# Master of Physical Therapy Program: Year 2
# *CARDIORESPIRATORY COURSE OUTLINES SUMMARY*

## Course: PT 6124 - Physical Therapy and Hospital-based Care

**COURSE DESCRIPTION:**

Through lecture, tutorial and laboratory sessions, students learn the role of physical therapy in Hospital-based care across the lifespan. Students will learn knowledge, skills, and behaviors which support physical therapy assessment and treatment skills.

**COURSE OVERVIEW:**

This course prepares the student to provide safe and effective physiotherapy care in the hospital setting for patients with predominantly Neuromusculoskeletal conditions which limit their mobility. Class work includes lectures involving in-class small group work and tutorial sessions involving small and large group work. Clinical skills are taught in laboratories by faculty instructors where the students themselves will act as practice patients. For some of the laboratory sessions, students will practice their clinical skills on standardized clients and model patients to assist learning communication and safe handling skills. Standardized clients are individuals who portray a scripted role. Model patients are individuals who have a particular health condition amenable to physiotherapy assessment and treatment. Students are expected to: prepare for learning activities by completing the required readings and reviewing instructional DVD's; engage in independent practice of clinical skills where self and peer evaluation occurs to support learning; integrate information learned from previous learning; and apply components of the *Department of Physical Therapy Conceptual Framework* to learning sessions.

**COURSE OBJECTIVES:**

This course focuses on specific cognitive, psychomotor and affective physical therapy skills. Upon successful completion of the course students will be able to:

- Describe the physiotherapy role of *Expert* in assessing and treating dysfunction in the Pre-hab (pre-surgery), Emergency Room and Hospital settings;
- Reflect on experiences and observations associated with the hospital clinical visit;
- Describe selected NMSK elective and traumatic surgical procedures in adult and pediatric clients including medications, dressings, and lines and tubes;
- Summarize the acute effects and common post-operative complications of surgery, medication and physical inactivity on all body systems in adult and pediatric clients;
- Demonstrate proficiency in performing an assessment (subjective and objective examination) on the orthopedic pre-operative outpatient and post-operative inpatient, and the amputee patient;
- Determine the client's prognosis based on their diagnosis and be able to select applicable assessment and treatment strategies ( e.g. including outcome measures, self-management, education, exercise, supportive devices, and other);
- Demonstrate proficiency in performing treatments for the orthopedic pre-operative outpatient and post-operative inpatient, and the amputee patient in order to prevent complications and restore/maximize function;
- Incorporate relevant community resources as part of the discharge planning discussion;
- Incorporate Interprofessional knowledge, as appropriate, to identify communication and collaboration with other members of the health care team;
- Synthesize clinical information using the *Clinical Decision Making Process* when discussing clinical cases and when engaging with model patients;
- Demonstrate professional behaviour and respectful communication with participants in all educational activities; and
- Self-assess knowledge, skills, behaviors and attitudes during learning sessions;

- Demonstrate professional and academic integrity;
- Demonstrate team work for group activities;
- Incorporate *Patient Safety Competencies* in all relevant learning activities;

**COURSE RESOURCES:**

**REQUIRED TEXTBOOKS / READINGS**:

1. Paz, JC & West, WP (2014). Acute care handbook for Physical Therapists (4th Ed.) Elsevier: St. Louis. 2. Clinical Keys: https://www-clinicalkey-com.proxy2.lib.umanitoba.ca/Goodman, C.C. Fuller, K. (2009). Pathology: Implications for the Physical Therapist. Saunders, (3rded.).

**RECOMMENDED TEXTBOOKS**

1. Goodman, C.C. Fuller, K. (2015). Pathology: Implications for the Physical Therapist (4th Ed.). Elsevier: St. Louis.
2. Fairchild, S.L. (2013). Pierson and Fairchild's Principles & techniques of patient care (5th Ed.) St. Louise, Missouri: Saunders (Elsevier).

