

# ALHS 1011 COURSE SYLLABUS SPRING SEMESTER 2017

Semester: SPRING 2017

Course Title: Structure and Function of the

**Human Body** 

Course Number: ALHS 1011 Credit Hours/ Minutes: 5/3750

Class Location: Room # 8164, Building 8

Class Meets: Tuesdays and Thursdays

10:45AM-1:00PM CRN: 40168 Instructor: Joanna Bell, RN

Email Address:jbell@southeasterntech.edu

Office Hours: M-R: 2:30-5:00 pm
Office Location: Room 8160 Building 8

Phone: 478-289-2201 Fax Number:478-289-2336

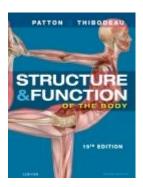
Tutoring Hours: Please schedule an appointment.

# **REQUIRED TEXT:**

 Elsevier's Structure & Function of the Body 15<sup>th</sup> By Thibodeau & Patton, ISBN 978-0-323-34112-7

 Elsevier's Workbook/Study Guide for <u>Structure & Function of the Body</u> (*It is recommended to buy a new workbook.*)

 By Thibodeau & Patton,
 ISBN 978-0-323-39456-7



**REQUIRED SUPPLIES & SOFTWARE:** pen, pencil, paper, notebook, and highlighter. Power points are available on the M. drive.

**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

- Skeletal System
   Muscular System
   Nervous and Sensory Systems
- 6. Endocrine System
- 7. Cardiovascular System
- 8. Lymphatic System
- Respiratory System
   Digestive System
- 11. Urinary System
- 12. Reproductive Systems

**PREREQUISITE(S):** Program Admission

# **COURSE OUTLINE:**

**General Plan and Function of the Human Body** 

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

**Integumentary System** 

Order	Description	Learning Domain	Level of Learning
1	Identify the main and accessory structures of the integumentary system and their functions	Cognitive	Knowledge
2	Discuss function of the skin in homeostasis of body temperature.	Cognitive	Comprehension

**Skeletal System** 

	·		Level of
Order	Description	Learning Domain	Learning

1	Describe functions of the skeletal system	Cognitive	Knowledge
2	Identify major bones of the axial and appendicular skeletons.	Cognitive	Knowledge
3	Explain relationships of the endocrine system to the skeletal system	Cognitive	Comprehension
4	Describe development of the skeletal system.	Cognitive	Knowledge
5	Define articulation and identify types of joints	Cognitive	Knowledge

Muscular System

Order	Description	Learning Domain	Level of Learning
1	Explain functions of skeletal muscle	Cognitive	Comprehension
2	Identify major skeletal muscles and functions	Cognitive	Knowledge
3	Explain physiology of a muscle contraction.	Cognitive	Comprehension
4	Describe actions of muscles.	Cognitive	Knowledge

Nervous and Sensory System

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

**Endocrine System** 

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

Cardiovascular System

Order	Description	Learning Domain	Level of Learning
1	Describe the functions of the cardiovascular system.	Cognitive	Knowledge
2	Describe the major components of the cardiovascular system.	Cognitive	Knowledge
3	Describe the components of plasma and give functions of each.	Cognitive	Knowledge
4	Describe and give the function of each type of formed element.	Cognitive	Knowledge
5	Explain ABO and Rh blood grouping systems.	Cognitive	Comprehension
6	Describe the location of the heart in relation to other organs of the thoracic cavity and the associated serous membranes.	Cognitive	Knowledge
7	Identify the chambers, valves, and associated vessels of the heart.	Cognitive	Knowledge
8	Trace the flow of blood through the heart, and distinguish between pulmonary and systemic circulation.	Cognitive	Comprehension
9	Describe the location of the parts of the conduction system of the heart, and trace the pathway of impulses initiation and conduction.	Cognitive	Knowledge
10	Identify major blood vessels.	Cognitive	Evaluation
11	Describe the structure and function of the different kinds of blood vessels.	Cognitive	Knowledge
12	Define blood pressure and contrast the clinical significance of systolic, diastolic, and pulse pressure.	Cognitive	Knowledge

