

This is a SouthArk Master Syllabus. The course syllabus distributed by the instructor may include additional requirements, must be followed by the student in the given term, and is considered to supersede the Master Syllabus.

Course Number

PRNS 1112

Course Title

Body Structure and Function

Course Description

This course is designed for the first semester practical nursing student. It covers basic information necessary for a general understanding of the structure and function of the human body. There are two basic themes throughout the course; the first is the relationship between structure and function and the second is homeostasis – the idea that each organ system is important in sustaining life and what happens when the balance is disturbed.

College Mission

South Arkansas Community College promotes excellence in learning, teaching, and service; provides lifelong educational opportunities; and serves as a cultural, intellectual, and economic resource for the community.

College Wide Student Learner Outcomes

Critical Thinking Responsibility Communication

ACTS Course **Program Course** **Practical Nursing**

ACTS Outcomes

Program Outcomes

1. Collaborate professionally with faculty, clients and their families and/or significant others, supervisors, peers, and with all members of the health care team (Affective).
2. Promote pride, concern and interest in the health and well-being of the community and its citizens (Cognitive, Affective, Psychomotor).
3. Demonstrate proficiency of learned scientific principles and integrate these concepts in the practice of safe, competent care throughout the lifespan of the consumer (Psychomotor, Cognitive, Affective).
4. Practice clear, effective communication skills, both written and non-written (Psychomotor Affective).
5. Create documentation that effectively communicates patient condition and care provided (Psychomotor, Cognitive).
6. Apply use of hardware and software technologies to retrieve, process, and analyze theoretical and practical health care information (Cognitive, Psychomotor).
7. Examine and incorporate the state’s scope of practice guidelines, rules, regulations, and ethical standards in the practice of nursing (Cognitive, Affective).

Course Outcomes

CLO #	Course Outcomes	Unit Outcomes/ Competencies	ACTS	Program Outcomes	Critical Thinking	Communication	Responsibility	Assessment
CLO 1	Demonstrates sound theoretical knowledge of structure and function of the Endocrine system, Blood, Heart, Lymphatic, Immune, Respiratory, Digestive, Urinary Systems, Water, Electrolytes, Reproductive, and Heredity and Development	1-14		3, 4	CT1			Practicum Evaluation Tool 1: 6

CLO 2	Demonstrates beginning knowledge of disease pathophysiology related to body systems	1-14		3, 4, 6	CT1			Practicum Evaluation Tool 1: 6
CLO 3	Demonstrates safe administration of care based on full understanding of anatomy	1-14		1, 3, 4, 5, 6			R2	Practicum Evaluation Tool 1: 1, 2, 4, 6, 8, 9

Unit Outcomes/ Competencies

1. Endocrine System
 - a. List the functions of the endocrine system.
 - b. Discuss the role and function of hormones in the body, including:
 - i. Define hormone.
 - ii. Explain the process by which hormones bind to the receptor sites of specific tissues (targets).
 - iii. Explain the three mechanisms that control the secretion of hormones.
 - c. Discuss the pituitary gland including:
 - i. Describe the relationship of the hypothalamus to the pituitary gland.
 - ii. Describe the location, regulation, and hormones of the pituitary gland.
 - d. Identify the other major endocrine gland and their hormones, and explain the effects of hyposecretion and hypersecretion
2. Blood
 - a. Describe three functions of blood.
 - b. Describe the composition of blood, including:
 - i. Describe the three types of blood cells: erythrocytes, leukocytes, and thrombocytes.
 - ii. Explain the formation of blood cells.
 - c. Explain the composition, characteristics, and functions of red and white blood cells and platelets, including the breakdown of red blood cells and the formation of bilirubin.
 - d. Identify the steps of hemostasis.
 - e. Describe the four blood types.
 - f. Describe the Rh factor.
3. Anatomy of the Heart
 - a. Describe the location of the heart.
 - b. Name the three layers and the covering of the heart.
 - c. Explain the function of the heart as two separate pumps.
 - d. Identify the four chambers and great vessels of the heart.
 - e. Explain the functions of the four heart valves.
 - f. Describe the physiological basis of the heart sounds.
 - g. Describe blood flow through the heart.
 - h. List the vessels that supply blood to the heart.
 - i. Identify the major components of the heart's conduction system.
4. Function of the Heart
 - a. Define cardiac cycle with respect to systole and diastole.
 - b. Describe the autonomic innervation of the heart, including
 - i. Define cardiac output.
 - ii. Describe the effect of Starling's law of the heart on myocardial contraction.
 - iii. Describe the inotropic effect on myocardial contraction.
 - iv. Explain how changes in heart rate and/or stroke volume change cardiac output.
 - c. Define specific clinical vocabulary used to describe cardiac function, including:
 - i. Define preload (end diastolic volume) and explain how it affects cardiac output.
 - ii. Define afterload and identify the major factor that determine afterload.
 - d. Define heart failure and differentiate between right-sided and left-sided heart failure.
5. Anatomy of the Blood Vessels
 - a. Describe the pulmonary and systemic circulations.
 - b. Describe the structure and function of arteries, capillaries, and veins, including
 - i. List the three layers of tissue found in arteries and veins.
 - ii. Explain the functions of conductance, resistance, exchange, and capacitance vessels.

