GRANDE PRAIRIE REGIONAL COLLEGE
DEPARTMENT OF PHYSICAL EDUCATION, ATHLETICS, AND KINESIOLOGY

PF 2130 (3)

Adapting Activities for Physiological and Medical Changes
(45 hours; 2-0-1)

Fall 2009
Course Outline

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COURSE DESCRIPTION:

Theory and practical application related to the physiology of aging, disorders and disabilities, biomedical aspects, balance control and fall prevention, adaptations to build in success for all participants, group exercise, and recreation, leisure, sports, and active living for older adults. Issues relating to the impact of prosthetics, assistive devices (canes, walkers, wheelchairs, etc.), visual impairments, hearing impairments, accessibility to facilities, etc. This course also applies the principles of program planning for fun and fitness, and adaptations for enjoyable and active recreation for specific target populations. Prerequisites: PE 1000, PE 1015 and PE 1030.

COURSE OBJECTIVES:

- Differentiate between wellness and illness
- Describe the differences between acute and chronic illness
- Discuss quality of life in relation to the Older Adult
- Identify the role of physical activity in the lives of older adults
- Discuss the recommendations from a variety of organizations of physical activity for older adults
- Summarize the health benefits that can be acquired for older adults who participate in regular physical activity.
- Describe some of the changes in the cardiovascular and respiratory system related to age
- List some common diseases and conditions of the cardiovascular and respiratory system

- Explain the importance of monitoring the Older Adult for hypertension
- Determine why women can be more at risk for cardiovascular disease
- Outline the exercise guidelines when working with individuals with cardio-respiratory conditions.
- Describe the safety protocol prior, during, and after exercise sessions for older adults.
- Develop a repertoire of safe exercises for individuals with any cardio-respiratory conditions.
- Incorporate a number of different chair exercises into any exercise session for older adults.
- Describe some of the changes in the musculoskeletal system realted to age
- Compare and contrast osteoarthitis and rheumatiod arthritis
- Describe some of the changes in the bone health realted to age
- Recognize how osetoporosis may affect active aging and healthy living
- Outline the exercise recommendations and guidelines when working with individuals with a number of bone and joint conditions.
- Describe the safety protocol prior, during, and after exercise sessions for older adults.
- Develop a repertoire of safe exercises for individuals with any varying bone and joint conditions.
- Incorporate a number of different strength training (weight bearing) exercises for all older adults.
- Identify risk factors related to diabetes and the older adult
- Recognize the relationship in healthy living and the prevention of diabetes
- Determine the relationship between active aging, healthy living and obesity
- Outline the exercise recommendations and guidelines when working with individuals with Diabetes and other metabolic conditions.
- Describe the safety protocol prior, during, and after exercise sessions for older adults with diabetes, obesity and other metabolic conditions.
- Develop a repertoire of safe exercises for individuals with Diabetes, obesity and other metabolic disorders.
- Discuss issues in relation to diabetics and foot problems, and sarcopenic obesity.
- Incorporate the exer-strider as an exercise option for older adults with differing medical conditions.
- Identify risk factors related to neurological changes and the older adult
- Compare and Contrast ischemic and hemmorhagic strokes
- Explain the importance of active aging in relation to Multiple Sclerosis in the older adult
- Relate the relationship between cognitive function to active aging, and healthy living.
- Outline the exercise recommendations and guidelines when working with individuals with cognitive functional conditions.
- Describe the safety protocol prior, during, and after exercise sessions for older adults with cognitive functional conditions.

- Develop a repertoire of safe exercises for individuals with a number of different cognitive conditions.
- Incorporate a number of different stretching exercises for all older adults.
- Compare and contrast balance and mobility
- Describe how various systems contribute to balance and mobility
- List physiological changes in the Older Adult that affect balance and mobility
- Describe risk factors that may contribute to falls amoung the Older Adult
- Identify common medical conditions that may affect balance in the Older Adult
- Identify the recommendations for exercise programming for older adults with auditory and visual impairments.
- Outline the concept of Center of Balance Training, then compile an exercise program for older adults that would improve center of gravity control.
- Describe the concept of Multisensory Training:
    1. Identify how each sensory system impairment will influence the training approach
    2. Develop a series of exercises that will work to improve the three sensory functions for better balance.

REQUIRED TEXTS:

American Council on Exercise (2005). C.X. Bryant & D.J. Green (Eds.) *Exercise for older adults: ACES's guide for fitness professionals (2nd Ed).* San Diego, CA: American Council on Exercise.

Rose, D.J. (2003). *Fall proof!* Windsor, ON: Human Kinetics

Taylor, A. & Johnson, M. (2008). Physiology of exercise and healthy aging. Windsor, Ontario: Human Kinetics.

RECOMMENDED TEXT:

Spirduso, W.W., Francis, K.L., & MacRae, P.G. (2005). Physical dimensions of aging. (2nd Ed.). Windsor, Ontario: Human Kinetics.

