



ALHS 1011 Structure and Function of the Human Body

COURSE SYLLABUS Spring Semester 2018

COURSE INFORMATION

Credit Hours/Minutes: 5/3750

Campus/Class Location: Swainsboro Campus/Building 8, Room 8164

Class Meets: Tuesday and Thursday 8:30 am to 12:20 pm

Course Reference Number (CRN): 60062

INSTRUCTOR CONTACT INFORMATION

Instructor Name: Tiffany Thompson, BSN, RN

Office Location: Building 8, Office 8164

Office Hours: 1:00 pm to 2:30 pm and 4:00 pm to 5:00 pm

Email Address: [Tiffany Thompson \(tthompson@southeasterntech.edu\)](mailto:tthompson@southeasterntech.edu)

Phone: 478-289-2201

Fax Number: 478-289-2249

Tutoring Hours: Please schedule an appointment during office hours.

SOUTHEASTERN TECHNICAL COLLEGE'S (STC) CATALOG AND STUDENT HANDBOOK

Students are responsible for all policies and procedures and all other information included in Southeastern Technical College's [Catalog and Student Handbook](http://www.southeasterntech.edu/student-affairs/catalog-handbook.php) (<http://www.southeasterntech.edu/student-affairs/catalog-handbook.php>).

REQUIRED TEXT

Structure and Function of the Human Body by Kevin T. Patton and Gary A. Thibodeau, Fifteenth (15th) edition. Publisher: Elsevier. International Standard Book Number (ISBN) 978-0-323-34112-7

RECOMMENDED TEXT

Study Guide Structure and Function of the Human Body by Kevin T. Patton and Gary A. Thibodeau, 15 th edition. Publisher: Elsevier. ISBN 978-0-323-39456-7.

REQUIRED SUPPLIES & SOFTWARE

Pen, pencil, paper, highlighter, and notebook.

Students should not share login credentials with others and should change passwords periodically to maintain security.

RECOMMENDED SUPPLIES AND SOFTWARE

Students are encouraged to activate Evolve Student Resources that comes with each textbook purchase. Computer access is required to utilize these resources. Instructions are included on the preface of the textbook.

COURSE DESCRIPTION

Focuses on basic normal structure and function of the human body. Topics include general plan and function of the human body, integumentary system, skeletal system, muscular system, nervous and sensory systems, endocrine system, cardiovascular system, lymphatic system, respiratory system, digestive system, urinary system, and reproductive system.

MAJOR COURSE COMPETENCIES

1. General Plan and Function of the Human Body
2. Integumentary System
3. Skeletal System
4. Muscular System
5. Nervous and Sensory Systems
6. Endocrine System
7. Cardiovascular System
8. Lymphatic System
9. Respiratory System
10. Digestive System
11. Urinary System
12. Reproductive Systems

PREREQUISITE(S)

Provisional admit

COURSE OUTLINE

General Plan and Function of the Human Body

1. Define anatomy and physiology.
2. Describe anatomical position.
3. Define and use the principal directional terms in human anatomy.
4. Identify the sagittal, transverse and frontal sections of the body.
5. Define and locate the principal regions, quadrants, and cavities of the human body.
6. Identify the structure of a cell, tissue, organ, and system and explain the relationship among these structures as they constitute an organism.
7. Define the terms homeostasis, metabolism, and cellular respiration.
8. Differentiate between organic and inorganic compounds and give examples of each.
9. Describe the properties of water that make it essential for body functions.
10. Contrast acids and bases and use pH scale in describing acidity and alkalinity of a solution.
11. Identify the biologically significant chemical elements from a given list by their chemical symbols and summarize the main functions of each in the body.
12. Describe the structure of a typical cell.
13. List organelles and discuss functions of each.
14. Define mitosis and meiosis.
15. Define the term tissue and list the four major types.
16. List and describe major types of epithelial, muscle, and connective tissue.
17. Locate and describe different categories of membranes in the body.

Integumentary System

1. Identify the main and accessory structures of the integumentary system and their functions.

2. Discuss function of the skin in homeostasis of body temperature.

Skeletal System

1. Describe functions of the skeletal system.
2. Identify major bones of the axial and appendicular skeletons.
3. Explain relationships of the endocrine system to the skeletal system.
4. Describe development of the skeletal system.
5. Describe development of the skeletal system.

