Reese Campus

Course Syllabus

COURSE:	VNSG1420.201 (4:4:0) Anatomy and Physiology for Allied Health (4Credit Hours)
SEMESTER:	Fall 2022
CLASS TIMES:	Tuesday and Thursday 10:00 am – 12:00 pm
LAB TIMES:	Tuesday and Thursday 10:00 am – 12:00 pm
INSTRUCTOR:	Kristie Cole M.Ed, BAS, AAS, CST
OFFICE:	Reese Center, Building 5, Room 527
OFFICE HOURS:	https://calendly.com/kcole-5/srgt-appt
OFFICE PHONE:	806-716-4643
E-MAIL:	kcole@southplainscollege.edu
Facebook:	https://www.facebook.com/SPCSurgicalTechnology

"South Plains College improves each student's life."

GENERAL COURSE INFORMATION

It is the responsibility of each student to be familiar with the content and requirements listed in the course syllabus.

COURSE DESCRIPTION

This course is an introduction to the normal structure and function of the body, including an understanding of the relationship of body systems in maintaining homeostasis.

STUDENT LEARNING OUTCOMES:

Students will be able to:
1. Identify the basic organizational structures of the human body, including body planes, general organization, and terms of reference. F-1, F-2, F-5, F-6, F-10, F-11, F-12, F-13, C-5, C-6, C-7
2. Analyze the basic structure of cells and relate cellular components to integrate to cell function. F-1, F-5, F-7, F-8, F-9, F-12, C-5, C-6, C-7
3. Analyze the types of tissue that make up organs and the characteristics of each. F-1, F-5, F-7, F-8, F-9, F-12, C-5, C-6, C-7
4. Analyze the different body systems for composition and function. . F-1, F-5, F-7, F-8, F-9, F-12, C-5, C-6, C-7
5. Discuss abnormalities, anomalies, and diseases of the different body systems. F-1, F-5, F-6, F-7, F-8, F-9, F-12, C-5, C-6, C-7,

COURSE OBJECTIVES

The Cognitive Domain Objectives:

- Name and describe body planes
- Classify organs under appropriate body systems
- List the major closed cavities of the body and their contents
- Describe the basic structure of cells and related cellular components
- Identify types of tissue that make up body organs and the characteristics of each
- Describe the organs and identify them
- Recognize different phases of cell division
- Outline the functions and composition of the skin
- Describe the layers of skin and the components of each
- List the categories of bones in the body

- Identify the different parts of long bones
- Name the prominent features of the bones, joints, and cartilage
- Discuss the characteristics of the types of muscle
- List, locate, and describe the major anatomic and functional parts of the nervous system
- Define the special senses and the anatomical features of the eye and ear
- Describe blood components and their functions
- Define the anatomic structures and the physiologic functions of the heart
- List the various types of blood vessels, their anatomic differences, and the major arteries and veins
- Describe the components and functions of the lymphatic system and its relationship to the circulatory system
- List and describe the structure, function and regulatory mechanisms of the respiratory system
- Describe the structure and function of the digestive system
- List the structure, function, and regulatory mechanisms of the urinary system
- List and describe the structure and functions of the male and female reproductive systems
- Identify and locate the major endocrine glands and list the major hormones and their functions

The Psychomotor Domain Objectives:

- Locate all major bones
- Locate all major muscles
- Describe the actions of different muscles
- Explain the actions and functions of the different joint types
- Sketch the process of cell division
- Describe the mechanism of muscle contraction
- Explain the difference between the Central and Peripheral Nervous systems
- Locate all major organs
- Explain the primary function of major organs
- Describe the flow of blood through the chambers of the heart
- Differentiate between blood types and Rh factors
- Describe the digestive and elimination processes
- Describe functions of the male and female reproductive systems
- Locate all major arteries, veins, and nerves

The Affective Domain Objectives:

- Discuss the pros and cons of blood transfusions
- Discuss the pros and cons of organ donation
- Discuss how the body maintains homeostasis
- Evaluate the importance of cell movement and responsiveness
- Discuss the techniques of tissue typing and the importance of DNA testing
- Compare and contrast negative and positive feedback
- Discuss organ replacement problems and methods of solving them
- Order and explain the types and stages of wound healing
- Discuss the functions of bones and joints
- Evaluate the factors that are important to the Surgical Technologist's understanding of muscle anatomy and physiology

- Compare and Contrast the functions of the lobes of the brain
- Discuss the anatomy and physiology associated with the senses
- Evaluate clinical signs of myocardial infarction
- Discuss the mechanisms of HIV
- Compare and contrast specific and non-specific immune defenses

EVALUATION METHODS

Computer-based exams, written exams, written assignments, quizzes, and other projects as assigned. Assessment methods for the course are both formative and summative.

Formative assessments include:

- Discussions
- Quizzes *over the chapter instructor has just completed
- Unit exams *comprehensive of information learned in the course so far.
- Classroom activities

Summative assessment will be:

- a comprehensive final exam

ACADEMIC INTEGRITY

It is the aim of the faculty of South Plains College to foster a spirit of complete honesty and a high standard of integrity. The attempt of any student to present as his or her own any work which he or she has not honestly performed is regarded by the faculty and administration as a most serious offense and renders the offender liable to serious consequences, possibly suspension.

Cheating - Dishonesty of any kind on examinations or on written assignments, illegal possession of examinations, the use of unauthorized notes during an examination, obtaining information during an examination from the textbook or from the examination paper of another student, assisting others to cheat, alteration of grade records, illegal entry or unauthorized presence in the office are examples of cheating. Complete honesty is required of the student in the presentation of any and all phases of coursework. This applies to quizzes of whatever length, as well as final examinations, to daily reports and to term papers.

Plagiarism - Offering the work of another as one's own, without proper acknowledgment, is plagiarism; therefore, any student who fails to give credit for quotations or essentially identical expression of material taken from books, encyclopedias, magazines and other reference works, or from themes, reports or other writings of a fellow student, is guilty of plagiarism.

VARIFICATION OF WORKPLACE COMPETENCIES

This course does not contain a Capstone component.

BLACKBOARD

Blackboard is an e-Education platform designed to enable educational innovations everywhere by connecting people and technology. This educational tool will be used in this course throughout the semester.

FACEBOOK

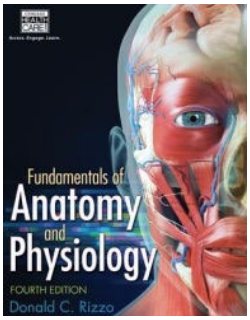
The Surgical Technology Program has a Facebook page at https://www.facebook.com/SPCSurgicalTechnology . In addition to the South Plains College website, this Facebook page will be used to keep students up-to-date on program activities, weather delays, South Plains College announcements and will help with program recruitment. “Liking” the Surgical Technology Facebook page is not mandatory, nor are personal Facebook accounts, to access this page.

SCANS and FOUNDATION SKILLS

Refer also to Course Objectives. Scans and Foundation Skills attached

SPECIFIC COURSE INFORMATION

TEXT AND MATERIALS



Fundamentals of Anatomy and Physiology / Edition 4

by Donald C Rizzo

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MindTap Access:

METHODS OF TEACHING

- Lecture
- PowerPoint Presentation
- Question and Discussion
- Review
- Quizzes
- Examinations

ADDITIONAL CLASSROOM ITEMS

Students should come to class prepared with pens, pencils, and a spiral notebook for taking notes or completed quizzes or assignments in class. Students should be prepared to take notes over lecture material if they choose.

ATTENDANCE POLICY (*READ CAREFULLY)

Class Attendance

Students are expected to attend all classes in order to be successful in a course. The student may be administratively withdrawn from the course when absences become excessive, as defined in the course syllabus.

When an unavoidable reason for class absence arises, such as illness, an official trip authorized by the college or an official activity, the instructor may permit the student to make up work missed. It is the student's responsibility to complete work missed within a reasonable period of time as determined by the instructor. Students are officially enrolled in all courses for which they pay tuition and fees at the time of registration. Should a student, for any reason, delay in reporting to a class after official enrollment, absences will be attributed to the student from the first class meeting.

Students who enroll in a course but have "Never Attended" by the official census date, as reported by the faculty member, will be administratively dropped by the Office of Admissions and Records. A student who does not meet the attendance requirements of a class as stated in the course syllabus and

does not officially withdraw from that course by the official census date of the semester, may be administratively withdrawn from that course and receive a grade of "X" or "F" as determined by the instructor. Instructors are responsible for clearly stating their administrative drop policy in the course syllabus, and it is the student's responsibility to be aware of that policy.

It is the student's responsibility to verify administrative drops for excessive absences through MySPC using his or her student online account. If it is determined that a student is awarded financial aid for a class or classes in which the student never attended or participated, the financial aid award will be adjusted in accordance with the classes in which the student did attend/participate and the student will owe any balance resulting from the adjustment.

