



Broward Community College

Course Outline

STATUS: A

COMMON COURSE NUMBER: MSS 0150

COURSE TITLE: Anatomy and Physiology of Body Systems

CONTACT HOURS: 45

CONTACT HOUR BREAKDOWN:

Lecture/Discussion:	<u>45</u>
Laboratory:	<u>00</u>
Other	<u>00</u>
Contact hours/week:	<u>3</u>

CATALOG COURSE DESCRIPTION:

The structure and function of human organ systems as they apply to the service of massage therapy are presented. Basic pathophysiology of the major body systems and organs as they apply to massage therapy are discussed in relationship to appropriate care by the massage therapist. Systemic contraindications, local contraindications and cautions that influence massage are presented.

PREREQUISITE(S): None

COREQUISITE(S): None

UNIT TITLES:

- 1.0 *Organization And General Plan Of The Body*
- 2.0 *Integumentary System*
- 3.0 *Nervous System*
- 4.0 *The Senses*
- 5.0 *Endocrine System*
- 6.0 *Blood*
- 7.0 *The Heart*
- 8.0 *Vascular System*
- 9.0 *Lymphatic System And Immunity*
- 10.0 *Respiratory System*
- 11.0 *Digestive System*
- 12.0 *Urinary System*
- 13.0 *Reproductive System*

LAST REVIEW Academic Year 2001-2002

NEXT REVIEW Academic Year 2006-07

Interim Revision Dates:

Instructional Outcomes

Upon successful completion of this course, the students will be able to identify and describe the major body systems, their functions, and their associated pathologies.

In addition, as detailed in the General Outcomes for each Unit Title, the student will:

1. Relate relevant massage applications to various body systems
2. Understand responses of body systems to various massage techniques.
3. Apply medical terminology appropriate to massage therapy
4. Recognize pathologies and apply appropriate massage techniques
5. Describe and recognize endangerment sites for massage therapy applications

Behavioral Outcomes

Upon successful completion of this course, the student will:

1. Demonstrate a receptive response to constructive criticism as provided via examinations, quizzes, and assigned projects related to the subject matter.
2. Demonstrate conduct that reflects respect and courtesy in all interactions with instructor(s) and peers.
3. Engage in on-going self-assessment as it relates to achieving success in the course so that content areas that require knowledge enhancement can be identified.
4. Set appropriate goals as a result of on-going self-assessment.

UNIT 1 Organization and General Plan of the Body

General Outcome:

- 1.0 The student should be able to describe how the body is organized utilizing appropriate terminology.

Specific Instructional Objectives:

Upon successful completion of this unit, the student will be able to:

- 1.1 Define anatomy, physiology, and pathophysiology.
- 1.2 Name the levels of organization of the body.
- 1.3 Define and explain homeostasis.
- 1.4 Describe anatomical position.
- 1.5 Utilize proper terminology to describe the relationship of body parts.
- 1.6 Name body cavities, their membranes, and organs within each.
- 1.7 Describe the possible sections through the body and its origins.

UNIT 2 Integumentary System

General Outcome:

- 2.0 The student will be able to describe the integumentary system and its related functions.

Specific Instructional Objectives:

Upon successful completion of this unit, the student will be able to:

- 2.1 Name the two major layers of the skin and the tissue of which each is made.
- 2.2 State the locations and describe the functions of the stratum corneum and stratum germinativum.
- 2.3 Describe the functions of melanocytes and melanin.
- 2.4 Describe the functions of hair and nails.
- 2.5 Name the cutaneous senses and explain their importance.
- 2.6 Describe the functions of the secretions of sebaceous glands, ceruminous glands, and eccrine sweat glands.
- 2.7 Describe how the arterioles in the dermis respond to heat, cold, and stress.
- 2.8 Name the tissues that make up the subcutaneous tissue, and describe their function.

UNIT 3 Nervous System

General Outcome:

3.0 The student should be able to describe the nervous system and its related functions.

Specific Instructional Objectives:

Upon successful completion of this unit, the student will be able to:

- 3.1 Name the divisions and parts of the nervous system, along with their associated functions.
- 3.2 Name the parts of a neuron and discuss its functions.
- 3.3 Explain the importance of Schwann cells.
- 3.4 Describe the electrical nerve impulse, and impulse transmission at synapses.
- 3.5 Describe the types of neurons, nerves, and nerve tracts.
- 3.6 State the names, numbers, and destinations of the spinal nerves.
- 3.7 Explain stretch reflexes and flexor reflexes.
- 3.8 State and identify the parts of the brain.
- 3.9 Describe the functions of the human brain.
- 3.10 Name the meninges and describe their locations.
- 3.11 State the locations and functions of cerebrospinal fluid.
- 3.12 Name the cranial nerves and state their functions.
- 3.13 Discuss the sympathetic and parasympathetic nervous system.

