

[Back](#)[See what the student sees...](#)**Course Master:** Approved**Resources:** Approved**Program Standards:** Approved

## Course Outline

### 1.0 IDENTIFICATION

#### COURSE INFORMATION

Subject Code	HSCI
Course Name	Cardiovascular Pharmacology
Course Code	CVT29
Offering Term	Winter 2010
Classification	Specialized
Program Code and Name	728 - Cardiovascular Technology
Total Course Hours	42
Credit Value / Grade Type	3
Academic Year	2009/2010
Approving Associate Dean	Lori Koziol
Revision Date	April 25, 2008

### 2.0 LEARNING OVERVIEW

#### SUBSECTION

**Course Description** Following a basic introduction to pharmacology, this course introduces the student to pharmacology as it relates to the cardiovascular system. Routine and emergency medications will be discussed as well as agents used for cardiovascular procedures. Topics will include drug classifications, pharmacokinetics, drug delivery, current drug therapy and how these medications affect cardiac testing.

Resources	Code or ISBN	Name or Title	Author / Publisher	Version or Edition	Type	Status
Status	000000		Mohawk College / Mohawk College		Custom	REQ

REQ = Required

REC = Recommended REF = Reference		HSCI CVT 29 Cardiovascular Pharmacology Course Manual				
<b>Type</b>	9780131714731	Core Concepts of Pharmacology	Holland Norman, Adams Michael / Prentice Hall/Pearson Education	2nd	Text	REQ
Online Supply Text Book Custom Courseware						

<b>Pre-requisite(s)</b>	<b>Subject Code</b>	<b>Course Code</b>	<b>Course Name</b>
	HSCI	10062	Human Anatomy & Physiology 1
<b>Equivalent(s)</b>	N/A		

### 3.0 COURSE CONTENT

#### MAJOR MODULES, THEMES, OR TOPICS

Drug sources, schedules and dosages

Other drugs associated with cardiovascular disease

Medication administration essentials

The medication order

How drugs affect the heart

Adrenergic drugs

Adrenergic blockers and centrally-acting sympatholytics

Cholinergic blockers

Cardiac glycosides

Antiarrhythmic drugs

Antianginal drugs

Antihypertensives

Anticoagulants, coagulants and thrombolytic agents

Narcotic analgesics

Antilipemic agents

Forms of drugs and how they act

#### 4.0 REFERENCE TO STANDARDS

<b>VS CODE</b>	<b>RELEVANT VOCATIONAL LEARNING OUTCOME</b>
	N/A

<b>EE CODE</b>	<b>RELEVANT ESSENTIAL EMPLOYABILITY SKILLS OUTCOME</b>
EE01-A	Communicate clearly, concisely and correctly in the written, spoken, and visual form that fulfills the purpose and meets the needs of the audience.
EE01-B	Respond to written, spoken, or visual messages in a manner that ensures effective communication.
EE06-A	Manage the use of time and other resources to complete projects.
<b>GE CODE</b>	<b>RELEVANT GENERAL EDUCATION THEME</b>
	N/A
<b>ES CODE</b>	<b>OTHER EXTERNAL STANDARD</b>
CA1-GC01g	Analyze recording, and relate to patient symptoms and medications.
CA1-GC02f	Analyze recording, and relate to patient symptoms and medications.
CA1-GC03g	Analyze findings, and relate to patient symptoms and medications.
CA1-GC04i	Analyze diagnostic data and telemetry, and relate to patient symptoms and medications.
CA1-GC06g	Maintain resuscitation cart.
CA2-GC02d	Obtain list of current medications.
CA2-GC06b	Locate drugs, airway management devices and suction apparatus in resuscitation cart.
CA2-GC06c	Recognize indications, contraindications and effects of drugs commonly used for the treatment of cardiac emergencies.
CA3-GC04d	Use and interpret general medical terminology.
CA3-GC04e	Use and interpret medical terminology unique to cardiology.
CA3-GC09a	Maintain knowledge of emerging cardiac therapies and technologies.
CA4-GC01c	Apply knowledge of the structure and function of the normal heart and circulatory system.
CA4-GC01d	Apply knowledge of the electrophysiology and hemodynamics of stimulation and conduction in the normal heart.
CA4-GC01g	Relate common blood test results to cardiac pathophysiology.
CA4-GC02b	Identify the physiological effects of each class of cardiovascular agent.
CA4-GC02d	Relate results of cardiac procedures to medication administered.
CA4-GC02e	Use the Compendium of Pharmaceuticals and Specialties (CPS) to identify the indications and contraindications for common cardiovascular drugs.
CA4GC01e	Correlate the mechanisms of cardiac arrhythmias to cardiac pathophysiologies in Appendix 1.
CA4GC02a	Identify classes of cardiovascular agents, and common drugs within each class.
CA4GC02c	Relate patient signs and symptoms to medication administered.