(http://catalog.southplainscollege.edu/content.php?catoid=47&navoid=1229#Class_Attendance)

Due to the importance of the emergency medical information being taught, the instructor of this course defines excessive absences as missing the 3rd class day (or having equivalent tardies) in a course section. A student who meets this criteria will be administratively dropped from the course by the instructor.

- Tardies: (Definition): arriving any time after the class has started or not returning from an approved break after class has started.
- Two tardies will be considered missing one class day and counted as such.
- Work schedule is not an excuse for missing class.
- Any exceptions to this policy must be discussed on an individual basis with the course instructor and the SRGT Program Director. (i.e. – student hospitalization, immediate family member death, etc.)

Course Syllabus Statement

The following statement should be included in all course syllabi for face-to-face and hybrid instruction options:
If you are experiencing any of the following symptoms, please do not attend class and either seek medical attention or test for COVID-19.

- Cough, shortness of breath, difficulty breathing
- Fever or chills
- Muscles or body aches
- Vomiting or diarrhea
- New loss of taste and smell

Please also notify DeEtte Edens, BSN, RN, Associate Director of Health & Wellness, at dedens@southplainscollege.edu or 806-716-2376. Proof of a positive test is required. A home test is sufficient but students must submit a photo of the positive result. The date of test must be written on the test result and an ID included in the photo. If tested elsewhere (clinic, pharmacy, etc.), please submit a copy of the doctor's note or email notification. Results may be emailed to DeEtte Edens, BSN, RN at dedens@southplainscollege.edu.

A student is clear to return to class without further assessment from DeEtte Edens, BSN, RN if they have completed the 5-day isolation period, symptoms have improved, and they are without fever for 24 hours without the use of fever-reducing medication.

Students must communicate with DeEtte Edens, BSN, RN prior to their return date if still symptomatic at the end of the 5-day isolation.

ASSIGNMENT POLICY

All assignments must be completed by the assigned due date. Late and/or incomplete work will not be accepted and a grade of zero will be recorded. Assignments, quizzes, exams, and skills that are missed due to an unexcused absence may not be made up. See the instructor for more specific information.

COMPUTER USAGE

As computer technology in the field of health occupations continues to become more popular, computers will be used in this course for several assignments. All students have access to computers and printers on the South Plains College campus. Students will be expected to utilize computers to access assignments and classroom resources. All registered students are supplied with a working email account from South Plains College. In order to take exams, students must have their user name and password.

ALL STUDENTS ARE EXPECTED TO KNOW THEIR SPC STUDENT USER NAME AND PASSWORD.

COMPUTER LAB USAGE

The computer lab(s) on any campus may be used by students during scheduled open hours or as assigned by an instructor. Printer paper will not be provided for students to print materials but students may seek assistance from faculty or staff to request lab paper from the college if needed. Lack of computer lab paper is not an excuse for not having homework assignments, skills lab sheets, or any other required documents. Students should come prepared for class.

EXAMS

The majority of student 'written' exams will be administered via computer to prepare them for the National Registry exam and some exams will be handwritten which will encourage memory and mastery of the material. Students should practice proper spelling and grammar when answering a written exam. Additionally, many exam questions will be constructed in the same manner as national registry questions, allowing students to prepare for that testing format.

GRADING POLICY

A minimum of 75% on all exams and assignments is required to receive a passing grade for that exam or assignment. Students must earn an overall grade of 75% or better for each course section to pass that section.

Grades in this course will be determined using the following criteria:
The course grade will be determined by a combination of major exams, chapter homework, quizzes, and a comprehensive final exam. Exam dates will be announced. The following guidelines will be followed regarding coursework:

1. The student is expected to complete the exam at the scheduled time. Make-up exams will **NOT** be given.
2. Late assignments will not be accepted.
3. The final exam is comprehensive.

(19)Mindtap	–	15%
(6)Exams	–	35%
(6)Quizzes	–	20%
(1)Comprehensive Final Exam	–	30%

Grading Scale:
90 – 100 = A
80 – 89 = B
75 – 79 = C
Below 75 is failing.

A final grade average of C (75) must be maintained in all Surgical Technology classes. You must pass this course to proceed to the next semester. Failure to maintain grades will be a dismissal of the SRGT program

COMMUNICATION POLICY

- Electronic communication between instructor and students in this course will utilize the South Plains College "My SPC" and email systems. I will utilize text messaging and you may communicate with me this way also. The instructor will not initiate communication using private email accounts. Students are encouraged to check SPC email on a regular basis each week of class. Students will also have access to assignments, web-links, handouts, and other vital material which will be delivered via the classroom website. Any student having difficulty accessing the classroom website or their email should immediately contact their instructor for direction. The instructor will work with any student to ensure the student has access to a computer on campus and can obtain the needed class content that is located on the course website.

CAMPUS CARRY

Campus Concealed Carry - Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in South Plains College buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and South Plains College policy, license holders may not carry a concealed handgun in restricted locations. For a list of locations, please refer to the SPC policy at: (http://www.southplainscollege.edu/human_resources/policy_procedure/hhc.php) Pursuant to PC 46.035, the open carrying of handguns is prohibited on all South Plains College campuses. Report violations to the College Police Department at 806-716-2396 or 9-1-1.

PREGNANCY ACCOMMODATIONS STATEMENT

If you are pregnant, or have given birth within six months, Under Title IX you have a right to reasonable accommodations to help continue your education. To activate accommodations you must submit a Title IX pregnancy accommodations request, along with specific medical documentation, to the Director of Health and Wellness. Once approved, notification will be sent to the student and instructors. It is the student's responsibility to work with the instructor to arrange accommodations. Contact Health and Wellness at 806-716-2362

STUDENT CONDUCT

Rules and regulations relating to the students at South Plains College are made with the view of protecting the best interests of the individual, the general welfare of the entire student body and the educational objectives of the college. As in any segment of society, a college community must be guided by standards that are stringent enough to prevent disorder, yet moderate enough to provide an atmosphere conducive to intellectual and personal development.
A high standard of conduct is expected of all students. When a student enrolls at South Plains College, it is assumed that the student accepts the obligations of performance and behavior imposed by the college relevant to its lawful missions, processes and functions. Obedience to the law, respect for properly constituted authority, personal honor, integrity and common sense guide the actions of each member of the college community both in and out of the classroom.
Students are subject to federal, state and local laws, as well as South Plains College rules and regulations. A student is not entitled to greater immunities or privileges before the law than those enjoyed by other citizens. Students are subject to such reasonable disciplinary action as the administration of the college may consider appropriate, including suspension and expulsion in appropriate cases for breach of federal, state or local laws, or college rules and regulations. This principle extends to conduct off-campus which is likely to have adverse effects on the college or on the educational process which identifies the offender as an unfit associate for fellow students.
Any student who fails to perform according to expected standards may be asked to withdraw.
Rules and regulations regarding student conduct appear in the current Student Guide.

Dropping a class

Students should submit a **Student Initiated Drop Form** online**.**

Students will not be required to obtain an instructor signature to drop, however, we do encourage students to communicate with instructors or advisors prior to dropping a course when they are able. **There will be no charge for drops for the fall or spring semesters**.

Withdrawing from all classes

If a student wishes to withdraw from all courses, they should initiate that process with the Advising Office. They can schedule an appointment with an advisor by visiting http://www.southplainscollege.edu/admission-aid/advising/spcadvisors.php or by calling 806-716-2366.

Schedule Change (after late registration and before census date)

To make a schedule change after late registration (August 28) and before the census date (September 9), students should submit a **Schedule Change Form.**

After late registration, adding a class requires instructor approval. If a student is requesting to be added to one of your courses and you approve, please email registrar@southplainscollege.edu with your approval. This can take the place of signature on the Schedule Change Form that we have required in the past.

For additional information regarding schedule changes, drops and withdrawals, click here.

SPECIAL REQUIREMENTS (*Read Carefully)

- Students must present the signature page acknowledging that the student has read and understands the content of syllabus, program and clinical handbook, grievance policy, and appeals process.
- **These signature pages are due by Thursday of the first week of classes.**
- **Cell Phones** – Cell phones are to be turned OFF or silenced during scheduled class periods. **Text messaging is not allowed during scheduled class/lab times.** Cell phones are to be used outside the classroom or lab only on designated breaks. Students are not allowed to have cell phones on their person during exams.

ACCOMMODATIONS

DIVERSITY STATEMENT

In this class, the teacher will establish and support an environment that values and nurtures individual and group differences and encourages engagement and interaction. Understanding and respecting multiple experiences and perspectives will serve to challenge and stimulate all of us to learn about others, about the larger world and about ourselves. By promoting diversity and intellectual exchange, we will not only mirror society as it is, but also model society as it should and can be.