**Lymphatic System** 

Order	Description	Learning Domain	Level of Learning
1	Describe the structures of the lymphatic system and their functions.	Cognitive	Knowledge
2	Explain adaptive and innate resistance to disease.	Cognitive	Comprehension

**Respiratory System** 

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

**Digestive System** 

Order	Description	Learning Domain	Level of Learning
1	Differentiate chemical and mechanical digestion	Cognitive	Analysis
2	Identify the parts of the digestive system, their locations, and the functions of each.	Cognitive	Knowledge
3	Trace the pathway of food through the gastrointestinal system.	Cognitive	Comprehension
4	Identify the major digestive secretions and their functions.	Cognitive	Knowledge
5	Describe the process of absorption.	Cognitive	Knowledge

**Urinary System** 

Order	Description	Learning Domain	Level of Learning
1	Identify the parts of the urinary system.	Cognitive	Knowledge

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

**Reproductive System** 

Order	Description	Learning Domain	Level of Learning
1	Describe the anatomy and physiology of the female reproductive system.	Cognitive	Knowledge
2	Explain the relationship of the endocrine system to the menstrual cycle and the functioning of the	Cognitive	Comprehension
3	Describe the physiology of the male and female gonads, and the production of gametes.	Cognitive	Knowledge
4	Describe the anatomy and physiology of the male reproductive system.	Cognitive	Knowledge
5	Relate the urinary system to the reproductive system of the male.	Cognitive	Analysis
6	Explain the relationship of the endocrine system to the function of the male reproductive system.	Cognitive	Comprehension

**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 responsible for policies and procedures in the STC E-Catalog and Student Handbook. STC policy states that eating, drinking, and cell phone usage are prohibited in class. Any violation of this policy will result in dismissal from the class.

# Prior to the discussion of each chapter in class, the student is expected to complete the following:

- 1. Read the assigned chapter.
- 2. Know the answers to the review questions and chapter test at the end of the chapter.
- 3. Know the definitions of the key terms listed at the end of the chapter.
- 4. Complete the workbook activities for the assigned chapter.

**Exams:** During an examination, students are required to place all textbooks and personal property in the area designated by the instructor. 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 test grade.** 

A final chapter/unit test average of 70 or above is required to sit for the final exam. Grades of 69.9 will not be rounded up. If the student has below a 70 average, a grade of 0 will be given for the final exam.

**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. Students who stop attending class, but do not formally withdraw, may receive a grade of F and face financial aid repercussions in upcoming semesters.

# **ADDITIONAL ATTENDANCE PROVISIONS**

## 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 below 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 15 weeks, the maximum number of days a student may miss is 4 days during the semester.

**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.

**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, 912-538-3126, hthomas@southeasterntech.edu, to coordinate reasonable accommodations.

**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, (912) 538-3126, hthomas@southeasterntech.edu.

**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 (03/20/2017)** must speak with a Career Counselor in Student Affairs and complete a Student Withdrawal Form. A grade of "W" 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 **03/20/17**, 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 **03/20/2017**, 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 accessed 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.

**MAKEUP GUIDELINES:** In the event of an <u>excused absence</u> on an exam day, the student will be allowed to make-up <u>one</u> 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:

#### --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.

#### --Second Offense--

Student is given a grade of "WF" 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.

#### --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 second 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:** Southeastern Technical College does not discriminate on the basis of race, color, creed, national or ethnic origin, gender, religion, disability, age, disabled veteran, veteran of Vietnam Era 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).

**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 STC website at <a href="https://www.southeasterntech.edu">www.southeasterntech.edu</a>.

**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 SCALE:**

A: 90-100 B: 80-89 C: 70-79 D: 60-69

F: 0-59

# **EVALUATION PROCEDURES**

Students will be given a total of 13 written examinations throughout the semester and 1 final examination at the end of the semester.

#### **Grading Components**

Final Examination	25%	
Total	100%	_
Each student's final course grad	de will be determine	ed as follows:
Average of Unit Exams	X 0.75 =	+
Final Exam	X 0.25 =	+

Unit Exams 75%

Numerical Course Grade =

Disclaimer Statement\*\* Instructor reserves the right to change the syllabus 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.