## **5.0 COURSE LEARNING OUTCOMES**

LO01

Describe the basic concepts and principles of pharmacology, pharmacokinetics and pharmacodynamics, pharmacotherapeutics and drug administration.

**LEARNING ELEMENTS**

List four sources of medical drugs and state five medical uses for drugs

Define the four processes of pharmacokinetics

Explain the first pass effect

Describe factors that affect drug action

List various routes of medication administration

State the advantages and disadvantages of using the parenteral route of administration

Define common medical terms relating to pharmacotherapeutics

Define prescription abbreviations and the parts of a prescription

Describe the components of the medication profile used in health care institutions

**LINKING TO STANDARDS**

Vocational Standard	Essential Employability Skills		External Standard	
N/A	EES Code	Characterization (1,2,3,4)	ES Code	Characterization (1,2,3,4)
	EE01-A	2	CA2-GC02d	2
			CA3-GC04d	2
			CA3-GC04e	2
			CA3-GC09a	2
			CA4-GC02d	2
			CA4-GC02e	2
			CA4GC02c	2

LO02

Relate cardiovascular physiology to drug actions and effects.

**LEARNING ELEMENTS**

Define inotropic, chronotropic and dromotropic effects

Differentiate between adrenergic and cholinergic effects on the cardiovascular system

Identify the sympathetic and parasympathetic nervous system receptors and their effects on the cardiovascular system when stimulated or inhibited.

Describe the effects of adrenergic drugs on blood vessels, cardiac muscle, cardiac conduction system and cardiovascular hemodynamics.

**LINKING TO STANDARDS**

Vocational Standard	Essential Employability Skills	External Standard	
N/A	N/A	ES Code	Characterization

(1,2,3,4)

CA4-GC01c	2
CA4-GC01d	2
CA4-GC02b	2

LO03 Identify classes of cardiovascular agents, and common drugs within each class.

**LEARNING ELEMENTS**

Classify drugs according to preparation and therapeutic action

Identify chemical, generic and trade names of drugs

Use the Compendium of Pharmaceutical Specialties to identify the trade and generic names, indications, contraindications, adverse effects and locate pictures of common cardiovascular drugs.

**LINKING TO STANDARDS**

Vocational Standard	Essential Employability Skills		External Standard	
N/A	EES Code	Characterization (1,2,3,4)	ES Code	Characterization (1,2,3,4)
	EE01-A	1	CA4GC02a	2

LO04 Identify the pharmacodynamics of each class of cardiovascular agent.

**LEARNING ELEMENTS**

Describe the pharmacodynamics of adrenergic drugs and adrenergic blockers and list examples

Describe the pharmacodynamics of cholinergic drugs and list examples

Describe the pharmacodynamics of cardiac glycosides and list examples

Describe the pharmacodynamics of antianginal drugs

Review the mechanism of the myocardial cell action potential

Describe the pharmacodynamics of various classes of antiarrhythmic agents

Identify the classification of drugs used for the treatment of hypertension

Describe the pharmacodynamics of various anticoagulants, coagulants, and thrombolytic agents

Describe the pharmacodynamics of various forms of antilipemic agents

Identify other drugs or categories of drugs which are often associated with patients with cardiovascular illness or disease

**LINKING TO STANDARDS**

Vocational Standard	Essential Employability Skills		External Standard	
N/A	EES Code	Characterization (1,2,3,4)	ES Code	Characterization (1,2,3,4)

EE01-A	2	CA4-GC02b	2
		CA4GC02c	2

LO05 Relate ECG findings, patient's signs and symptoms, and the results of cardiac procedures to medication administration.