DISABILITIES STATEMENT

Students with disabilities, including but not limited to physical, psychiatric, or learning disabilities, who wish to request accommodations in this class should notify the Disability Services Office early in the semester so that the appropriate arrangements may be made. In accordance with federal law, a student requesting accommodations must provide acceptable documentation of his/her disability to the Disability Services Office. For more information, call or visit the Disability Services Office at Levelland Student Health & Wellness Center 806-716-2577, Reese Center (also covers ATC) Building 8: 806-716-4675, Plainview Center Main Office: 806-716-4302 or 806-296-9611, or the Health and Wellness main number at 806-716-2529.

4.1.1.3 Non-Discrimination Statement

South Plains College does not discriminate on the basis of race, color, national origin, sex, disability or age in its programs and activities. The following person has been designated to handle inquiries regarding the non-discrimination policies: Vice President for Student Affairs, South Plains College, 1401 College Avenue, Box 5, Levelland, TX 79336. Phone number 806-716-2360.

4.1.1.4 Title IX Pregnancy Accommodations Statement

If you are pregnant, or have given birth within six months, Under Title IX you have a right to reasonable accommodations to help continue your education. To activate accommodations you must submit a Title IX pregnancy accommodations request, along with specific medical documentation, to the Director of Health and Wellness. Once approved, notification will be sent to the student and instructors. It is the student's responsibility to work with the instructor to arrange accommodations. Contact the Director of Health and Wellness at 806-716-2362 or email cgilster@southplainscollege.edu for assistance.

4.1.1.5 - Campus Concealed Carry Statement

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Pursuant to PC 46.035, the open carrying of handguns is prohibited on all South Plains College campuses. Report violations to the College Police Department at 806-716-2396 or 9-1-1.

FOUNDATION SKILLS

C-1 **TIME** - Selects goal - relevant activities, ranks them, allocates time, prepares and follows schedules.
C-2 **MONEY** - Uses or prepares budgets, makes forecasts, keeps records and makes adjustments to meet objectives.
C-3 **MATERIALS AND FACILITIES** - Acquires, stores, allocates, and uses materials or space efficiently.
C-4 **HUMAN RESOURCES** - Assesses skills and distributes work accordingly, evaluates performances and provides feedback.

INFORMATION - Acquires and Uses Information
C-5 Acquires and evaluates information.
C-6 Organizes and maintains information.
C-7 Interprets and communicates information.
C-8 Uses computers to process information.

INTERPERSONAL–Works With Others
C-9 Participates as members of a team and contributes to group effort.
C-10 Teaches others new skills.
C-11 Serves Clients/Customers–works to satisfy customer's expectations.
C-12 Exercises Leadership–communicates ideas to justify position, persuades and convinces others, responsibly challenges existing procedures and policies.
C-13 Negotiates-works toward agreements involving exchanges of resources; resolves divergent interests.
C-14 Works With Diversity–works well with men and women from diverse backgrounds.

SYSTEMS–Understands Complex Interrelationships

C-15 Understands Systems–knows how social, organizational, and technological systems work and operates effectively with them.
C-16 Monitors and Corrects Performance–distinguishes trends, predicts impacts on system operations, diagnoses systems performance and corrects malfunctions.
C-17 Improves or Designs Systems–suggests modifications to existing systems and develops new or alternative systems to improve performance.

TECHNOLOGY–Works with a Variety of Technologies
C-18 Selects Technology–chooses procedures, tools, or equipment, including computers and related technologies.
C-19 Applies Technology to Task–understands overall intent and proper procedures for setup and operation of equipment.
C-20 Maintains and Troubleshoots Equipment–prevents, identifies, or solves problems with equipment, including computers and other technologies.

COURSE OUTLINE

Course Outline is subject to change by the instructor.

Lecture Topics

- Anatomical Organization
- Cells and Tissues
- The Integumentary System
- The Muscular System
- The Skeletal System
- Blood
- The Lymphatic System
- The Cardiovascular System
- The Respiratory System
- The Digestive System
- The Nervous System
- The Senses
- The Urinary System
- The Endocrine System
- The Reproductive System

WEEK 1 Tuesday 8/30 Thursday: 9/1 Online Work DUE: Sunday 9/4: 11:59 pm	**Introduction and signing of syllabus forms** **Chapter 1: The Human Body** 1. Introduction: Explain how the body is organized from cells to tissues to organs to systems. 2. Terms of direction: Define and illustrate the terms of direction with examples. Use a smart board. 3. Planes: Discuss the anatomic planes of reference and their applications; use a smart board. 4. Cavities: Discuss the dorsal and ventral cavities of the body and their subdivisions; discuss the major organs they contain.

	5. Structural units: Explain the nature of a cell and how cells form the four tissues of the body (epithelial, connective, muscle, nervous); discuss how tissues form organs (use examples); discuss the systems of the body and their major organs and explain the function of each system (use transparencies to illustrate). 6. Homeostasis: Discuss the significance of homeostasis and what it means to the maintenance of a healthy body. Chapter 2: The Chemistry of Life 1.Introduction: Introduce the significance of chemistry as the basis for cellular structure, because the cell is made up of various chemicals that combine to form molecules and structures. 2.Atomic structure: Discuss the nature and structure of atoms (use chemical models or transparencies). 3.Elements, isotopes, compounds: Define and give examples. 4.Bonds and energy: Explain ionic and covalent bonds; show how breaking bonds release energy to make ATP. 5.Common substances in living systems: Discuss the chemical nature of the following substances and give examples of their roles in the human body. 6.Water, e.g., lubricant, medium for transportation and chemical reactions 6.1.Carbon dioxide, e.g., part of the waste products of cellular respiration, the source of carbon for organic molecules 6.2.Molecular oxygen, e.g., needed for cellular respiration to occur 6.3.Ammonia, e.g., waste product of protein breakdown converted to urea by the liver, source of nitrogen 6.4.Mineral salts, e.g., calcium needed for bones, muscle contraction 6.5.Carbohydrates, e.g., sugars, starch, glycogen 6.6.Lipids, e.g., needed for insulation, source of energy 6.7.Proteins, e.g., enzymes, part of the structure of membranes, actin, and myosin of muscle cells 6.8.Nucleic acids, e.g., genetic material of cells 6.9.Adenosine triphosphate, e.g., chemical energy that fuels cells 7.Movement of materials into and out of cells: Use a video or CD-ROM to introduce this topic. 7.1.Diffusion: Define and give examples. 7.2.Osmosis: Define and give examples. 8.pH: Discuss what pH is and its significance to the maintenance of a healthy body. DUE SUNDAY @ 11:59 pm: MINDTAP
WEEK 2 Tuesday 9/6 Thursday: 9/8 Online Work DUE: Sunday 9/11: 11:59 pm	TUESDAY Quiz Chapter 1 and 2 **Chapter 3 Cell Structure** 1. Introduction: Discuss the significance of the cell as the basic unit of all biological organization; structures in the cell are called organelles. 2. History of the cell theory: Discuss the contributions of Robert Hooke, Anton Von Leeuvenhoek, Matthias Schleiden, and Theodor Schwann. Discuss the principles of the modern cell theory. 3. Anatomy of a typical cell: Use a smart board to illustrate and discuss cell anatomy and function. 3.1. The cell membrane: Fluid mosaic pattern of proteins and phospholipids

3.2. Cytoplasm of the cell: Chemical nature of colloidally suspended organic molecules, dissolved inorganic molecules, and mineral salts
3.3. The nucleus: Discuss significance, structure, and function
3.3.1. Nuclear membrane: Double membrane with pores, and outer membrane connects to endoplasmic reticulum
3.3.2. Nucleoplasm: Colloidal suspension of DNA, RNA, and chemicals
3.3.3. Chromatin: Genetic material of the nucleus
3.3.4. Nucleolus: Site of ribosome synthesis
3.4. The mitochondria: Powerhouses of the cell; produce ATP
3.5. Lysosomes: Involved in repair and maintenance, autolysis, and breakdown of stored food
3.6. Endoplasmic reticulum: System of channels in the cytoplasm
3.6.1. The rough or granular ER: Involved in protein synthesis
3.6.2. The agranular or smooth ER: Transports fats, sex hormone synthesis
3.6.3. The Golgi apparatus: Storage area for cellular products
3.7. Ribosomes: Site of protein synthesis
3.7.1. Protein synthesis: Discuss transcription and the role of mRNA, translation and the role of tRNA, role of the ribosomes
3.8. Centrioles: Form spindle fibers during cell division
3.9. Cilia and flagella: Movement of material across cell surfaces or movement of a cell (sperm)
3.10. Plastids of plant cells: Leucoplasts, store sugar or starch; chloroplasts, site of photosynthesis, have chlorophyll (discuss the significance of plants in converting sun energy into usable chemical energy like sugars); chromoplasts, contain other pigments

Chapter 4 Cellular Metabolism and Reproduction: Mitosis and Meiosis

1. Introduction to cellular metabolism: Discuss the significance of chemical reactions to the maintenance of cellular structure and function and that these reactions require a source of energy, which is ATP.
2. Cellular metabolism or biochemical respiration: Use the diagrams in the text to explain how this process converts the food we eat into ATP molecules and that it involves three steps: glycolysis, the citric acid cycle, and electron transport.
   2.1. Glycolysis: Explain that this occurs in the cytoplasm, and show the steps that convert a glucose molecule into two pyruvic acid molecules but produce only two ATP molecules.
   2.2. The Krebs citric acid cycle: Explain that this occurs on the cristae of the mitochondria and show the steps that convert acetic acid into CO_2, H_2O, and 30 ATP.
   2.3. The electron transport (transfer) system: Explain how this step is an essential part of the citric acid cycle and how the energy of H atoms is converted to ATP.
   2.4. Summary of ATP production during glycolysis, the citric acid cycle, and electron transport: Compare the ATP production in each step and summarize the total number of ATP molecules produced.
3. Anaerobic respiration: Explain how this inefficient process occurs in the absence of oxygen. There are two examples.
   3.1. Fermentation: Explain how yeast cells convert glucose to ethyl alcohol and two ATP and the economic significance to humans.