- c. List the major arteries of the systemic circulation that are branches of the ascending aorta, aortic arch, and descending aorta
 - d. Describe the following special circulations; blood supply to the head, brain, hepatic circulation, and fetal circulation.
 - e. Explain pulse and its use as an assessment tool.
6. Functions of the Blood Vessels
- a. List the five functions of the blood vessels.
 - b. Discuss blood pressure, including:
 - i. Describe the measurements of blood pressure.
 - ii. Explain the variance of blood pressure in different blood vessels.
 - iii. Describe the factors that determine blood pressure.
 - iv. Explain the mechanisms involved in regulation of blood pressure, including the Baroreceptor reflex
 - c. Explain how blood vessels act as exchange vessels, including:
 - i. Describe the factors that determine capillary exchange.
 - ii. Describe the mechanisms of edema formation.
 - d. Explain how the blood vessels respond to changing body needs.
 - e. Describe the role of the blood vessels in the regulation of body temperature.
7. 7. Lymphatic System
- a. List three functions of the lymphatic system.
 - b. Describe the composition and flow of lymph.
 - c. Describe the lymph nodes, and state the location of the cervical, axillary, and inguinal nodes.
 - d. Describe the other lymphoid organs: tonsils, thymus gland, and spleen.
8. 8. Immune System
- a. Discuss nonspecific immunity, including:
 - i. Describe the process of phagocytosis.
 - ii. Explain the causes of the signs of inflammation.
 - iii. Explain the role of fever in fighting infection.
 - b. Discuss specific immunity, including:
 - i. Differentiate between specific and nonspecific immunity.
 - ii. Explain the role of T cells in cell-mediated immunity.
 - iii. Explain the role of B cells in antibody-mediated immunity.
 - c. Differentiate between genetic immunity and acquired immunity.
 - d. Describe naturally and artificially acquired active and passive immunity.
 - e. Describe other immune responses, including:
 - i. Identify the steps in the development of anaphylaxis.
 - ii. Define autoimmunity.
 - iii. Explain ways to prevent organ rejection.
9. 9. Respiratory System
- a. Describe the structure and function of the organs of the respiratory system and trace the movement of air from the nostrils to the alveoli.
 - b. Describe why lungs collapse or expand and the role of pulmonary surfactants.
 - c. Discuss the three steps in respiration, including:
 - i. Describe the relationship of Boyle's law to ventilation.
 - ii. Explain how respiratory muscles affect thoracic volume.
 - iii. List three conditions that make the alveoli well-suited for the exchange of oxygen and carbon dioxide.
 - d. List lung volumes and capacities.
 - e. Discuss the voluntary and involuntary control of breathing, including:
 - i. Explain the result of chemical control of breathing.
 - ii. Describe common variations and abnormalities of breathing.
10. 10. Digestive System
- a. Discuss the basic anatomy and physiology of the digestive system, including:
 - i. List four functions of the digestive system.
 - ii. Explain the processes of digestion and absorption.
 - iii. Describe the four layers, nerves, and membranes of the digestive tract.