**LEARNING ELEMENTS**

Describe ECG changes that may be seen upon administration of various classes of antiarrhythmic agents

Describe signs, symptoms and treatment of digoxin toxicity

Describe expected cardiovascular responses in patients on certain drugs during exercise tests

Recognize drug and electrolyte changes on the ECG that predispose to dangerous arrhythmias

**LINKING TO STANDARDS**

Vocational Standard	Essential Employability Skills		External Standard	
N/A	EES Code	Characterization (1,2,3,4)	ES Code	Characterization (1,2,3,4)
	EE01-B	2	CA1-GC01g	2
			CA1-GC02f	2
			CA1-GC03g	2
			CA1-GC04i	2
			CA4-GC02d	2
			CA4GC02c	2

LO06 Recognize indications, contraindications and effects of drugs commonly used in the treatment of cardiovascular emergencies.

**LEARNING ELEMENTS**

Describe congestive heart failure and list drugs used to alleviate symptoms

Describe hypertension and long term effects of uncontrolled hypertension

Describe myocardial infarction and list first line drugs of choice

Describe cardiac arrest and the algorithm for resuscitation

List the drugs which may be found on a crash cart

Describe the purpose of common emergency drugs

**LINKING TO STANDARDS**

Vocational Standard	Essential Employability Skills		External Standard	
N/A	EES Code	Characterization (1,2,3,4)	ES Code	Characterization (1,2,3,4)
	EE01-B	1	CA1-GC06g	2
			CA2-GC06b	2

EE06-A	2	CA2-GC06c	2
		CA4-GC01g	2
		CA4-GC02e	2
		CA4GC01e	2

## 6.0 ASSESSMENT

Individual assignment and grading details to be provided by Instructor.

Assessment Method	Weight	Associated Outcomes
Assignment(s)	15%	LO01 , LO02 , LO03 , LO04 , LO05
Test(s)	55%	LO01 , LO02 , LO03 , LO04 , LO05
Final Exam	30%	LO01 , LO02 , LO03 , LO04 , LO05
<b>TOTAL</b>	100%	

## 7.0 STUDENT SUCCESS - POLICIES AND PROCEDURES

Mohawk College has developed several policies and procedures designed to protect students and provide an enriching and rewarding learning experience in which the rights of individuals are respected. This may include the use of digital assessments such as [turn it in](#). For the most up to date information on the following policies and procedures, consult Mohawk College's [Policies and Procedures](#) website.

In addition, students enrolled in Mohawk/McMaster collaborative programs are protected under McMaster University's policies and procedures outlined in [General Academic Regulations, McMaster Undergraduate Calendar](#), and in McMaster's [Academic Integrity Policy](#).

Please be advised that all policies and procedures are subject to change.

**EFFECTIVE FALL 2009** - Policy: AC700 - Program Promotion and Graduation Requirements: A minimum grade of 50% is required as a course pass at Mohawk College. Please be aware, however, that a higher passing grade (minimum 60% or 70%) may be required if this course is taken as part of certain diploma or certificate programs. Please consult your Academic Department for details.

Additionally, if you are taking this course as part of a diploma or certificate program, be aware that you need an overall weighted grade point average (WGPA) of at least 60% to graduate. Graduation requirements are higher for some programs. Please check requirements with your department.

### Note:

Faculty are required to review Emergency Lockdown procedures and Emergency Evacuation Procedures, including Evacuation Procedures for students with disabilities, at the first class of every course they are teaching each semester. This information is available in the College Emergency Safety and Security Procedures Booklet distributed to all staff in hard copy, or online in MoCoMotion within the HR Staff Services Tab in the Occupational Health and Safety Channel (Occupational Health and Safety web site).

Course information correct as of: **April 25, 2008**

Last updated by: **Rajinder Virk**

