

# SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

## SAULT STE. MARIE, ONTARIO



Sault College

### COURSE OUTLINE

<b>COURSE TITLE:</b>	Human Movement		
<b>CODE NO. :</b>	OPA104	<b>SEMESTER:</b>	1
<b>PROGRAM:</b>	Occupational Therapist Assistant/Physiotherapist Assistant		
<b>AUTHOR:</b>	Joanna MacDougall		
<b>DATE:</b>	Sept/05	<b>PREVIOUS OUTLINE DATED:</b>	Sept/04
<b>APPROVED:</b>	 		
		<b>ASSOCIATE DEAN</b>	<b>DATE</b>
<b>TOTAL CREDITS:</b>	4		
<b>PREREQUISITE(S):</b>	None		
<b>HOURS/WEEK:</b>	2 hour lecture, 2 hour lab		

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*For additional information, please contact the Associate Dean,*  
*School of Health and Human Services*  
*(705) 759-2554, Ext. 603/689*

**I. COURSE DESCRIPTION:**

This course will provide the student with a knowledge base of the principles of normal functional human movement. Students will explore the basis for normal body posture and movement, the factors involved and normal variables due to age, work environment, psychosocial impact.

**II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:**

In general, this course addresses Vocational Learning Outcomes (cross-referenced with the Program Standards) in: communication skills (1, 8P, 8O), safety (1, 4, 8P, 8O), professional competence (1, 4, 8P, 8O), documentation skills (1, 4) and application skills (1, 4, 8P, 8O). It addresses all of the Generic Skills Learning Outcomes.

Upon successful completion of this course, the student will:

1. Demonstrate knowledge and skills related to concepts of movement.  
Potential Elements of the Performance:
  - Describe anatomical terms including: planes of movement and body surfaces and directions
  - Describe essential components required for normal functional movement: and their normal age-related changes:
    - a) motor
    - b) sensory
    - c) cognitive
    - d) perceptual
    - e) psychosocial
    - f) environmental
  - Explain essential concepts required to understand normal functional movement:
    - a) weight
    - b) gravity
    - c) force
    - d) leverage
    - e) momentum
    - f) inertia
    - g) equilibrium
    - h) base of support
    - i) center of mass
  - Explain the clinical implications of the above objectives on normal functional movement

2. Demonstrate knowledge of and describe normal mobility of joints and soft tissues, the concepts of applied muscle physiology and resulting movement.

Potential Elements of the Performance:

- Describe and demonstrate:
  - a) types of joints and associated movement including normal range of motion for each joint
  - b) directional terms (abduction, adduction, extension etc.)
- Name the normal curvatures of the vertebral column and state when they form
- Identify and describe scoliosis, lordosis and kyphosis
- Briefly describe the events of muscle cell contraction
- Define the following terms relating to skeletal muscles: origin, insertion, prime mover, antagonist, synergist, fixation
- Identify accurately the different types of body movement exhibited for specified muscles
- Define graded response, tetanus, muscle fatigue and muscle tone as they apply to skeletal muscle
- Describe and demonstrate the following types of muscle contractions:
  - a) isometric
  - b) isotonic – eccentric and concentric
  - c) isokinetic
- Briefly describe the effects of aerobic and resistive exercise on skeletal muscles
- Describe and demonstrate the following types of movement: resistive, active, active assistive, passive
- Describe the normal age related changes of joints and muscles and the implications on movement

3. Demonstrate an understanding and application of the foundations for normal functional movement.

Potential Elements of the Performance:

- Identify milestones in normal motor development through the lifespan:
  - a) gross motor development
  - b) fine motor development
  - c) normal age-related changes
- Identify the normal stages of motor development (rolling, sitting, standing, walking etc.)
- Describe infant reflexes and their role in normal motor development

4. Demonstrate an understanding of normal posture and postural control.  
Potential Elements of the Performance:
  - Relate biology to postural control:
    - a) explain how the sensory system affects posture
    - b) describe how the motor system impacts postural control
    - c) discuss how the integration of sensory and motor control is essential for normal functional movement
  - Identify significant surface anatomical landmarks such as C7, T12, L4, inferior angle of scapula, coracoid process, acromion process, olecranon, styloid process, ASIS, PSIS, head of fibula, ischial tuberosity, medial and lateral malleoli
  - Explain the purpose and benefit of positioning and proper body alignment
  - Describe the effects of poor posture/positioning on joints/muscles
  - Describe normal age-related changes related to posture
  - Demonstrate how to maintain proper spinal alignment
  - Demonstrate the ability to assist others to a variety of positions using good body alignment
  
5. Demonstrate knowledge and skills related to body mechanics.  
Potential Elements of the Performance:
  - Identify essential body mechanics required for work in health and human services
  - Demonstrate safe body mechanics in simulated situations in the lab
  - Demonstrate the ability to teach a client how to effectively move using correct body mechanics: from lying to sitting, from sitting to standing, lifting;
  
6. Demonstrate knowledge of and describe normal gait patterns.  
Potential Elements of the Performance:
  - Identify the normal functional sequence of gait, including ascending and descending stairs
  - Describe normal gait using correct terminology
  - List and describe factors affecting gait (vertical and horizontal displacement, width of base of support, lateral pelvic tilt, step length, stride length)
  - Describe normal age-related changes of gait
  