## Course: PT 7230- Applied Sciences for Physical Therapy 3

**COURSE DESCRIPTION:**

Through lecture, tutorial and laboratory sessions, students will learn the application of anatomy, physiology and pathology to the cardiovascular and pulmonary systems. This course provides the theoretical basis for physical therapy intervention for cardiovascular and pulmonary disorders.

**COURSE OVERVIEW:**

This course involves lecture, lab and tutorial work; students are expected to prepare for each activity by completing the required readings for lectures, tutorials and the assigned skills laboratories. Class work includes lectures, in-class small group work, and tutorial sessions. Students will integrate pre-requisite courses information.

**COURSE OBJECTIVES:**

Upon successful completion of this course students will be able to:

- Demonstrate professional behaviour and respectful communication with participants in all educational activities;
- Self-assess knowledge, skills, behaviors and attitudes during learning sessions;
- Demonstrate professional and academic integrity;
- Demonstrate team work for group activities;
- Demonstrate Patient Safety Competencies in all relevant learning activities;
- Integrate knowledge of anatomical structures into assessment and intervention planning;
- Describe the inter-relationships between structure and ventilation of the lungs and how this is assessed through pulmonary function tests;
- Distinguish between normal and abnormal pulmonary function tests;
- Describe the relationship underlying the oxy-hemoglobin saturation curve and how this is monitored clinically;
- Describe the relationships between the electrical and hemodynamic functions of the heart;
- Describe the role of the kidneys in regulating long term maintenance of blood pressure and the use of pharmacological agents to manage blood pressure;
- Describe the co-operative roles of the lungs and kidneys in regulating acid-base balance;
- Integrate information about the following pathological/disease conditions when identifying patient risk and impairment:
    a. Chronic obstructive lung disease (COLD or COPD);
    b. Restrictive pulmonary disease;
    c. Infectious diseases;

d. Acute cardiovascular pathology and sequelae of cardiovascular pathology
e. Supplementary oxygen systems and mechanical ventilation
f. Critical Care

- Describe the medical assessment / management considerations of the above conditions;

**COURSE RESOURCES:**

1. Thompson, W.R. (Ed.) (2010) *American College of Sports Medicine*. ACSM's guidelines for exercise testing and prescriptions. (8th Ed.). Philadelphia, PA: Lippincott Williams & Wilkins. • American College of Sports Medicine. (2012) *Exercise management for persons with chronic diseases and disabilities.* Champaign: Human Kinetics.
2. Goodman, C. & Fuller, K. (2009). *Pathology – Implications for the Physical Therapist. (3rd ed.)* Saunders.
3. **E-book** – Hall, John E. (Ed.) Guyton and Hall Textbook of Medical Physiology, 12th ed. (2011) Philadelphia, PA: Elsevier.

## Course: PT 7122 - Clinical Skills for Physical Therapy in Cardiorespiratory Conditions

**COURSE DESCRIPTION:**

Through lecture, tutorial and laboratory sessions, students apply physical therapy assessment, diagnostic and treatment skills for cardiorespiratory conditions across the lifespan.

**COURSE OVERVIEW:**

This course prepares the student to provide safe and effective physiotherapy care in the medical/surgical wards, critical care including step down and intensive care units and community rehabilitation settings for patients with Cardiovascular Pulmonary conditions which affects their ventilation, airway clearance, mobility and quality of life. This course involves lecture, lab and tutorial work; students are expected to prepare for each activity by completing the required readings. Opportunities are provided for non-evaluated supervised service learning related to the application of clinical skills in the community. Students should review skills learned in year 1 such as taking physiological measurements, assessment of posture, range of motion, muscle strength and integument and communication skills related to consent and chart notes. Clinical skills labs and tutorials will consolidate theoretical knowledge learned in lectures. Clinical skills are taught in laboratories by faculty; Labs will incorporate practice with peers.