Muscular System

1. Explain functions of skeletal muscular system.
2. Explain functions of skeletal muscle.
3. Explain physiology of a muscle contraction.
4. Describe actions of muscles.

Nervous and Sensory Systems

1. Identify the general functions of the nervous system.
2. Explain the anatomical and functional classification of the nervous system.
3. Identify types of neurons and describe their functions.
4. Identify parts of a neuron.
5. Describe the physiology of nerve impulse transmission.
6. Describe spinal cord and spinal reflexes.
7. Describe and give functions of the layers of the meninges and cerebrospinal fluid.
8. Identify spinal nerves and define plexus.
9. Identify cranial nerves and give functions of each.
10. Compare and contrast the sympathetic with the parasympathetic nervous system.
11. Name the principal areas and functions associated with the lobes of the cerebrum.
12. Identify and describe the function of the major regions of the brain.
13. Describe the structure and functions of the three major parts of the ear.
14. Describe the structure and functions of the eye.
15. Describe the physiology of vision.
16. Trace sound waves through the ear.
17. Differentiate special and general senses.
18. Describe tactile sensation and proprioception.

Endocrine System

1. Define endocrine gland and hormones; describe how the endocrine system works to maintain homeostasis.
2. Locate the principle endocrine glands, and identify the principle hormones, functions, and target tissues.
3. Describe the mechanism by which the hypothalamus links the endocrine and nervous systems.
4. Describe feedback mechanisms.

Cardiovascular System

1. Describe the functions of the cardiovascular system.
2. Describe the major components of the cardiovascular system.
3. Describe the components of plasma and the functions of each.
4. Describe and give the function of each type of formed element.
5. Explain ABO (A system of classifying blood groups by type A or B antibody) and Rh (Rhesus factor) blood grouping systems.

6. Describe the location of the heart in relation to other organs of the thoracic cavity and the associated serous membranes.
7. Identify the chambers, valves, and associated vessels of the heart.
8. Trace the flow of blood through the heart, and distinguish between pulmonary and systemic circulation.
9. Describe the location of the parts of the conduction system of the heart, and trace the pathway of impulses initiation and conduction.
10. Identify major blood vessels.
11. Describe the structure and function of the different kinds of blood vessels.
12. Define blood pressure and contrast the clinical significance of systolic, diastolic, and pulse pressure.

Lymphatic System

1. Describe the structures of the lymphatic system and their functions.
2. Explain adaptive and innate resistance to disease.

Respiratory System

1. Describe parts of the upper and lower respiratory tracts.
2. Trace the pathway of air into and out of the respiratory tract.
3. Explain the physiology of breathing.
4. Differentiate external and internal respirations.
5. Explain how oxygen and carbon dioxide are carried in the blood.

Digestive System

1. Differentiate chemical and mechanical digestion.
2. Identify the parts of the digestive system, their locations, and explain the functions of each.
3. Trace the pathway of food through the gastrointestinal system.
4. Identify the major digestive secretions and their functions.
5. Describe the process of absorption.

Urinary System

1. Identify the parts of the urinary system.
2. Explain general functions of the urinary system.
3. Explain the relationships of the urinary system to the endocrine and circulatory systems.
4. Describe the structure and function of the nephron.
5. Compare the urinary system of the female with that of the male.
6. Identify the constituents of urine.
7. Differentiate the processes of secretion, filtration, and reabsorption and where they occur in the nephron.

Reproductive System

1. Describe the anatomy and physiology of the female reproductive system.
2. Explain the relationship of the endocrine system to the menstrual cycle and the functioning of the female reproductive system.
3. Describe the physiology of the male and female gonads, and the production of gametes.
4. Describe the anatomy and physiology of the male reproductive system.
5. Relate the urinary system to the reproductive system of the male.
6. Explain the relationship of the endocrine system to the function of the male reproductive system.

GENERAL EDUCATION CORE COMPETENCIES

STC has identified the following general education core competencies that graduates will attain:

1. The ability to utilize standard written English.

2. The ability to solve practical mathematical problems.
3. The ability to read, analyze, and interpret information.

STUDENT REQUIREMENTS

Students are expected to complete all daily assignments as specified in the lesson plan. Students are expected to know the answers to the review questions and chapter test at the end of the chapter, know the definitions of the key terms listed at the end of the chapter, and complete the study guide activities for the assigned chapter. Students are expected to read the assigned chapter prior to class.