7. Demonstrate knowledge of and describe chest wall movement.  
Potential Elements of the Performance:
  - Describe the anatomy of the respiratory system
  - Explain the functions of the components of the respiratory system
  - Describe the normal movement patterns of the chest wall and normal age-related changes
  - Describe normal breathing patterns and rates
  - Describe diaphragmatic breathing

**III. TOPICS:**

1. Normal Functional Movement – Anatomic Planes, Movements
2. Joint and Soft Tissue Mobility
3. Muscle Physiology
4. Concepts of Movement
5. Normal Motor Development
6. Postural Control
7. Posture
8. Body Mechanics
9. Normal Gait
10. Chest Wall Movement
11. Age Related Changes

**IV. REQUIRED RESOURCES/TEXTS/MATERIALS:**

MacDougall, J. (2005). OPA 104 Course Manual

Lippert, Lynn. (2000). Clinical Kinesiology for Physical Therapist Assistants. (3<sup>rd</sup> ed.) F.A. Davis Company.

Biel, Andrew. (2001). Trail guide to the body. (2<sup>nd</sup> ed.). Andrew Biel Publications.

Marieb, Elaine. (2003). Essentials of Human Anatomy and Physiology. (8<sup>th</sup> ed.) Benjamin Cummings/Addison Wesley Longman, Inc.

**V. EVALUATION PROCESS/GRADING SYSTEM:**

1. A combination of tests and assignments will be used to evaluate student achievement of the course objectives. A description of the evaluation methods follows and will be discussed by the teacher within the first two weeks of class.
2. All tests/exams are the property of Sault College.

**Course Evaluation:** to be discussed by the professor during the first week of class.

3. Students missing any of the tests or exams because of illness or other serious reason must notify the professor **BEFORE** the test or exam. The professor reserves the right to request documents to support the student's request.
4. Those students who have notified the professor of their absence prior to the test or exam, will be eligible to arrange an opportunity as soon as possible to write the test or exam at another time. Those students who **DO NOT NOTIFY** the professor will receive a zero for that test or exam.
5. For assignments to be handed in, the policies of the program will be followed. For assignments not handed in by the due date, the mark received will be zero. Extensions will be granted **if requested in writing** at least 24 hours before the due date. There will be a deduction of one percent per day for every school day late with the permission of an extension. This means that an extension for 5 school days (1 week), will result in 5 percentage points deducted from the final grade.
6. A supplemental exam may be written by students who meet the following criteria. The student must achieve at least a grade of 45% in the course. The student must have attended at least 80% of the classes. The supplemental exam will then cover the entire course and will be worth 100% of the student's final mark.

The following semester grades will be assigned to students in post-secondary courses:

<u>Grade</u>	<u>Definition</u>	<u>Grade Point Equivalent</u>
A+	90 – 100%	4.00
A	80 – 89%	3.00
B	70 - 79%	2.00
C	60 - 69%	1.00
D	50 – 59%	0.00
F (Fail)	49% and below	
CR (Credit)	Credit for diploma requirements has been awarded.	
S	Satisfactory achievement in field /clinical placement or non-graded subject area.	
U	Unsatisfactory achievement in field/clinical placement or non-graded subject area.	
X	A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course.	
NR	Grade not reported to Registrar's office.	
W	Student has withdrawn from the course without academic penalty.	

**Note:** For such reasons as program certification or program articulation, certain courses require minimums of greater than 50% and/or have mandatory components to achieve a passing grade.

It is also important to note, that the minimum overall GPA required in order to graduate from a Sault College program remains 2.0.

## VI. SPECIAL NOTES:

### Special Needs:

If you are a student with special needs (e.g. physical limitations, visual impairments, hearing impairments, or learning disabilities), you are encouraged to discuss required accommodations with your professor and/or the Special Needs office. Visit Room E1101 or call Extension 703 so that support services can be arranged for you.

### Retention of course outlines:

It is the responsibility of the student to retain all course outlines for possible future use in acquiring advanced standing at other postsecondary institutions.

### Plagiarism:

Students should refer to the definition of “academic dishonesty” in *Student Rights and Responsibilities*. Students who engage in “academic dishonesty” will receive an automatic failure for that submission and/or such other penalty, up to and including expulsion from the course/program, as may be decided by the professor/dean. In order to protect students from inadvertent plagiarism, to protect the copyright of the material referenced, and to credit the author of the material, it is the policy of the department to employ a documentation format for referencing source material.

### Course outline amendments:

The Professor reserves the right to change the information contained in this course outline depending on the needs of the learner and the availability of resources.

Substitute course information is available in the Registrar's office.

**VII. PRIOR LEARNING ASSESSMENT:**

Students who wish to apply for advanced credit in the course should consult the professor. Credit for prior learning will be given upon successful completion of a challenge exam or portfolio.

**VIII. DIRECT CREDIT TRANSFERS:**

Students who wish to apply for direct credit transfer (advanced standing) should obtain a direct credit transfer form from the Dean's secretary. Students will be required to provide a transcript and course outline related to the course in question.