	3.2. Anaerobic production of ATP by muscles: Explain how overworked muscles that cannot get enough oxygen convert glucose to lactic acid and only two ATP, causing pain and fatigue. 4. Production of ATP from general food compounds: Explain how other foods we eat fit into the metabolic cycle. 5. Introduction to cellular reproduction: Explain how this is the process by which a cell duplicates itself and its genetic material (mitosis), and that it is also how sex cells are formed with reduced genetic material (meiosis). 6. The structure of the DNA molecule: Use a smart board or model to explain its structure as a double helical chain of nucleotides. 6.1. The history of the discovery of DNA: Discuss the contributions of James Watson, Francis Crick, and Rosalind Franklin. 6.2. The anatomy of the DNA molecule: Define a nucleotide; explain what it is and how the four nitrogen bases pair up via hydrogen bonds; use a model or smart board to explain its anatomy. 7. The cell cycle: Discuss the following with the aid of a smart board. 7.1. Interphase: Explain what occurs in G_1, S, and the G_2 stages of interphase. 7.2. Mitosis: Explain that this occurs only in the nucleus. 7.3. Prophase: Explain that as this occurs, the nuclear membrane and nucleolus disappear and the chromatin thickens. 7.4. Metaphase: Explain how the chromosomes line up at the equator. 7.5. Anaphase: Explain how the double chromosomes split at their centromere and move to the opposite poles. 7.6. Telophase: Explain how the two new daughter cells are formed. 7.7. Cytokinesis: Explain that this occurs in the cytoplasm and the organelles are now duplicated. 8. Meiosis—a reduction division: Explain that this occurs only in the ovary of a female and in the seminiferous tubules of a testis of a male. 8.1. The stages of meiosis: Explain with the aid of a diagram or smart board what occurs in the following stages of meiosis: 8.1.1.Prophase I 8.1.2.Metaphase I 8.1.3.Anaphase I 8.1.4.Telophase I 8.1.5.Prophase II 8.1.6.Metaphase II 8.1.7.Anaphase II 8.1.8.Telophase II 9. Gametogenesis—the formation of the sex cells: Discuss how four sperm cells form and how only one egg cell results from meiosis. Use a smart board of gametogenesis. 10. A comparison of mitosis and meiosis: Discuss the differences and similarities of the two divisions, using a chart or diagram. 11. Show a video on mitosis and meiosis as a concluding summation, if possible. DUE SUNDAY @ 11:59 pm: MINDTAP
WEEK 3 Tuesday 9/13 Thursday: 9/15 Online Work DUE:	TUESDAY EXAM – CHAPTER 1-4 **Chapter 5 Tissues** 1. Introduction: Introduce tissue as groups of cells with a similar structure and function. Explain that tissues are classified based on how these cells are

Sunday 9/18: 11:59 pm	arranged and by what kind and how much interstitial material separates them. 2. Epithelial tissue: Explain how this tissue protects, absorbs, secretes, and excretes. Use visual aids. 2.1. Classification based on shape: Discuss squamous, cuboidal, and columnar, and give examples. 2.2. Classification based on arrangement: Discuss simple, stratified, pseudostratified, and transitional, and give examples. 2.3. Classification based on function: Discuss mucous membranes, exocrine and endocrine glands, endothelium, and mesothelium, with examples. 3. Connective tissue: Explain how this tissue provides support and allows movement and that it contains fibers of elastin and collagen. 3.1. Loose connective tissue: Discuss areolar, adipose, and reticular tissue and the cells they contain. 3.2. Dense connective tissue: Discuss the nature of tendons, ligaments, aponeuroses, muscle sheaths, capsules, and fascia. 3.3. Specialized connective tissue: Discuss the types of cartilage, bone, dentin, blood, lymphoid tissue, and the reticuloendothelial system. 3.4. Connective tissue functions: Summarize the many and varied functions with examples as support, nourishment, transportation, connection, movement, protection, insulation, storage, attachment, and separation. 4. Muscle tissue: Discuss the anatomy of skeletal, smooth, and cardiac muscles and their functions and locations. 5. Nervous tissue: Discuss the anatomy and function of transmitting neurons and the protection and support of neuroglia. Show a video or slides of all the types of tissues as a conclusion. **Chapter 6 Integumentary System** 6. Introduction: Introduce the system as being made up of the skin, hair, nails, and sweat and sebaceous glands. It protects and insulates us and participates in temperature regulation. 7. The layers of the skin: Discuss the significance of the epidermis and dermis. 7.1. Epidermis: Introduce the five layers; use a visual aid such as a smart board. 7.1.1. The stratum corneum: Leathery layer made of dead cells; it is a barrier against microorganisms; it protects us from harmful chemical and physical agents. 7.1.2. The stratum lucidum: Clear layer made of flat transparent cells. 7.1.3. The stratum granulosum: Layer active in keratinization. 7.1.4. The stratum spinosum: Polyhedron-shaped cells; contains desmosomes. 7.1.5. The stratum germinativum or basale: Most important layer; cells divide by mitosis; contains melanocytes. Discuss skin color and the production of melanin, based on genetics. 7.2. Dermis: Describe this “true skin” layer that consists of connective tissue, blood vessels, nerves, lymph vessels, smooth muscle, hair follicles, and sweat and sebaceous glands. 8. The accessory structures of the skin: Introduce hair, nails, and sweat and sebaceous glands. 8.1. Hair: Discuss the anatomy of hair and the layers of cells that make up a hair. Use a visual aid such as a smart board.

	8.2. Hair growth: Explain how hair grows from the deepest layers in the hair follicle. 8.3. Hair texture: Discuss straight, curly, tightly curly, and the genetic factors involved. Discuss the chemistry of the keratin of the cortex. 8.4. Hair color: Explain genetic factors and what causes white and gray hair. 8.5. Nails: Discuss the anatomy of nails. Use a visual aid such as a smart board. 8.6. Sebaceous glands: Explain the anatomy and function of sebaceous glands for lubrication and the cosmetic gloss for the skin and hair. 8.7. Sweat glands: Discuss the anatomy and significance of sweating for body temperature control. Discuss the constituents of sweat. 8.8. Discuss some of the diseases/disorders of the integumentary system that students may have experienced. 9. The functions of the integumentary system: Summarize. 9.1. Sensation: Discuss the receptor sites for changes in temperature and pressure. 9.2. Protection: Discuss it as a barrier to physical and chemical agents; explain how melanin protects us from the harmful rays of the sun; discuss how the acid mantle destroys microorganisms. 9.3. Thermoregulation: Discuss how dilation and constriction of blood vessels, as well as sweating, help control body temperature. 9.4. Secretion: Discuss the role of sebum in antifungal and antibacterial functions; explain how the skin produces vitamin D via exposure to sunlight. Choose and discuss some of the problems with the system such as skin cancer, acne, cold sores, warts, etc. DUE SUNDAY @ 11:59 pm: MINDTAP
WEEK 4 Tuesday 9/20 Thursday: 9/22 Online Work DUE: Sunday 9/25: 11:59 pm	THURSDAY QUIZ CHAPTER 5-6 **Chapter 7 Skeletal System** 1. Introduction: Introduce the system as the supporting structure of the body that provides levers for muscles to pull on, resulting in movement. 2. The functions of the skeletal system: Discuss the five general functions of the system—support, protection, movement, blood cell production, and storage. 3. The growth and formation of bone: Discuss ossification, bone maturation and remodeling, the protein matrix of bone, and the mineral salts in that matrix. 3.1. Deposition of bone: Use a visual aid showing structures of osteoblasts and osteocytes; discuss the role of osteoclasts in remodeling. 3.2. Types of ossification: Explain endochondral and intramembranous ossification, with examples. 3.3. Maintaining bone: Discuss the significance of parathormone and calcitonin in maintaining levels of calcium in the blood. 4. The histology of bone: Use a smart board. 4.1. The Haversian system of compact bone: Explain an osteon, lamella, lacuna, canaliculi, and perforating canals. 4.2. Cancellous bone: Compare to compact bone; discuss different functions. 4.3. Bone marrow: Compare functions of red and yellow bone marrow. 4.4. Summary: Summarize the nature of the anatomy of compact bone.