ATTENDANCE GUIDELINES

Class attendance is a very important aspect of a student's success. Being absent from class prevents students from receiving the full benefit of a course and also interrupts the learning process. Southeastern Technical College considers both tardiness and leaving early as types of absenteeism. Responsibility for class attendance rests with the student. Regular and punctual attendance at all scheduled classes is required for student success. Students will be expected to complete all work required by the instructor as described in the individual course syllabus.

Instructors have the right to give unannounced quizzes/assignments. Students who miss an unannounced quiz or assignment will receive a grade of "0" (Zero). Students who stop attending class, but do not formally withdraw, may receive a grade of "F" (Failing 0-59) and face financial aid repercussions in upcoming semesters.

Instructors are responsible for determining whether missed work may be made up and the content and dates for makeup work is at the discretion of the instructor.

Students will not be withdrawn by an instructor for attendance; however, all instructors will keep records of graded assignments and student participation in course activities. The completion dates of these activities will be used to determine a student's last date of attendance in the event a student withdraws, stops attending, or receives an F in a course.

ADDITIONAL ATTENDANCE PROVISIONS FOR HEALTH SCIENCES

Requirements for instructional hours within Health Science and Cosmetology programs reflect the rules of respective licensure boards and/or accrediting agencies. Therefore, these programs have stringent attendance policies. Each program's attendance policy is published in the program's handbook and/or syllabus which specify the number of allowable absences. All provisions for required make-up work in the classroom or clinical experiences are at the discretion of the instructor.

Attendance is counted from the first scheduled class meeting of each semester. To receive credit for a course a student must attend at least 90% of the scheduled instructional time. Time and/or work missed due to tardiness or absences must be made up at the convenience of the instructor. Any student attending less than the required scheduled instructional time (90%) may be dropped from the course as stated in the Withdrawal Procedure.

Tardy means arriving after the scheduled time for instruction to begin. Early departure means leaving before the end of the scheduled time. Three (3) tardies or early departures equal one (1) absence for the course.

For this class, which meets 2 days a week for 9 weeks, the maximum number of days a student may miss is 2 days during the semester.

SPECIAL NEEDS

Students with disabilities who believe that they may need accommodations in this class based on the impact of a disability are encouraged to contact [Helen Thomas \(hthomas@southeasterntech.edu\)](mailto:hthomas@southeasterntech.edu), 912-538-3126, to coordinate reasonable accommodations.

SPECIFIC ABSENCES

Provisions for Instructional Time missed because of documented absences due to jury duty, military duty, court duty, or required job training will be made at the discretion of the instructor.

PREGNANCY

Southeastern Technical College does not discriminate on the basis of pregnancy. However, we can offer accommodations to students who are pregnant that need special consideration to successfully complete the course. If you think you will need accommodations due to pregnancy, please advise me and make appropriate arrangements with [Helen Thomas \(hthomas@southeasterntech.edu\)](mailto:hthomas@southeasterntech.edu), 912-538-3126, to coordinate reasonable accommodations.

WITHDRAWAL PROCEDURE

Students wishing to officially withdraw from a course(s) or all courses after the drop/add period and prior to the 65% portion of the semester (date will be posted on the school calendar) must speak with a Career Counselor in Student Affairs and complete a Student Withdrawal Form. A grade of "W" (Withdrawn) is assigned when the student completes the withdrawal form from the course.

Students who are dropped from courses due to attendance (see your course syllabus for attendance policy) after drop/add until the 65% point of the semester will receive a "W" for the course. Abandoning a course(s) instead of following official withdrawal procedures may result in a grade of 'F' being assigned.

After the 65% portion of the semester, the student will receive a grade for the course. (Please note: A zero will be given for all missed assignments.)

There is no refund for partial reduction of hours. Withdrawals may affect students' eligibility for financial aid for the current semester and in the future, so a student must also speak with a representative of the Financial Aid Office to determine any financial penalties that may be assessed due to the withdrawal. All grades, including grades of 'W', will count in attempted hour calculations for the purpose of Financial Aid.

Remember - Informing your instructor that you will not return to his/her course does not satisfy the approved withdrawal procedure outlined above.