WEB BASED SOFTWARE:

On occasion this course will use *Moodle*, http://moodle.gprc.ab.ca, a computer-mediated communication (CMC) web-based software system. Learners who are new to Moodle should contact the Moodle Help Desk at: edtechrequests@gprc.ab.ca for orientation.

COURSE STRUCTURE:

You will proceed through the course by completing the content in sequence as outlined below. For the course readings, please complete the assigned readings prior to class.

Week	Content & Readings
Weeks 1 & 2:	**Wellness vs Illness** **Readings:** Chapter 1 (pgs. 23-30), Physical Dimensions of Aging (Spirduso, Francis, & MacRae, 2005). **Moodle: Discussion Forum – Task 1.4** **Exercise Benefits for Older Adults** **Readings:** Chapter 1 (pages 8-18), *Exercise for older adults*. (ACE's Guide for Fitness Professionals, 2005). Chapter 7 (pages 115-144), *Physiology of Exercise and Healthy Aging* (Taylor & Johnson, 2008).
Weeks 3 & 4:	**Medical Changes related to cardiovascular and respiratory function** **Readings:** Chapter 3 (pgs. 71-80), *Exercise for Older Adults: ACE's Guide for Fitness Professionals* (ACE, 2005). Chapter 1 (pgs. 4-18), *Physiology of Exercise and Healthy Aging* (Taylor & Johnson, 2008). **Moodle: Discussion Forum – Task 3.5** **Exercise Physiology related to cardiovascular and respiratory function** **Readings:** Review chapter 1 (pgs. 19 & 20), *Physiology of Exercise and Healthy Aging* (Taylor & Johnson, 2008). Review chapter 3 (pgs. 74-84), *Exercise for Older Adults.: ACE's Guide for Fitness Professionals* (ACE, 2005).
Weeks 5 & 6:	**Medical Changes related to bone and joint function** **Readings:** Chapter 3 (pgs. 84-88), *Exercise for Older Adults: ACE's Guide for Fitness Professionals* (ACE, 2005). Chapter 2 (pgs. 23-41) & Chapter 6 (pgs 92-103), *Physiology of Exercise and Healthy Aging* (Taylor & Johnson, 2008).

	Moodle: Discussion Forum – Task 5.2 ***Assignment #1 Due – Oct. 20*** **Exercise Physiology related to bone and joint function** **Readings:** Review chapter 3 (pgs. 84-88), *Exercise for Older Adults: ACE's Guide for Fitness Professionals* (ACE, 2005). Read the following chapters of text, *Physiology of Exercise and Healthy Aging* (Taylor & Johnson, 2008): Chapter 2 (pgs. 41-42) Chapter 6 (pgs. 103-111) Chapter 9 (pgs. 158-167) Chapter 10 (pgs. 170-177) **Moodle: Discussion Forum – Task 6.4**
Weeks 7 & 8:	**Medical Changes related to diabetes and metabolic function** **Readings:** Chapter 3 (pgs. 89-92), *Exercise for Older Adults: ACE's Guide for Fitness Professionals* (ACE, 1998). Chapter 5 (pgs 81-89), *Physiology of Exercise and Healthy Aging* (Taylor & Johnson, 2008). ***Assignment # 2 Due – Nov. 3*** **Understanding diabetes and metabolic function related to exercise** **Readings:** Review chapter 3 (pgs. 89-92), *Exercise for Older Adults: ACE's Guide for Fitness Professionals* (ACE, 2005). Review chapter 5 "programming recommendations (pgs. 88-89), *Physiology of Exercise and Healthy Aging* (Taylor & Johnson, 2008). **Moodle: Discussion Forum – Task 8.3** **Moodle: Discussion Forum – Task 8.4**
Weeks 9 & 10:	**Medical Changes related to neurological & cognitive function** **Readings:** Chapter 3 (pgs. 92-93), *Exercise for Older Adults: ACE's Guide for Fitness Professionals* (ACE, 1998). Chapter 3 (pgs 45-56), *Physiology of Exercise and Healthy Aging* (Taylor &

	Johnson, 2008). **Understanding cognitive function related to exercise** **Readings:** Review chapter 3 (pgs. 88-90), *Exercise for Older Adults: ACE's Guide for Fitness Professionals* (ACE, 2005). Also refer to Table 3.11 on page 91. Chapter 5 on "programming recommendations (pgs. 56-58), *Physiology of Exercise and Healthy Aging* (Taylor & Johnson, 2008).
Weeks 11 & 12:	**Fall Risks in the Older Adult** **Readings:** Chapter 1 (pgs. 3-17) and Chapter 2 (pgs. 30-44), *Fall Proof-A comprehensive balance and mobility training program* (Rose, 2003). Review Chapter 1 (pgs. 4-18), *Physiology of Exercise and Healthy Aging* (Taylor & Johnson, 2008). **Moodle: Discussion Forum – Task 11.2** **Prevention of falls through specialized exercise training** **Readings:** Chapter 3 (pg. 94), *Exercise for Older Adults: ACE's Guide for Fitness Professionals* (ACE, 2005). Review chapter 4 (pgs. 60-69), *Physiology of Exercise and Healthy Aging* (Taylor & Johnson, 2008). Chapter 4 (pgs. 92-133) and chapter 5 (pgs.140-160), *Fall Proof-A comprehensive balance and mobility training program* (Rose, 2003).
Week 13 & Course Wrap-up	**No Classes (Dec. 1 & 3, 2009)** ***Self Assessment Due – Dec. 3, 2009***