UNIT 4 The Senses

General Outcome:

4. The student should be able to describe the senses and their related functions.

Specific Instructional Objectives:

Upon successful completion of this unit, the student will be able to:

- 4.1 Explain the general purpose of sensations.
- 4.2 Name the parts of a sensory pathway and describe their functions.
- 4.3 Describe the characteristics of sensations.
- 4.4 Name the cutaneous senses and explain their purpose.
- 4.5 Explain referred pain and its importance.
- 4.6 Explain the importance of muscle sense.
- 4.7 Describe and interrelate the pathways for smell and taste.
- 4.8 Name the parts of the eye and describe their functions.
- 4.9 Describe the physiology of vision.
- 4.10 Name the parts of the ear and describe their function.
- 4.11 Describe the physiology of hearing.
- 4.12 Describe the physiology of equilibrium.
- 4.13 Explain arterial pressoreceptors and chemoreceptors.

UNIT 5 Endocrine System

General Outcomes:

5.0 The student should be able to describe the endocrine system and its related functions.

Specific Instructional Outcomes:

Upon successful completion of this unit, the student will be able to:

- 5.1 Name the endocrine glands and the hormones secreted by each.
- 5.2 Explain how a negative feedback mechanism works.
- 5.3 Discuss the pituitary gland and its relationship with the hypothalamus.
- 5.4 State the functions of oxytocin and antidiuretic hormones.
- 5.5 State the functions of the hormones of the anterior pituitary gland.
- 5.6 Discuss the functions of thyroxine and T3, and describe the stimulus for their secretion.
- 5.7 Explain how parathyroid hormone and calcitonin work as antagonists.
- 5.8 State the functions of epinephrine and norepinephrine.
- 5.9 State the functions of aldosterone and cortisol.
- 5.10 State the functions of estrogen, progesterone, and testosterone.
- 5.11 Explain what prostaglandins are made of, and state their functions.
- 5.12 Explain the theories of how protein and steroid hormones exert their effects.

UNIT 6 Blood

General Outcome:

6.0 The student should be able to describe the blood and its related functions.

Specific Instructional Outcomes:

Upon successful completion of this unit, the student should be able to:

- 6.1 Describe the composition of blood and the function of blood plasma.
- 6.2 Name the hemopoietic tissues and the kinds of blood cells each produces.
- 6.3 State the functions of red blood cells.
- 6.4 Name the nutrients necessary for red blood cell production.
- 6.5 Explain the relationship between hypoxia and the rate of red blood cell production.
- 6.6 Explain the life span of red blood cells.
- 6.7 Explain the ABO and Rh blood types.
- 6.8 Name the kinds of white blood cells and their associated functions.
- 6.9 Describe platelets and their involvement in homeostasis.
- 6.10 Describe the three stages of chemical blood clotting.
- 6.11 State the normal values in a complete blood count.

UNIT 7 The Heart

General Outcomes:

7.0 The student should be able to describe the heart and its related functions.

Specific Instructional Outcomes:

Upon successful completion of this unit, the student will be able to

- 7.1 Describe the location of the heart and the pericardial membrane.
- 7.2 Name the chambers of the heart, and explain their functions.
- 7.3 Name the valves of the heart, and explain their functions.
- 7.4 Describe coronary circulation and its purpose.
- 7.5 Describe the cardiac cycle.
- 7.6 Explain how heart sounds are created.
- 7.7 Name the parts of the cardiac conduction pathway.
- 7.8 Explain stroke volume, cardiac output, and Starling's Law of the Heart.
- 7.9 Explain the relationship between the nervous system and heart rate and force of contraction.

UNIT 8 Vascular System

General Outcomes:

8.0 The student should be able to describe the vascular system and its related functions.

Specific Instructional Outcomes:

Upon successful completion of this unit, the student should be able to

- 8.1 Describe the structure of arteries and veins, and their related functions.
- 8.2 Explain the purpose of arterial and venous anastomoses.
- 8.3 Describe the structure of capillaries and the exchange process.
- 8.4 Describe the pathway and purpose of pulmonary circulation.
- 8.5 Name the branches of the aorta and their distributions.
- 8.6 Name the major systemic veins.
- 8.7 Describe the pathway and purpose of hepatic portal circulation.
- 8.8 Describe the modifications of fetal circulation.
- 8.9 Define blood pressure, and state the normal ranges for systemic and pulmonary blood pressure.
- 8.10 Explain the factors that maintain systemic blood pressure.
- 8.11 Explain the role of the heart and kidneys in the regulation of blood pressure.
- 8.12 Explain the role of the medulla and the autonomic nervous system in regulation of blood vessel diameter.