- b. Describe the structure and functions of the organs and accessory organs of the digestive tract.
 - c. Explain the physiology of digestion and absorption, including:
 - i. Describe the effects of amylases, proteases, and lipases.
 - ii. Describe the role of bile in the digestion of fats.
 - d. Discuss nutrition concepts, including:
 - i. Describe five categories of nutrients.
 - ii. Discuss the importance of a balanced diet.
 - iii. Explain how energy is measured, balanced, and expended in the body.
11. Urinary System
- a. List four organs of excretion.
 - b. Describe the major organs of the urinary system.
 - c. Describe location, structure, blood supply, nerve supply, and functions of the kidney.
 - d. Explain the role of the nephron unit in the formation of urine.
 - e. Explain the three processes involved in the formation of urine: filtration, reabsorption, and secretion.
 - f. Describe the hormonal control of water and electrolytes by the kidneys.
 - g. List the normal constituents of urine.
 - h. Describe the structure and function of the ureters, urinary bladder, and urethra.
12. 12. Water, Electrolyte, and Acid-Base Balance
- a. Describe the two main fluid compartments and the composition of body fluids.
 - b. Define intake and output.
 - c. Explain the effects of water imbalances, fluid shift, and fluid spacing.
 - d. List factors that affect electrolyte balance.
 - e. Describe the most common ions found in the intracellular and extracellular compartments.
 - f. List three mechanisms that regulate pH in the body.
 - g. Discuss acid-base imbalances: acidosis and alkalosis.
13. 13. Reproductive Systems
- a. List and describe the structures and functions of the male reproductive system.
 - b. Describe the hormonal control of male reproduction, including the effects of testosterone.
 - c. List and describe the structures and functions of the female reproductive system.
 - d. Explain the hormonal control of the female reproductive cycle and the two reproductive cycles.
 - e. Describe the various methods of birth control.
14. Human Development and Heredity
- a. Describe the process of fertilization: when, where, and how it occurs.
 - b. Do the following regarding prenatal development:
 - i. Describe the process of development, cleavage, growth, morphogenesis, and differentiation.
 - ii. Explain the three periods of prenatal development: early embryonic, embryonic, and fetal.
 - iii. State two functions of the placenta.
 - c. Explain hormonal changes during pregnancy.
 - d. Describe the hormonal changes and stages of labor.
 - e. Describe the structure of the breast and lactation.
 - f. Describe immediate postnatal changes and lifelong developmental changes.
 - g. Discuss heredity and how genetic structures are related, including:
 - i. Describe the relationships among deoxyribonucleic acid (DNA), chromosomes, and genes.
 - ii. Define karyotype.
 - h. Explain how the gender of the child is determined.
 - i. State the difference between congenital and hereditary disease

Assessment Description(s)

Practicum Evaluation Tool 1

Materials and Technological Requirements

Herlihy, B., & Maebius, N. K. (2011). *The Human Body in Health and Wellness*. 5th edition, St. Louis: Saunders: Elsevier. ISBN 978-4557-7234-6

Herlihy, B., & Maebius, N. K. (2011). *Study Guide for the Human Body in Health and Wellness*. 5th edition, St. Louis: Saunders: Elsevier. ISBN 978-1-4557-7459-3

Class Attendance Policy

Students are expected to attend all classes in which they are enrolled. If a student is absent from a class session, it is the student's responsibility to make arrangements to complete or make up any work missed. No make-up work for missed classes will be allowed without the approval of the instructor. Students who enroll late must assume all responsibility for work missed. Classes not attended as a result of late enrollment may be counted toward excessive absences. Students not attending the entire class period may be counted absent for that period. An instructor may drop students with a grade of "WE" if students have been absent for an excessive number of days. Warning letters will be sent to the students advising them of the consequences of nonattendance and urging them to contact their instructors immediately. Excessive absences are defined as follows:

Regular Semester

Courses which meet once a week	2 absences
Courses that meet twice per week	3 absences
Courses that meet four times per week	5 absences

Summer Session

Courses that meet four times per week in a five week session	3 absences
Courses which meet two evenings per week in a 10 week session	3 absences

Students enrolled in special programs or individualized instruction should contact their program director/instructor regarding specific attendance requirements for the program/course. Some of the selective-admission, health-science programs have specific criteria regarding attendance. Students are encouraged to refer to program policies in these matters.