EXAMS

During an exam, students are required to place all textbooks and personal property on the counter located in the classroom. Students are to be seated with an empty seat between each student, if possible. No talking is allowed once the test begins. Students found with their cell phone or any other personal communication device during a test will be considered cheating and given a zero for the exam grade.

Exit Exam

Student is required to have a Chapter Exam average of 70 or higher to be eligible to take the comprehensive Final Exam. If the student is not eligible to take the final exam, a grade of "0" will be recorded for Final Exam grade.

MAKEUP GUIDELINES (TESTS, QUIZZES, HOMEWORK, PROJECTS, ETC...)

In the event of an **excused absence** on an exam day, the student will be allowed to make-up **one** exam (excluding the final exam) which will be given at the discretion of the instructor. A grade of "0" will be given to all subsequent exams missed. The make-up exam may or may not be the same as the original exam. It may also be a different test format. Failure to show up for a make-up exam results in a grade of zero.

An excused absence is jury duty, military duty, court duty, or required job training. Other excused absences may also include illness, hospitalization or a death in the student's immediate family. Official, written documentation such as a subpoena or a doctor's excuse must be provided by the student prior to taking the make-up exam. The instructor reserves the right to refuse for the student to take the make-up exam based on the merit of the documentation.

Any exceptions to the makeup guidelines for this class will require instructor approval and would only be allowed for exceptional circumstances.

ACADEMIC DISHONESTY POLICY

The STC Academic Dishonesty Policy states All forms of academic dishonesty, including but not limited to cheating on tests, plagiarism, collusion, and falsification of information, will call for discipline. The policy can also be found in the STC Catalog and Student Handbook.

PROCEDURE FOR ACADEMIC MISCONDUCT

The procedure for dealing with academic misconduct and dishonesty is as follows:

1. First Offense

Student will be assigned a grade of "0" for the test or assignment. Instructor keeps a record in course/program files and notes as first offense. The instructor will notify the student's program advisor, academic dean, and the Registrar at the student's home campus. The Registrar will input the incident into Banner for tracking purposes.

2. Second Offense

Student is given a grade of "WF" (Withdrawn Failing) for the course in which offense occurs. The instructor will notify the student's program advisor, academic dean, and the Registrar at the student's home campus indicating a "WF" has been issued as a result of second offense. The Registrar will input the incident into Banner for tracking purposes.

3. Third Offense

Student is given a grade of "WF" for the course in which the offense occurs. The instructor will notify the student's program advisor, academic dean, and the Registrar at the student's home campus indicating a "WF" has been issued as a result of third offense. The Vice President for Student Affairs, or designee, will notify the student of suspension from college for a specified period of time. The Registrar will input the incident into Banner for tracking purposes.

STATEMENT OF NON-DISCRIMINATION

The Technical College System of Georgia and its constituent Technical Colleges do not discriminate on the basis of race, color, creed, national or ethnic origin, sex, religion, disability, age, political affiliation or belief, genetic information, disabled veteran, veteran of the Vietnam Era, spouse of military member or citizenship status (except in those special circumstances permitted or mandated by law). This school is in compliance with Title VI of the Civil Rights Act of 1964, which prohibits discrimination on the basis of race, color, or national origin; with the provisions of Title IX of the Educational Amendments of 1972, which prohibits discrimination on the basis of gender; with the provisions of Section 504 of the Rehabilitation Act of 1973, which prohibits discrimination on the basis of handicap; and with the American with Disabilities Act (ADA).

The following individuals have been designated to handle inquiries regarding the nondiscrimination policies:

American With Disabilities Act (ADA)/Section 504 - Equity- Title IX (Students) – Office of Civil Rights (OCR) Compliance Officer	Title VI - Title IX (Employees) – Equal Employment Opportunity Commission (EEOC) Officer
Helen Thomas, Special Needs Specialist Vidalia Campus 3001 East 1 st Street, Vidalia Office 108 Phone: 912-538-3126 Email: Helen Thomas hthomas@southeasterntech.edu	Lanie Jonas, Director of Human Resources Vidalia Campus 3001 East 1 st Street, Vidalia Office 138B Phone: 912-538-3230 Email: Lanie Jonas ljonas@southeasterntech.edu

ACCESSIBILITY STATEMENT

Southeastern Technical College is committed to making course content accessible to individuals to comply with the requirements of Section 508 of the Rehabilitation Act of Americans with Disabilities Act (ADA). If you find a problem that prevents access, please contact the course instructor.