UNIT 9 Lymphatic System

General Outcomes:

9.0 The student should be able to describe the lymphatic system and immunity

Specific Instructional Outcomes:

- 9.1 Describe the functions of the lymphatic system, and how lymph is formed.
- 9.2 Describe the system of lymph vessels and their relationship to the blood.
- 9.3 State the locations and functions of the lymph nodes and nodules.
- 9.4 State the location and functions of the spleen.
- 9.5 Explain the role of the thymus in immunity.
- 9.6 Define immunity, humoral immunity, and cell-mediated immunity.
- 9.7 Describe the responses to exposure of a pathogen.
- 9.8 Differentiate between genetic and acquired immunity.
- 9.9 Differentiate between passive acquired immunity and active acquired immunity.
- 9.10 Explain how vaccines work.

UNIT 10 Respiratory System

General Outcomes:

- 10.0 The student should be able to describe the respiratory system and its related functions.

Specific Instructional Outcomes:

Upon successful completion of this unit, the student will be able to:

- 10.1 State the general function of the respiratory system.
- 10.2 Describe the structure and functions of the larynx, and discuss the speaking mechanism.
- 10.3 Describe the structure and functions of the trachea and bronchial tree.
- 10.4 State the locations of the pleural membranes.
- 10.5 Describe the structure of the alveoli and pulmonary capillaries.
- 10.6 Name and describe the important air pressures involved in breathing.
- 10.7 Describe normal inhalation and exhalation.
- 10.8 Explain the diffusion of gases in external and internal respiration.
- 10.9 Describe how oxygen and carbon dioxide are transported in the blood.
- 10.10 Name the pulmonary volumes and define each.
- 10.11 Explain the nervous and chemical mechanisms that regulate respiration.
- 10.12 Explain how respiration affects the pH of body fluids.

UNIT 11 Digestive System

General Outcomes:

11.0 The student should be able to describe the digestive system and its related functions.

Specific Instructional Outcomes:

Upon successful completion of this unit, the student will be able to

- 11.1 Name the major divisions and functions of the digestive system.
- 11.2 Differentiate between mechanical and chemical digestion.
- 11.3 Describe the structure and functions of the teeth and tongue.
- 11.4 Explain the production and function of saliva.
- 11.5 Describe the location and function of the pharynx and esophagus.
- 11.6 Describe the structure and function of the four layers of the alimentary tube.
- 11.7 Describe the location, structure, and functions of the stomach, liver, gallbladder, pancreas, small, and large intestine.
- 11.8 Describe the location and functions of the large intestine.
- 11.9 Explain the functions of the normal flora of the colon.

UNIT 12 Urinary System

General Outcomes:

12.0 The student should be able to describe the urinary system and its related functions.

Specific Instructional Outcomes:

Upon successful completions of this unit, the student will be able to:

- 12.1 Name the parts of a nephron.
- 12.2 Explain how glomerular filtration, tubular reabsorption, tubular secretion occurs.
- 12.3 Name and state the functions of the hormones that affect the kidneys.
- 12.4 Describe how the kidneys help maintain pH of blood and tissue fluid.
- 12.5 Describe the urination reflex, and explain how voluntary control is possible.
- 12.6 Describe the characteristics of normal urine.

UNIT 13 Reproductive System

General Outcomes:

- 13.0 The student should be able to describe the male and female reproductive systems and their related functions.

Specific Instructional Outcomes:

Upon successful completion of this unit, the student will be able to:

- 13.1 Differentiate between spermatogenesis and oogenesis.
- 13.2 Name the hormones necessary for the functions of the testes.
- 13.3 Explain the functions of the epididymis, ductus deferens, ejaculatory duct and urethra.
- 13.4 Explain the functions of the seminal vesicles, prostate gland, and bulbourethral glands.
- 13.5 Describe the composition of semen.
- 13.6 Name the parts of a sperm cell and their functions.
- 13.7 Describe the functions of the ovaries, fallopian tubes, uterus, and vagina.
- 13.8 Describe the structure and function of the myometrium and endometrium.
- 13.9 Describe the structure of the mammary glands and the functions of the hormones involved in lactation.
- 13.10 Describe the menstrual cycle and the hormones involved.