	5. The classification of bones based on shape: Use bones (either real or plastic reproductions) and define the following. 5.1. Long bones, e.g., humerus and tibia 5.2. Short bones, e.g., carpals and tarsals 5.3. Flat bones, e.g., scapula, pelvis 5.4. Irregular bones, e.g., vertebrae 5.5. Sesamoid bones, e.g., patella 6. Bone markings: Use bones or a smart board to illustrate examples. 6.1. Processes: Spine, condyle, tubercle, trochlea, trochanter, crest, line, head, neck 6.2. Fossae: Suture, foramen, meatus, sinus, sulcus 7. Divisions of the skeleton: Have an articulated skeletal model to illustrate the parts and divisions of a human skeleton. 8. The axial skeleton: Illustrate all parts, use a skull to show cranial and facial bones. 8.1. The cranial bones: Frontal, parietal, occipital, temporal, sphenoid, ethmoid, auditory ossicles, wormian 8.2. The facial bones: Nasal, palatine, maxillary, zygomatic, lacrimal, turbinates, vomer, mandible 8.3. The orbits: Use a smart board to illustrate the bones that contribute to the formation of the eye sockets. 8.4. The nasal cavities: Use a smart board to illustrate those bones that make up the nasal cavities. 8.5. The hyoid bone: Use an example to illustrate the body and the greater and lesser cornu. Discuss its function as a support for the tongue. 8.6. How to study the bones of the skull: Teach students how to use the color plates from the text first then have them go to a real or a model of a skull. 8.6.1.1. The torso or trunk: Discuss sternum, ribs, and all five types of vertebrae. 8.6.1.2. The thorax: Illustrate what bones make up this “rib cage” of the body. 8.6.1.3. The sternum: Illustrate the three parts: manubrium, gladiolus, and xiphoid. 8.6.1.4. The ribs: Explain what is meant by the terms the *seven true* and *five false ribs*. 8.6.1.5. Illustrate the two floating ribs and explain why they are referred to in that way. 9. The appendicular skeleton: Use the same articulated skeletal model. 9.1. The bones of the upper extremities: Show the clavicle, scapula, humerus, radius, and ulna; name the various carpals, metacarpals, and phalanges. 9.2. The bones of the lower extremities: Illustrate the three bones that make up a pelvic bone; show the femur, tibia, and fibula; name the tarsals, metatarsals, and phalanges. 10. The arches of the foot: Use a smart board or foot model to illustrate the bones of the medial and lateral longitudinal arches and the bones of the transverse arch. 11. Discuss some of the diseases or disorders of the skeletal system like osteoporosis, herniated disk, etc.
WEEK 5	THURSDAY EXAM CHAPTER 1-8

Tuesday 9/27 Thursday: 9/29 Online Work DUE: Sunday 10/2: 11:59 pm	**Chapter 8 Articular System** 1. Introduction: Introduce the fact that articulation is a place of union between two or more bones regardless of the degree of movement, hence the name of the system (articular). 2. The classification of joints—structure and function: Explain how joints can be classified based on the degree of movement they allow (function) and the type of material that holds the bones together (structure). 2.1. Synarthroses: Discuss suture and syndesmosis, with examples. 2.2. Amphiarthroses: Discuss symphysis and synchondrosis, with examples. 2.3. Diarthroses or synovial joints: Define and explain the anatomy of diarthroses joints and their capsular structure. Use a model for demonstration of a synovial joint. 3. Movements at synovial joints: Define flexion and extension, hyperextension, dorsiflexion, and plantar flexion of the foot, abduction and adduction, rotation, circumduction, supination, and pronation of the hand, eversion and inversion, protraction, retraction, elevation, depression, opposition, and reposition. Have students do these movements. 4. The six types of diarthroses or synovial joints: Use a smart board to illustrate and define with examples—ball and socket, hinge, pivot, condyloid, saddle, and gliding joints. 5. Bursae: Define and explain subcutaneous, subfascial, and subtendinous bursae. 6. Choose and discuss some of the problems that can occur with the system such as arthritis, bursitis, gout, rheumatic fever, etc. DUE SUNDAY @ 11:59 pm: MINDTAP
WEEK 6 Tuesday 10/4 Thursday: 10/6 Online Work DUE: Sunday 10/09: 11:59 pm	**Chapter 9 The Muscular System** 1. Introduction: Introduce that muscles not only allow one to move in the environment but that they contain blood in arteries and veins, push food through the digestive tract, transport urine down the ureters to the bladder, allowing the eyes to move, help us to breathe, and pump blood through the circulatory system. 2. The types of muscles: Introduce the general anatomy of skeletal, smooth, and cardiac muscle. 3. The anatomy of skeletal or striated muscle: Use a smart board to illustrate the microscopic anatomy. Explain sarcolemma, fasciculi, endomysium, perimysium, epimysium, fascia, A bands, I bands, Z line, H band, sarcomere, T system, sarcoplasmic reticulum. 4. The physiology of muscle contraction: Use a video or CD-ROM to illustrate muscle contraction. Discuss the following three stages. 4.1. Neuroelectrical factors: Explain the ionic and electrical charge around and in a muscle cell. Define *resting* and *action potential*. Explain the role of acetylcholine, troponin, and tropomyosin. 4.2. Chemical interactions: Explain the role of calcium ions and their effect on actin and myosin. Explain cross-bridges and ATP function. 4.3. Energy sources: Explain the role of glycolysis, the citric acid cycle, electron transport, phosphocreatine, and free fatty acids as sources of ATP. 5. The muscle twitch: Use a smart board or diagram to illustrate. 6. Muscle tone: Define *tone*. Explain the two types of contraction—isotonic and isometric.

	7. The anatomy of smooth muscle: Use a smart board and explain the microscopic anatomy of smooth muscle and its function in the body. 8. The anatomy of cardiac muscle: Use a smart board and explain the microscopic anatomy of cardiac muscle and its contraction rate per minute. 9. The naming and actions of skeletal muscles: Mention that muscles can be named according to action, location, origin and insertion, number of divisions, or directions of fibers, with examples. Review the actions of muscles at synovial joints. 10. The function and location of selected skeletal muscles: Use transparencies, CD-ROM, or 35 mm slides to illustrate some of the major muscles from the following areas of the body: muscles of facial expression, muscles of mastication, muscles moving the eye, muscles moving the head, muscles moving the shoulder girdle, muscles moving the humerus, muscles moving the elbow, muscles moving the wrist, muscles moving the hand, muscles moving the thumb, muscles moving the fingers, muscles of the abdominal wall, muscles of respiration or breathing, muscles moving the femur, muscles moving the knee joint, muscles moving the foot, and muscles moving the toes. 11. Choose and discuss some of the problems that can occur in the system, such as cramps, contractures, atrophy, muscular dystrophy, myasthenia gravis, etc**.** DUE SUNDAY @ 11:59 pm: MINDTAP
WEEK 7 Tuesday 10/11 Thursday: 10/13 Online Work DUE: Sunday 10/16: 11:59 pm	TUESDAY QUIZ: CHAPTER 9 **Chapter 10 The Nervous System: Introduction, Spinal Cord, and Spinal Nerves** 1. Introduction: Introduce this system as the control center and communication network of the body. Discuss how it allows us to interpret and react to changes in our external and internal environment. 2. Organization: Discuss the parts of the central nervous system, the peripheral nervous system, and its major subcategories, the afferent and efferent systems. Introduce the autonomic nervous system as a subcategory of the efferent system. 3. Classification of nerve cells: Discuss the two types of functions—neurons that transmit impulses and neuroglia that support and protect the neurons. 3.1.1.1.1. Neuroglial cells: Use a smart board. Illustrate and discuss the structure and function of astrocytes, oligodendrocytes, microglial cells, ependymal and Schwann cells. 3.1.1.1.2. The structure of a neuron: Explain the various parts of a neuron—dendrites, axon, and axon terminals. 3.1.1.1.3. Structural classification of neurons: Compare multipolar, bipolar, and unipolar neurons. 3.1.1.1.4. Functional classification of neurons: Discuss and compare the functions of sensory or afferent, motor or efferent, and internuncial or association neurons. 4. The physiology of the nerve impulse: Explain resting potential, action potential, depolarization, repolarization, unmyelinated versus myelinated fibers, and the all-or-none law.