Jury Duty/Military/Official School Function

Scheduled absences are those that occur due to college-related activities or as a result of summons to jury duty or military duty. Classes missed as a result of scheduled absences will not be counted as excessive absences if the instructor is notified and provided documentation prior to the absence(s). Make-up work for scheduled absences will be at the discretion of the instructor.

In all instances, documentation must be provided to the instructor within 24 hours of receipt. Documentation should come from an appropriate party on letterhead or other official stationery with a signature and contact information. Documentation should list the corresponding dates of the leave.

Medical leave

For medical-related absences, documentation must include written notice from the treating medical professional documenting time needed off related to medical reasons and time student may resume classes. The medical reason does not need to be listed on the documentation; the documentation must include only that there is a medical reason, the amount of time the student needs to be absent, and the time the student should be able to return to classes. Students who elect to work at home while on excused leave must meet with their instructors to make arrangements to do so. Working on coursework while on medical leave is not a requirement but can be requested by students. If students request that they be allowed to work at home while on an excused leave, the instructor will make every reasonable effort to ensure that the student is able to do so.

For students who have a medical condition necessitating time off or accommodation:

- 1) They may work at home on assignments if they choose to if on medical leave approved by a medical professional
- 2) Receive appropriate accommodations related to coursework (i.e., excused from labs with potentially harmful chemicals, have a larger desk, etc.)
- 3) Resume their studies where they left off once they return to classes
- 4) Be allowed to make up any missed work related to medical leave
- 5) Receive incompletes on their transcripts until coursework is completed, according to the incomplete grade contract.
- 6) Be given a reasonable time frame in which to complete missed coursework

Academic Honesty Policy

Students enrolled at South Arkansas Community College are expected at all times to uphold standards of integrity. Students are expected to perform honestly and to work in every way possible to eliminate academic dishonesty. Academic dishonesty includes cheating and plagiarism, which are defined as follows:

- Cheating is an attempt to deceive the instructor in his/her effort to evaluate fairly an academic exercise. Cheating includes copying another student's homework, class work, or required project (in whole or in part) and/or presenting

another's work as the student's own. Cheating also includes giving, receiving, offering, and/or soliciting information on a quiz, test, or examination.

- Plagiarism is the copying of any published work such as books, magazines, audiovisual programs, electronic media, and films or copying the theme or manuscript of another student. It is plagiarism when one uses direct quotations without proper credit or when one uses the ideas of another without giving proper credit. When three or more consecutive words are borrowed, the borrowing should be recognized by the use of quotation marks and proper parenthetical and bibliographic notations.

If, upon investigation, the instructor determines that the student is guilty of cheating or plagiarism, the following penalties will apply:

- The student will receive a penalty of no less than a zero on the work in question.
- The instructor will submit a written report of the incident to the Vice President for Learning
- The Vice President for Learning will determine whether further disciplinary action will be taken.
- All decisions may be appealed for review through the college's Academic Appeals procedure.

Equal Opportunity-Affirmative Action Statement

South Arkansas Community College does not discriminate on the basis of age, race, color, creed, gender, religion, marital status, veteran's status, national origin, disability, or sexual orientation in making decisions regarding employment, student admission, or other functions, operations, or activities.

Library Services

Library Homepage: <http://southark.libguides.com/homepage> Library Contact: LibraryStaff@southark.edu or 870.864.7115

Procedures to Accommodate Students with Disabilities:

If you need reasonable accommodations because of a disability, please report this to the Vice President of Student Services with proper documentation. VPSS Contact: 870.875.7262

The Early Alert System

In an effort to ensure student retention and success, South Arkansas Community College employs an Early Alert System to identify and support at-risk students as soon as possible in a given semester. The intent of Early Alert is to provide this assistance while there is still time to address behaviors or issues that have the potential of preventing students from completing their courses and degree plans. Students referred through the Early Alert System will be required to work on a corrective action plan with their student advising coach and to include attendance accountability and mandatory academic tutoring either in the academic division or in the Testing and Learning Center (TLC).

Once the Student Advising Coach has met with the referred student, and again when the student has met the prescribed corrective actions, the coach will update the Early Alert System so that the instructor is kept informed of the progress in resolving issues.

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