GRIEVANCE PROCEDURES

Grievance procedures can be found in the Catalog and Handbook located on STC’s website.

ACCESS TO TECHNOLOGY

Students can now access Blackboard, Remote Lab Access, Student Email, Library Databases (Galileo), and BannerWeb via the mySTC portal or by clicking the Current Students link on the [Southeastern Technical College Website \(www.southeasterntech.edu\)](http://www.southeasterntech.edu).

TECHNICAL COLLEGE SYSTEM OF GEORGIA (TCSG) GUARANTEE/WARRANTY STATEMENT

The Technical College System of Georgia guarantees employers that graduates of State Technical Colleges shall possess skills and knowledge as prescribed by State Curriculum Standards. Should any graduate employee within two years of graduation be deemed lacking in said skills, that student shall be retrained in any State Technical College at no charge for instructional costs to either the student or the employer.

GRADING POLICY

Assessment/Assignment	Percentage
Chapter Exams	75 %
Final Exam	25 %

GRADING SCALE

Letter Grade	Range
A	90-100
B	80-89
C	70-79
D	60-69
F	0-59

ALHS 1011 Structure and Function of the Human Body

Summer Semester 2018 Lesson Plan

DISCLAIMER STATEMENT

Instructor reserves the right to change the syllabus and/or lesson plan as necessary. The official copy of the syllabus is located inside the student's online course shell or will be given to student during face to face class time during the first day of the semester. The syllabus displayed in advance of the semester in a location other than the course student is enrolled in is for planning purposes only.

Date/Week	Chapter/Lesson	Content	Assignments & Tests Due Dates	Competency Area
05-15-18 Tuesday	Chapter 1 Chapter 2 Chapter 3	Introduction to ALHS 1011 Introduction to the Body (1) Chemistry of Life (2) Cells (3)	<ul style="list-style-type: none">• Read Chapters 1, 2 & 3• Complete Study Guide activities for Chapters 1, 2 & 3• Activate Evolve Student Resources that comes with each textbook• Complete Self-Test Questions for Chapters 1, 2 & 3 through Evolve	1 a, c

Date/Week	Chapter/Lesson	Content	Assignments & Tests Due Dates	Competency Area
05-17-18 Thursday	Chapter 3 Chapter 4	Cells (3) Tissues (4)	<ul style="list-style-type: none"> • Read Chapter 4 • Complete Study Guide activities for Chapter 4 • Complete Self-Test Questions for Chapter 4 through Evolve • Study for Exam 	1 a, c
05-22-18 Tuesday	Chapter 5	Exam 1 Chapters 1,2, 3 & 4 Organ Systems (5)	<ul style="list-style-type: none"> • Exam 1 Chapters 1,2,&3 • Read Chapter 5 • Complete Study Guide activities • Complete Self-Test Questions for Chapter 5 through Evolve 	1,2 a, c
05-24-18 Thursday	Chapter 6	Skin and Membranes (6)	<ul style="list-style-type: none"> • Read Chapter 6 • Complete Study Guide activities • Complete Self-Test Questions for Chapter 6 through Evolve • Study for Exam 	2 a, c

Date/Week	Chapter/Lesson	Content	Assignments & Tests Due Dates	Competency Area
05-29-18 Tuesday	Chapter 7	Exam 2 Chapters 5 & 6 Skeletal System (7)	<ul style="list-style-type: none"> • Exam 2 (Chapters 5 & 6) • Read Chapter 7 • Complete Study Guide activities for Chapter 7 • Complete Test Questions for Chapter 7 through Evolve 	3 a, c
05-31-18 Thursday	Chapter 8	Muscular System (8)	<ul style="list-style-type: none"> • Read Chapter 8 • Complete Study Guide activities for Chapter 8 • Complete Self-Test Questions for Chapter 8 through Evolve • Study for Exam 	4 a, c
06-5-18 Tuesday	Chapter 9	Exam 3 Chapters 7 & 8 Nervous System (9)	<ul style="list-style-type: none"> • Exam 3 (Chapters 7 & 8) • Read Chapter 9 • Complete Study Guide activities for Chapter 9 • Complete Self-Test Questions for Chapter 9 through Evolve 	5 a, c