5. The synaptic transmission: Discuss how neurotransmitters function in transmitting the impulse across a synapse. Define a synapse and where they are located.
6. The reflex arc: Use a smart board to illustrate the knee-jerk reflex arc and explain, use student volunteers.
7. Grouping of neural tissue: Define white matter, gray matter, nerve, ganglia, tract, nucleus, and horns.
8. The spinal cord: Use a smart board to illustrate the anatomy of the spinal cord. Discuss the spinal meninges and their layers and spaces. Explain how a spinal tap is done and for what purposes.
    8.1. Functions of the spinal cord: Discuss its role in bringing in sensory impulses via the posterior or dorsal root to be interpreted and then acted on via the motor or anterior or ventral root.
9. The spinal nerves: Explain the naming of the 31 pairs of spinal nerves.
10. Discuss some of the diseases or disorders of the spinal cord or spinal nerves such as spinal meningitis or spina bifida.

Chapter 11 The Nervous System: The Brain, Cranial Nerves, Autonomic Nervous System, and the Special Senses

1. The principal parts of the brain: Use a smart board to illustrate the brainstem and its parts—medulla oblongata, pons, midbrain; the diencephalon and its parts—thalamus and hypothalamus; the cerebrum; and the cerebellum. Discuss the ventricles and their connections with each other and the spinal cord.
2. The anatomy and function of the brainstem: Discuss decussation of pyramids in the medulla and its role in consciousness and heartbeat rate, breathing, and blood flow; discuss the pons and breathing; discuss the midbrain's role in visual and auditory responses.
3. The anatomy and function of the diencephalon: Discuss the role of the thalamus in recognition of pain and temperature and response to odor; discuss the many roles of the hypothalamus related to homeostasis, food and water intake, body temperature, etc.
4. The cerebrum—structure, and function: Discuss its anatomy, the lobes and their function. Discuss the significance of emotions and intellect and the cerebrum.
5. The cerebellum—structure, and function: Discuss its role in coordinating skeletal muscle movements, body posture, and balance.
6. The autonomic nervous system: Discuss how it controls the internal organs via glands and smooth and cardiac muscle. Explain how it maintains the heartbeat rate, breathing, and blood flow. Discuss the roles of the sympathetic and parasympathetic divisions.
7. The 12 cranial nerves and their functions: List the 12 cranial nerves by function and roman numerals. Indicate which are sensory only and which are mixed (both sensory and motor).
8. The special senses: Introduce the five special senses.
    8.1. The sense of smell: Use a smart board of the nose. Explain the anatomy and physiology of the sense of smell.
    8.2. The sense of taste: Use a smart board of a tongue showing taste bud distribution. Explain the four major types of taste sensations; explain the anatomy of a taste bud.
    8.3. The sense of sight: Explain how this is one of our most important senses. Discuss how the eyes are protected.

	8.3.1. The anatomy of the eye: Use a smart board of the anatomy of an eye or a model of the eye. Discuss the layers of the wall of the eye, the ciliary body, lens, iris, pupil, fluids, and the physiology of light interpretation. 8.4. The sense of hearing and equilibrium: Use a smart board of the inner and outer ear. Explain the anatomy of the inner ear and how this relates to the functions of hearing and balance. 9. Choose and discuss some of the problems that can occur in the system, such as meningitis, encephalitis, Parkinson's disease, epilepsy, otitis media, glaucoma, motion sickness, conjunctivitis, myopia, hyperopia, Alzheimer's disease, presbyopia, stroke, and color blindness. DUE SUNDAY @ 11:59 pm: MINDTAP
WEEK 8 Tuesday 10/18 Thursday: 10/20 Online Work DUE: Sunday 10/23: 11:59 pm	TUESDAY EXAM 1-11 **Chapter 12 Endocrine System** 1. Introduction: Introduce the system as the one that exerts chemical (hormonal) control over the body in conjunction with the nervous system to maintain homeostasis. Discuss how the endocrine glands are ductless glands that secrete their hormones directly into the bloodstream. 2. The functions of hormones: Explain how they control cellular respiration, growth, and development. Explain how they control fluid levels and electrolyte balances, behavior, reproductive cycles, the secretion of other hormones, and our growth cycles. 3. The classification of hormones: Discuss negative feedback and hormone control. Discuss the three chemical categories with examples: modified amino acids, protein hormones, and the steroid hormones. 4. The hypothalamus of the brain: Use a smart board to illustrate how the hypothalamus controls the pituitary gland via neural and chemical signals. Discuss releasing hormones and releasing inhibitory hormones. 5. The major endocrine glands and their hormones: Use a smart board to illustrate the location of the endocrine glands. Show a video on the system and the effects of hormones on the body. 6. The anterior pituitary gland, its hormones, and some disorders: Discuss its anatomy. List and give the functions of growth hormone, thyroid-stimulating hormone, adrenocorticotropic hormone, melanocyte-stimulating hormone, follicle-stimulating hormone, luteinizing hormone, and prolactin. Discuss what causes a pituitary dwarf and a giant. 7. The posterior pituitary gland and its hormones: List and give the functions of antidiuretic hormone, or vasopressin, and oxytocin. 8. The thyroid gland, its hormones, and some disorders: Discuss its anatomy and discuss T_4 and T_3. Discuss the effects of hypothyroidism, hyperthyroidism, and Graves' disease and cretinism. Also, cover calcitonin and its effects. 9. The parathyroid glands, their hormone, and some disorders: Discuss their anatomy and the effect that parathormone has on raising blood calcium levels. Explain hypoparathyroidism and hyperparathyroidism. 10. The adrenal glands, their hormones, and some disorders: Explain their anatomy—the cortex and medulla. Explain the effects of epinephrine, norepinephrine, aldosterone, cortisol, and the androgens. Discuss Addison's disease and Cushing's syndrome.

	11. The pancreas, its hormones, and some disorders: Review the anatomy of the pancreas (use a smart board). Discuss the alpha and beta cells and glucagon and insulin. Discuss diabetes and acidosis. 12. The testes and the ovaries: Discuss their general anatomy and location. Discuss the effects of testosterone, estrogen, and progesterone. 13. The thymus gland and its hormone: Discuss its anatomy and the effects of thymosin and the T cells. 14. The pineal gland and its hormone: Discuss its anatomy and location. Discuss the effects of melatonin on body rhythms; also cover serotonin and its effects. 14.1.1. 6. Choose and discuss in more detail some of the problems that can occur in the system, such as diabetes mellitus, cretinism, Graves' disease, Addison's disease, Cushing's syndrome, etc. DUE SUNDAY @ 11:59 pm: MINDTAP
WEEK 9 Tuesday 10/25 Thursday: 10/27 Online Work DUE: Sunday 10/30: 11:59 pm	TUESDAY QUIZ CHAPTER 12 **Chapter 13 The Blood** 1. Introduction: Introduce the uniqueness of blood—a fluid tissue made up of a fluid portion (plasma) and the formed elements, the red and white blood cells, and platelets. Explain that plasma makes up 55% of the blood and the formed element account for 45%. 2. Functions of the blood: Discuss transportation of oxygen and carbon dioxide gas, nutrients, ions, water, and hormones. Explain how blood regulates body pH, body temperature, and the water of cells. Discuss its role in clotting and protection against microorganisms and toxins. 3. The classification of blood cells and the composition of plasma: Use a smart board and classify blood cells into (1) erythrocytes; (2) leukocytes—granular, e.g., neutrophils, eosinophils, basophils; agranular, e.g., monocytes, lymphocytes; (3) thrombocytes. Discuss the composition of plasma: water, albumin, globulins, fibrinogen. 4. Formation of the blood cells—hematopoiesis: Discuss the sources of blood cells—red bone marrow (myeloid tissue) and lymphatic tissue that produces lymphocytes and monocytes. 5. Blood cell anatomy and functions: Mention that erythrocytes carry oxygen and CO_2 due to hemoglobin and are nonnucleated. Discuss the nucleated leukocytes: (1) neutrophils produce lysozyme and destroy bacteria and cellular debris; (2) monocytes destroy bacteria and debris, and in tissue they are called macrophages; (3) eosinophils combat irritants that cause allergies and produce antihistamines; (4) basophils are involved in allergic reactions and produce heparin, histamine, and serotonin; (5) lymphocytes produce antibodies and are involved in immunity; discuss the anatomy of thrombocytes and that they cause the clotting response. 6. The clotting mechanism: Use a smart board to illustrate clotting. Discuss the role of thromboplastin, prothrombin, thrombin, fibrinogen, and fibrin in the formation of a clot. Explain clot retraction and fibrinolysis. 7. The blood groups: Explain that there are different human blood groups and that only certain types are compatible—otherwise agglutination will occur. 7.1. The ABO blood group: Discuss the antigens A and B. Then discuss the blood types A, B, AB, and O. 7.2. The Rh blood group: Discuss antigen D and introduce Rh positive and Rh negative as a factor in pregnancies.