**COURSE OBJECTIVES:**

Upon successful completion of this course students will be able to:

- Integrate knowledge of anatomical structures and pathophysiology into assessment and intervention planning;
- Apply the Conceptual Framework for respiratory, cardiovascular, surgical and de-conditioned to clinical cases studies considering the lifespan in the hospital and community rehabilitation environments;
- Determine the implications of diagnostic tests on the physiotherapy plan of care
- Choose appropriate assessment components for the respiratory, cardiovascular, surgical and de-conditioned individual in a community setting considering the effect of diseases and disabilities across the lifespan;
- Exercise tolerance testing and exercise program prescription for the following chronic health conditions: Anemia, Pacemakers, Restrictive Lung Disease, Diabetes, Chronic Heart Failure, Atrial Fibrillation, Hypertension, Cancer, Peripheral arterial disease, renal disease;
- Proficiently assess:
    - Cognition,
    - Health history,
    - Posture,

    - Sensory function,
    - Integument,
    - Respiratory rate / blood pressure / heart rate / Sp02 / rating of perceived dyspnea and rating of perceived exertion,
    - Pattern of respiration and chest excursion,
    - Lung density with the use of mediate percussion,
    - Lung breath sounds (auscultation of the lungs),
    - General mobility,
    - Cough effectiveness,
    - Single-lead ECG at rest and during exercise,
    - Submaximal graded exercise testing on a treadmill and bicycle ergometer,
    - Functional capacity tests.
- Treat proficiently to:
    - Improve ventilation: mobilization, breathing exercise (deep breathing, segmental/facilitated breathing, incentive spirometry, thoracic expansion exercise, sniffing, breath stacking),
    - Secretion mobilization: Mobilization, Active Cycle of Breathing Technique (ACBT), huffing, Autogenic Drainage, lung postural drainage, chest wall percussion, manual and mechanical vibrations, devices (e.g. PEP, Flutter, Acapella),
    - Secretion Clearance: Huffing, coughing, supported coughing, suctioning (nasal, oral and tracheal airways),
    - Manage dyspnea: purse lipped breathing (PLB), positioning, energy conservation, relaxation techniques,
    - Safe management of tubes and lines during mobility
    - Train muscular strength / endurance, and cardiovascular endurance
    - Improve self-management knowledge, skills and behaviors;
    - Thoracic mobility: (AROM, AAROM, PROM)
- Incorporate relevant community resources as part of the discharge planning discussion;
- Demonstrate professional behavior and respectful communication with participants in all educational activities;
- Self-assess knowledge, skills, behaviors and attitudes during learning sessions;
- Demonstrate Patient Safety Competencies in all learning sessions;
- Demonstrate professional and academic integrity; and
- Demonstrate team work for group activities.

**COURSE RESOURCES:**

**REQUIRED TEXTBOOKS/READINGS:**

- Frownfelter, D. and Dean, E. (2012) *Cardiovascular and Pulmonary Physical Therapy – Evidence and Practice*. (5th Ed.) Elsevier.
- American College of Sports Medicine. (2014) *ACSM's guidelines for exercise testing and prescriptions.* (9th Ed.). Philadelphia, PA: Lippincott Williams & Wilkins.
- Paz, JC & West, WP (2014). *Acute care handbook for Physical Therapists* (4th Ed.) Elsevier: St. Louis
- Patient Education Booklets (to be provided in class)
    - *Living Well with Heart Disease: A guide for people with coronary artery disease (Heart and Stroke Foundation)*
    - *Managing Heart Failure (Heart and Stroke Foundation)*
    - *All About your Bypass Surgery: Helping you understand your CABG*
    - *The Breath Works Plan*

    - *Smoking Cessation (Canadian Cancer Society)*
    - *Saving Energy (Manitoba Lung Association)*
- Mock charts

**RECOMMENDED TEXTBOOKS:**

- Goodman, C. and Boissonnault, W. (2015) *Pathology: Implications for the Physical Therapist*. (4th Ed) W.B. Saunders Co.
- Effgen, SK. (2013) *Meeting the Physical Therapy Needs of Children*, (2nd Ed). FA Davis