Date/Week	Chapter/Lesson	Content	Assignments & Tests Due Dates	Competency Area
06-07-18 Thursday	Chapter 10	Senses (10)	<ul style="list-style-type: none"> • Read Chapter 10 • Complete Study Guide activities for Chapter 10 • Complete Self-Test Questions for Chapter 10 through Evolve • Study for Exam 	5 a, c
06-12-18 Tuesday	Chapter 14	Exam 4 Chapters 9 & 10 Lymphatic System and Immunity (14)	<ul style="list-style-type: none"> • Exam 4 (Chapters 9 & 10) • Read Chapter 14 • Complete Study Guide activities for Chapter 14 • Complete Self-Test Questions for Chapter 14 through Evolve 	8 a, c
06-14-18 Thursday	Chapter 11	Endocrine System (11)	<ul style="list-style-type: none"> • Read Chapter 11 • Complete Study Guide activities for Chapter 11 • Complete Self-Test Questions for Chapter 11 through Evolve • Study for Exam 	6 a, c

Date/Week	Chapter/Lesson	Content	Assignments & Tests Due Dates	Competency Area
06-19-18 Tuesday	Chapter 12	Exam 5 Chapters 11 & 14 Blood (12)	<ul style="list-style-type: none"> • Exam 5 (Chapters 11 & 14) • Read Chapter 12 • Complete Study Guide activities for Chapter 12 • Complete Self-Test Questions for Chapter 12 through Evolve 	7 a, c
06-21-18 Thursday	Chapter 13	Cardiovascular (13) 65% on 6-25-18	<ul style="list-style-type: none"> • Read Chapter 13 • Complete Study Guide activities for Chapter 13 • Complete Self-Test Questions for Chapter 13 through Evolve • Study for Exam 	7 a, c

Date/Week	Chapter/Lesson	Content	Assignments & Tests Due Dates	Competency Area
06-26-18 Tuesday	Chapter 15	Exam 6 Chapters 12 & 13 Respiratory System (15)	<ul style="list-style-type: none"> • Exam 6 (Chapters 12 & 13) • Read Chapter 15 • Complete Study Guide activities for Chapter 15 • Complete Self-Test Questions for Chapter 15 through Evolve 	9 a, c
06-28-18 Thursday	Chapter 16	Digestive System (16)	<ul style="list-style-type: none"> • Read Chapter 16 • Complete Study Guide activities for Chapter 16 • Complete Self-Test Questions for Chapter 16 through Evolve • Study for Exam 	10 a, c
07-02-18 through 07-05-18	No Class	Student Holiday		

Date/Week	Chapter/Lesson	Content	Assignments & Tests Due Dates	Competency Area
07-10-18 Tuesday	Chapter 18	Exam 7 Chapters 15 & 16 Urinary System (18)	<ul style="list-style-type: none"> • Exam 7 (Chapters 15 & 16) • Read Chapters 18 • Complete Study Guide activities for Chapter 18 • Complete Self-Test Questions for Chapter 18 through Evolve 	11 a, c
07-12-18 Thursday	Chapter 21	Reproductive System (21)	<ul style="list-style-type: none"> • Read Chapter 21 • Complete Study Guide activities for Chapter 21 • Complete Self-Test Questions for Chapter 21 through Evolve • Study for Exam 	12 a, c
07-17-18 Tuesday	Exam 8	Exam 8 Chapters 18 & 21	<ul style="list-style-type: none"> • Exam 8 Chapters 18 & 21 	11,12 a, c
07-19-18 Thursday	Chapters 1-21	Make Up Missed Exam Day Final Review	<ul style="list-style-type: none"> • Study for Final Exam 	1-12 a, c
07-24-18 Tuesday	Chapter 1- 21	Final Comprehensive Exam Chapters 1-21	<ul style="list-style-type: none"> • Final Exam 	1-12 a, c

COMPETENCY AREAS

1. General Plan and Function of the Human Body
2. Integumentary System
3. Skeletal System
4. Muscular System
5. Nervous and Sensory Systems
6. Endocrine System
7. Cardiovascular System
8. Lymphatic System
9. Respiratory System
10. Digestive System
11. Urinary System
12. Reproductive System

GENERAL CORE EDUCATIONAL COMPETENCIES

- a) The ability to utilize standard written English.
- b) The ability to solve practical mathematical problems.
- c) The ability to read, analyze, and interpret information.