	8. Choose and discuss some of the problems that can occur with the blood, such as hemophilia, leukemia, anemia, sickle cell anemia, malaria, mononucleosis, and others. DUE SUNDAY @ 11:59 pm: MINDTAP
WEEK 10 Tuesday 11/1 Thursday: 11/3 Online Work DUE: Sunday 11/6: 11:59 pm	**Chapter 14 The Cardiovascular System** 1. Introduction: Introduce the system as the one that pumps the blood, which carries oxygen, nutrients, hormones, enzymes, and cellular wastes through thousands of miles of arteries, veins, and capillaries. Explain that the heart is the pumping organ of the system that beats about 72 times per minute. 2. The anatomy of the heart: Use a smart board to illustrate its position in the mediastinum. Describe the layers of the pericardial sac. 2.1. The layers of the heart wall: Use a visual aid to explain the epicardium, myocardium, and endocardium. 2.2. The chambers of the heart: Describe the anatomy and size of the two atria and the two ventricles. Discuss the auricles, the musculi pectinati, the interventricular septum, the trabeculae carneae, and the anterior and posterior interventricular sulci. 2.3. The great vessels of the heart: Describe the position and function of the superior and inferior venae cavae, the pulmonary trunk and its two branches, the pulmonary veins, the ascending aorta, the arch of the aorta, the descending thoracic aorta, and abdominal aorta. 2.4. The valves of the heart: Explain the anatomy of the tricuspid and bicuspid, or mitral, valves and their chordae tendineae and papillary muscles. Explain the aortic and semilunar valve anatomy and function. 3. Blood flow through the heart: Prepare a diagram and explain blood flow through the heart, naming all vessels, chambers, and valves. 4. The conduction system of the heart: Use a smart board to illustrate the conduction system. Explain the position and role of the SA node or pacemaker, the AV node or atrioventricular node, the bundle of His and its branches, and Purkinje's fibers. 5. A cardiac cycle: Describe a typical cardiac cycle in terms of systole and diastole of the chambers and valve function. 6. Some major blood circulatory routes: Use transparencies to illustrate and describe systemic circulation and some of its subdivisions, pulmonary circulation, cerebral circulation, and the fetal circulation routes. 7. Anatomy of blood vessels: Use a smart board. Compare the differences in the three walls of arteries and veins. Explain why exchange only occurs in capillaries due to their unique structure. Define arterioles, venules, and venous sinuses. 8. Major arteries and veins of the body: Use a smart board to illustrate some of the major vessels of the body and how they are named. Explain why arteries are shown in red and veins in blue. 9. Choose and discuss some of the problems that can occur in the system, such as rheumatic heart disease, myocarditis, atherosclerosis, coronary heart disease, heart failure, hypertension, congenital heart disease, and so forth. DUE SUNDAY @ 11:59 pm: MINDTAP
WEEK 11 Tuesday 11/8 Thursday: 11/10	TUESDAY EXAM CHAPTER 13-14 **Chapter 15 The Lymphatic System**

Online Work DUE: Sunday 11/13: 11:59 pm	1. Introduction: Introduce this system as being closely related to the blood and cardiovascular system. Explain that it also transports a fluid called lymph through a series of vessels called lymphatic capillaries and lymphatics and that this system helps control body fluid and protects us from microorganisms. 2. The functions of the system and the structure and functions of the lymphatic vessels: Use a diagrammatic visual aid to illustrate structures and vessels. Discuss the following functions: drainage of fluid from tissue spaces that escape from capillaries, the transportation of fats from the digestive tract to the blood, the production of lymphocytes, and the development of immunities. 2.1. Lymphatic vessels: Discuss the location and structure of lymph capillaries and lymphatics. 2.2. Lymph nodes: Explain the anatomy and function of lymph nodes; discuss hilum, afferent and efferent lymphatics, trabeculae, cortical nodules, germinal center, and lymph sinuses. 3. Lymph circulation: Explain how lymph circulates through the body. Discuss the main lymphatic trunks and what they drain—lumbar, intestinal, bronchomediastinal, intercostal, subclavian, and jugular. Explain how they merge into the left and right lymphatic ducts to connect with the subclavian veins of the blood circulatory system. 4. The organs of the lymphatic system: Discuss the location, anatomy, and function of the three pairs of tonsils, the spleen, the thymus gland, and Peyer's patches in the small intestine. 5. Immunity: Explain the differences between the two types of immunity in the body—humoral and cellular. Explain how B lymphocytes and T lymphocytes function. 6. Antigens and antibodies: Discuss that an antigen is a foreign protein and give examples. Explain the role of the five types of antibodies that the body produces. Explain active and passive immunity. 7. The cells of the immune response and other defenses: List and explain the function of B cells, plasma cells, helper T cells, killer T cells, suppressor T cells, memory cells, macrophages, lymphokines, monokines, and the other body defenses such as the skin, sebum, mucous membranes, and the hairs in the nose. 8. Choose and discuss some of the problems that can occur in the system, such as AIDS, allergies, lymphoma, lymphadenitis, the historical significance of bubonic plague, etc. DUE SUNDAY @ 11:59 pm: MINDTAP
WEEK 12 Tuesday 11/15 Thursday: 11/17 Online Work DUE: Sunday 11/20: 11:59 pm	TUESDAY QUIZ CHAPTER 15 **Chapter 16 Digestive System** 1. Introduction: Introduce the system as the one that breaks down food via hydrolysis into simple molecules for use by cells. Discuss its five basic activities: ingestion, peristalsis, digestion (mechanical and chemical), absorption, and defecation. 2. General organization: Use a visual aid, such as a smart board or model, to illustrate the major and accessory organs of the system and their location. 3. Histology: Discuss the anatomy of the four tunics or layers of the alimentary canal wall—tunica mucosa, submucosa, muscularis, and adventitia or serosa. Use a visual aid.

	4. The mouth or oral cavity: Discuss the hard and soft palates and the uvula. Explain the anatomy of the tongue and the three types of papillae on the tongue and their taste buds. 5. The salivary glands: Discuss the composition of saliva and the location of the three pairs of salivary glands—parotid, submandibular, and sublingual. 6. Teeth: Use a smart board of the anatomy of a tooth. Discuss the various kinds of teeth. Explain the crown, cervix, root, gums or gingivae, dentin, pulp cavity, root canal, apical foramen, and periodontal ligament. 7. The pharynx: Discuss the two parts of the pharynx associated with digestion—oropharynx and nasopharynx. Explain the process of swallowing. 8. The esophagus: Explain its anatomy and functions—secrete mucus, move food to the stomach. Explain how the esophageal hiatus pierces the diaphragm muscle. 9. The stomach: Use a smart board to illustrate the stomach and its layers. Explain the four parts—cardia, fundus, body, and pylorus. Discuss the three types of cells and their function: zymogenic or chief cells, parietal cells, and mucous cells. Discuss the unique three layers of smooth muscle in its walls and the role of the rugae. Discuss the chemical processes that occur and what can be absorbed in the stomach—alcohol, drugs, water, and some salts. 10. The pancreas: Use a smart board to illustrate its anatomy. Discuss its parts—head, body, and tail. Explain its dual role. Explain that islet cells produce hormones, whereas acini produce digestive juices. Explain the role of the pancreatic duct. 11. The liver: Explain the anatomy of the liver and discuss its six major functions; emphasize that we cannot live without it. 12. The gallbladder: Illustrate and explain its anatomy and function as a storage organ for bile. 13. The small intestine: Use a smart board to illustrate its parts and anatomy. Discuss its three parts—duodenum, jejunum, and ileum. Discuss its glands—intestinal glands and duodenal glands. Illustrate its unique anatomic structure for absorption—plicae or folds, villi and its cells with their brush border, capillaries, and lacteals. 14. The large intestine: Use a smart board. Discuss its three functions and its principal regions—cecum, the colon and its subdivisions, rectum, and anal canal. Discuss the types of mechanical movements. 15. The formation of the feces: Discuss the composition of the feces and the importance of fiber in the diet. 16. Choose and discuss some of the problems that can occur in the system, such as dental cavities, hiatal hernias, hepatitis, cirrhosis of the liver, gallstones, appendicitis, Crohn's disease, diverticulosis, colorectal cancer, or diarrhea. DUE SUNDAY @ 11:59 pm: MINDTAP
WEEK 13 Tuesday 11/22 Thursday: 11/24 Online Work DUE: Sunday 11/27: 11:59 pm	TUESDAY QUIZ CHAPTER 16 SUNDAY QUIZ CHAPTER 17 DUE – 11/27 **Chapter 17 Respiratory System** 1. Introduction: Introduce this system as one that shares with the cardiovascular system the responsibility of supplying oxygen to and eliminating carbon dioxide gas from the body. Define the process of

