. Toronto: Butterworths, 1990.

Pickles, B., Compton, A., Cott, C., Simpson, J., & Vandervoort, A.A. Physiotherapy with Older People. WB Saunders, Toronto, 1995.

Shephard, R.J. Aging, Physical Activity, and Health. Human Kinetics, Champaign, Illinois, 1997.

Spiriduso, W.W. Physical Dimensions of Aging. Human Kinetics, Champaign, Illinois, 1995.

<sup>2</sup>Taylor, A.W., Ecclestone, N., Paterson, D.H., & Jones, G. (Eds.) Activity for older adults: From research to action. Double Q Publishers, London, Ontario, 1999.

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<sup>1</sup> Available in UWO bookstore (\$12.95)

## Relevant Journals

- Activities, Adaptations and Aging
- Age and Ageing
- Annual Review of Gerontology and Geriatrics
- Canadian Journal on Aging
- Canadian Journal of Applied Physiology
- Excerpta Medica Section 20: Gerontology and Geriatrics
- Exercise and Sport Sciences Reviews
- Geriatrics
- Gerontology
- International Journal of Aging and Human Development
- Journal of Aging and Physical Activity
- Journal of Applied Physiology
- Journal of Gerontology
- Journal of the American Geriatrics Society
- Medicine and Science in Sports and Exercise
- Physical and Occupational Therapy in Geriatrics
- Physiotherapy Canada
- Recent Advances in Geriatric Medicine
- The Gerontologist
- Topics in Geriatric Medicine

## Supplemental Web Sites

The following web sites are useful and helpful during the course to supplement course material:

- Nutrition
  - [www.eatright.org](http://www.eatright.org)
  - [www.dietitians.ca](http://www.dietitians.ca)
- Canada's Physical Activity Guide for Older Adults
  - [www.hc-sc.gc.ca/hppb/paguide](http://www.hc-sc.gc.ca/hppb/paguide)
- National Advisory Council on Aging
  - [www.hc-sc.gc.ca/seniors-aines/seniors/english/naca/naca.htm](http://www.hc-sc.gc.ca/seniors-aines/seniors/english/naca/naca.htm)
- Canadian Centre for Activity and Ageing (including Newsletter and Year End Reports)
  - [www.uwo.ca/actage](http://www.uwo.ca/actage)
- Poster presentations (Survival Skills for Graduate Students)
  - <http://www.med.uwo.ca/physiology/courses/SurvivalWebV3/index.htm>

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<sup>2</sup> Available from the CCAA (\$40.00)

## Course Outline

### Content

- Course overview
  - Content
  - Examinations and assignments
  - Kin 474 website
  
- SECTION I: Process of ageing
  - Demographics of ageing
  - Theories of ageing
  - Physical activity and ageing
    - The CCAA (SFIC)
    - PACE/CPACE
  - Finances and the elderly population
  - Nutrition for older adults
  - Type 2 Diabetes
  
- SECTION II: Nervous system
  - Nervous system review
  - Motor control
  - Sarcopenia
  - The senses
  - Cognitive difficulties (Dementia)
  - Contraindicated Exercises
  
- SECTION III: Cardiovascular system
  - Cardiovascular system review
  - Disease
  - Exercise
  
- SECTION IV: Musculoskeletal system review
  - Skeletal muscle
    - Physiology
    - Morphology
    - Metabolism
    - Biochemistry
  - Strength training
  - Frail elderly
  - Sneaky strategies
  - Osteoporosis
    - Exercise
  - Exercise programs for the Frail Elderly
  - CCAA – Physical activity in long-term care facilities
  - Arthritis
  
- SECTION V: Master athlete
  - Profile
  - Nutrition
  - Training
  - Injuries
  - Sports Records
  - World Games
  - Summary
  
- FINAL EXAM (3 hours)