ASSESSMENT:

1. **Class Participation – 10%**

You are expected to participate within class time and participate within the online moodle discussion forums and questions. Please refer to the **Program Information Page** and review the **Discussion Board Rubric** and **Netiquette: Appropriate Network Etiquette** prior to posting within a discussion board.

2. **Assignment #1: Annotated Bibliography Assignment - 20% (Due – Oct. 20)**

For the purposes of this assignment you will be required to find **two** peer reviewed journal articles related to osteoporosis. You will be required to submit an annotated bibliography for each article. An annotated bibliography is a list of citations to books,

articles, and documents. Each citation should be brief, no more than 150-200 words. Each submission should be descriptive and will provide an evaluative paragraph about the journal article. The purpose of the annotation is to inform the reader of the relevance, accuracy, and quality of the sources cited.
Here is a website for information on writing an Annotated Bibliography:
http://www.writing.utoronto.ca/advice/specific-types-of-writing/annotated-bibliography

3. **Assignment #2: Power Point Assignment - 20% (Due – Nov. 3)**
The purpose of this presentation is to create a power point presentation. You will be required to choose **Type 2 Diabetes** or **Obesity** as your topic. Your target audience will be healthy and active older adults. You are expected to create awareness in the Older Adult population about the healthy living and active aging as a way to decrease risk for Type 2 Diabetes or Obesity. You will create this presentation to target the contributing factors, risk factors, complications (including diseases that can be caused by diabetes), and lifestyle changes for the older adult related to diabetes or obesity.

4. **Lab Assignments - 20%**
Throughout the course you will participate in a number of Lab Activities that you will need to submit for you Lab Assignment mark. The Lab Activity will be given to you at the beginning of the lab class time and will need to be submitted by the following week's lab time. Lab Activities will vary depending on the content of the week.

5. **Self Assessment – 5% (Due – Dec. 3)**
Typically, a learner knows where his/her learning occurred/did not occur and whether or not this was attributable to the learner, the situation, or method of delivery. You will be expected to submit a 1-2 page self-assessment summarizing the learning that occurred or did not occur and what attributed to the learning or lack thereof. Conclude your assessment by submitting what you think your overall letter grade should be for this course.

6. **Final Exam – 25%**
This course will have a final exam during final exam week. Content in its entirety from the course will be on the final exam.

Assignment Policy:

All assignments are expected to be digitally handed in at the time they are due. Extensions on assignments may be granted and must be negotiated with the instructor prior to the due date and with a date specified for late submissions.

A penalty of one letter grade per day will be deducted from the final mark of a late assignment. For example, a paper graded at a C would receive an adjusted grade of C- if handed in one day late. Late assignments are due by 1600 hours.

Grading will follow these GPRC approved guidelines as closely as possible:

Alpha Grade	4-pt Equivalent	Percentage Guidelines	Designation
A+	4.0	90-100	Excellent
A	4.0	85-89	Excellent
A-	3.7	80-84	First Class Standing
B+	3.3	76-79	First Class Standing
B	3.0	73-75	Good
B-	2.7	70-72	Good
C+	2.3	67-69	Satisfactory
C	2.0	64-66	Satisfactory
C-	1.7	60-63	Satisfactory
D+	1.3	55-59	Poor
D	1.0	50-54	Minimal Pass
F	0.0	0-49	Fail

Student Rights and Responsibilities:

Please refer to the Student Rights and Responsibilities policy in the Grande Prairie Regional College Calendar or at http://www.gprc.ab.ca/downloads/documents/StudentRightsandResponsibilities.pdf

Plagiarism and Cheating:

We expect honesty from our students. Penalties will be given according to the degree of the plagiarism or cheating. **If you are unsure whether an action is plagiarism or not, please consult your program advisor.** For additional information, please refer to your GPRC Calendar or http://www.gprc.ab.ca/downloads/documents/Student%20Misconduct%20Plagiarism%20and%20Cheating.pdf

Program Information:

Please view your Moodle Program Information site, http://moodle.gprc.ab.ca for additional information including Technical Requirements, additional Elluminate information, and Netiquette. A link to your Program Information site is provided in the course information section of each course.