	respiration. Use a smart board to illustrate the organs and their location in the system. 2. The anatomy and functions of the nose: Use a smart board or model of the internal anatomy of the head. Discuss the anatomy and function of the external and internal nares, the nasal cavities, the septum, and the vestibules. Discuss the three functions of the interior nose—to warm, filter, and moisten air; to smell, and to provide resonating chambers for speech. 3. The structure and functions of the pharynx: Discuss the two functions—a passageway for food and air and a resonating chamber. Explain the anatomy of its three portions—nasopharynx, oropharynx, and laryngopharynx. 4. The larynx or voice box: Discuss its three pieces of single cartilage—the thyroid, epiglottis, and cricoid—and its three double—the arytenoid, corniculate, and cuneiform. Explain how sound is turned into speech and the role and anatomy of the vocal cords. 5. The trachea or windpipe: Use a smart board of the trachea, bronchi, and lungs. Describe the tissues that line the trachea and their roles. Explain why the hyaline cartilage is arranged as a stack of Cs with the open part facing the esophagus. 6. The bronchi and bronchial tree: Explain how the bronchi branch into primary bronchi to each lung, then secondary bronchi to each lobe, then tertiary or segmental to each segment of a lobe, then to bronchioles, and, finally, to terminal bronchioles. 7. The anatomy and function of the lungs: Describe the membranes that cover each lung. Explain the anatomy and physiology of the lobules at the microscopic level. Discuss bronchioles, alveolar ducts, alveoli, alveolar sacs, and the alveolar capillary membrane. 8. The respiration process: Define ventilation and its subcategories inhalation and exhalation, external respiration, and internal respiration. Explain the breathing process in terms of the role of the diaphragm and the external and internal intercostal muscles. Discuss the partial pressure of the gases oxygen and carbon dioxide in the blood and lungs. Discuss lung capacity. 9. Choose and discuss some of the problems that can happen in the system such as lung cancer, bronchitis, pneumonia, pertussis, and cystic fibrosis. DUE SUNDAY @ 11:59 pm: MINDTAP
WEEK 14 Tuesday 11/29 Thursday: 12/1 Online Work DUE: Sunday 9/4: 11:59 pm	**Chapter 18 The Urinary System** 1. Introduction: Use a smart board to illustrate the organs and their positions. Introduce this system as the one that helps maintain homeostasis by both removing and restoring selected amounts of solutes and water from the blood. Mention that it is the two kidneys that perform this function and produce the collected waste called urine. 2. The functions of the urinary system: Discuss excretion, the maintenance of blood volume and concentration, pH regulation, blood pressure, erythrocyte concentration, and vitamin D production. 3. The external anatomy of the kidneys: Use a smart board showing both the external and internal anatomy of a kidney. Discuss the hilum, renal sinus, and the three layers of tissue that surround each kidney—renal capsule, adipose capsule, and renal fascia—and their function. 4. The internal anatomy of the kidneys: Explain the structure and functions of the cortex, medulla, renal pyramids, renal papillae, renal columns, minor calyces, major calyces, and the renal pelvis.

	5. The anatomy of the nephrons: Use a smart board showing the detailed anatomy of a nephron. Explain the structure of Bowman's glomerular capsule, where water and solutes are filtered from the blood. Discuss the parts of the renal tubule—proximal convoluted tubule, descending limb, loop of Henle, ascending limb, distal convoluted tubule, and the papillary ducts. 6. Blood and nerve supply to the nephrons: Discuss the complex branching of the right and left renal arteries and veins that filter the blood 60 times a day. Explain that the renal plexus of the ANS innervates the kidneys. 7. The physiology of the nephrons: Discuss what happens during glomerular filtration, tubular reabsorption, and tubular secretion in producing the urine. 8. The ureters—anatomy and function: Use a smart board to illustrate the anatomy of a ureter. Discuss the tissue layers of a ureter. Explain how the ureters transport the urine from the renal pelvis to the urinary bladder by peristalsis, gravity, and hydrostatic pressure. 9. The urinary bladder and the micturition reflex: Use a smart board or model of a bladder. Explain the position and internal anatomy of the trigone, detrusor muscle, internal urinary sphincter, and external urinary sphincter. Explain the micturition reflex and bladder volume. 10. The urethra—male and female positions: Compare the differences in both length and position of the male and female urethras. 11. Choose and discuss some of the problems that can occur in the system such as kidney stones, gout, cystitis, or renal failure. **Chapter 19 The Reproductive System** 1. Introduction: Introduce this system as the one that produces the sex cells, transports them, and nurtures their development. The purpose of the system is to produce offspring and to ensure the perpetuation of the human species. 2. The male reproductive system: Use a smart board to illustrate the organs of the male reproductive system; 2.1.1. have an enlargement of the internal anatomy of the testes. 2.2. The scrotum: Explain why it is an outpouching of the abdominal wall (for sperm survival and hormone production). Discuss its anatomy—raphe and cremaster muscle. 2.3. The testes: Explain their anatomy. Discuss the seminiferous tubules and spermatogenesis and the role of the Sertoli cells and the interstitial cells of Leydig. 2.4. The anatomy of the spermatozoa: Explain what constitutes the head, middle piece, and tail. Discuss the function of the acrosome. 2.5. The functions of testosterone: Discuss the growth of the male sex organs and their maintenance. Give examples of and discuss secondary male sex characteristics—broad shoulders, narrow hips, deep voice, body hair patterns, and aggression. 2.6. The ducts of the system: Discuss the role and location of the straight tubules, rete testis, efferent ducts, ductus epididymis, vas deferens, ejaculatory duct, and the parts of the urethra. 2.7. The accessory glands: Discuss the location and role of the seminal vesicles, the prostate gland, and the bulbourethral glands. 2.8. Semen: Discuss the composition of semen, and the volume produced and ejaculated. Explain sterility.

	2.9. The penis: Explain its function and anatomy—shaft, glans penis, prepuce, and the three cylindrical masses of erectile tissue internally. Discuss why circumcision is sometimes performed. 3. The female reproductive system: Use a smart board to illustrate the organs of the female reproductive system; have an enlargement of the internal anatomy of an ovary. 3.1. The ovaries: Explain the anatomy of suspensory ligaments, ovarian follicles, a Graafian follicle, ovulation, corpus luteum, corpus albicans, and oogenesis. 3.2. The uterine or fallopian tubes: Discuss their anatomy—the infundibulum, fimbriae, and the role of the ciliated epithelium to transport an egg. 3.3. The uterus: Discuss its location and anatomy (use a model or smart board). Discuss fundus, body, cervix, isthmus, uterine cavity, cervical canal, internal and external os, and the three layers of tissue in its wall. Discuss what occurs in the three stages of the menstrual cycle—the menstrual phase, the preovulatory or proliferative stage, and the postovulatory or secretory phase. 3.4. The menstrual cycle: Discuss the three phases: the menstrual phase, the preovulatory or proliferative phase, and the postovulatory or secretory phase. 3.5. The functions of estrogen: Explain that there are several types of estrogens. Explain its effects, including enlargement of uterine tubes, uterus, and vagina, and the development of external genitalia and secondary female sex characteristics such as breast development, wide hips, and axillary hair. 3.6. The vagina: Explain its functions and anatomy. Discuss how the fornices allow the use of a contraceptive diaphragm. 3.7. The external genitalia of the female: Explain the terms vulva or pudendum. Discuss the anatomy and function of the mons pubis, labia majora, labia minora, and the clitoris and its parts. Explain the vestibule and its vaginal and urethral orifices. Discuss the role of the lesser and greater vestibular glands. 4. The perineum: Explain and illustrate what the perineum is in both males and females and its anterior urogenital triangle and posterior anal triangle. 5. The anatomy and function of the mammary glands: Discuss their development and anatomic parts—lobes, lobules, alveoli, ampullae, lactiferous ducts, nipple, and areola. 6. Pregnancy and embryonic development: Discuss the development of the zygote into a blastula, the three germ layers of the embryo, the placenta, amnion, umbilical cord, and fetus. Discuss the three stages of labor—dilation, expulsion, and the placental stage. 7. Choose and discuss some of the problems that can occur in the system, such as prostate cancer, cervical cancer, and sexually transmitted diseases such as syphilis and gonorrhea, genital herpes and warts, phimosis, and premenstrual syndrome. DUE SUNDAY @ 11:59 pm: MINDTAP
WEEK 15 Tuesday: 12/6 Thursday: 12/8	Tuesday: EXAM CHAPTER 15-19 Comprehensive FINAL Thursday @ 11:59 pm: EXAM

WEEK 16	Complete ALL digital paperwork if you are in the Surgical Technology Program (See- SRGT1504)or the Sterile Processing Program (See – HPRS1470)

August 2020

VNSG1420.007

By signing and initialing below, I affirm that I have received a copy or shown the online location of the following documents and furthermore acknowledge that I am solely responsible for the content of each.

____ Syllabus VNSG1420.007

____ SPC SRGT Program Handbook (SRGT Students ONLY)

____ SPC SRGT Clinical Handbook (SRGT Students ONLY)

____ South Plains College Grievance Policy

____ South Plains College GRADE AND ACADEMIC DISCIPLINE APPEALS

_____
Signature

_____
Date