	ALHS 1011 STRUCTURE AND FUNCTION OF THE HUMAN BODY SPRING SEMESTER 2017 LESSON PLAN				
Date	Chapter / Lesson	Content	Assignments & Tests Due	Comp Area	
		Week 1			
1/10 Tuesday	Chapter 1	Introduction to the course  ***********************************	Read Chapters 1-2, complete review questions at end of chapter and workbooks.	*1 **a-c	
1/12 Thursday	Chapter 2	The Chemistry of Life (2)	Study for test	*1 **a-c	
		Week 2			
1/17 Tuesday	Chapter 3	Cells (3)	Test 1(Chapters 1 & 2, Intro & Chemistry of Life)  Read Chapter 3-4, complete review questions at end of chapter and workbooks.	*1 **a-c	
1/19 Thursday	Chapter 4	Tissues (4)	Study for test.	*1 **a-c	
		Week 3			
01/24 Tuesday	Chapter 6	The Integumentary System: Skin and Body Membranes (6)	Test 2 (Chapters 3 & 4, Cells & Tissues) Read Chapter 6, complete review questions at end of chapter and workbooks.	*2 **a-c	
01/26 Thursday	Chapter 6	The Integumentary System: Skin and Body Membranes (6)	Study for test	* 2 **a-c	
		Week 4			
1/31 Tuesday	Chapter 7	The Skeletal System (7)	Test 3 (Chapter 6, Skin) Read chapter 7, complete review questions at end of chapter and workbooks.	* 3 **a-c	
2/2 Thursday	Chapter 7	The Skeletal System (7)	Study for test.	* 3 **a-c	
		Week 5			
2/7 Tuesday	Chapter 8	The Muscular System (8)	Test 4 (Chapter 7, Skeletal) Read Chapter 8, complete review questions at end of chapter and workbooks.	*4 **a-c	
2/9 Thursday	Chapter 8	The Muscular System (8)	Study for test.	* 4 **a-c	
Week 6					
2/14 Tuesday	Chapter 9	The Nervous System (9)	Test 5 (Chapter 8, Muscular) Read chapter 9, complete review questions at end of chapter and workbooks.	*5 **a-c	
2/16 Thursday	Chapter 9	The Nervous System (9)	Study for test.	*5 **a-c	

		Week 7		
2/21 Tuesday	Chapter 10	The Senses (10)	Test 6 (Chapter 9, Nervous)  Read Chapter 10, complete review questions at end of chapter and workbooks.	*5 **a-c
2/23 Thursday	Chapter 10	The Senses (10)	Study for test.	*5 **a-c
		Week 8		
2/28 Tuesday	Chapter 11 Chapter 14	The Endocrine System (11) The Lymphatic System and Immunity(14)	Test 7 (Chapter 10, Senses) Read chapter 11 and 14, complete review questions at end of chapter and workbooks.	*6 &8 **a-c
3/2 Thursday	Chapter 11 Chapter 14	The Endocrine System (11) The Lymphatic System and Immunity (14)	Study for test.	*6 & 8 **a-c
		Week 9		
3/7 Tuesday	Chapter 12 Chapter 13	The Blood (12) The Cardiovascular System (13)	Test 8 (Chapter 11 and 14, Endocrine & Lymphatic) Read chapter 12-13, complete review questions at end of chapter and workbooks.	* 7 **a-c
3/9 Thursday	Chapter 12 Chapter 13	The Blood (12) The Cardiovascular System (13)	Study for test.	*7 **a-c
		Week 10		
3/14 Tuesday	Chapter 15	The Respiratory System (15)	Test 9 (Chapter 12 and 13, Blood & Cardio) Read chapter 15, complete review questions at end of chapter and workbooks.	*9 **a-c
3/16 Thursday	Chapter 15	The Respiratory System (15)	Study for test.	* 9 **a-c
		Week 11		
3/21 Tuesday	Chapter 16	The Digestive System (16)	Test 10 (Ch. 15, Respiratory) Read chapter 16, complete review questions at end of chapter and workbooks.	*10 **a-c
3/23 Thursday	Chapter 16	The Digestive System (16)	Study for test.	*10 **a-c
Week 12				
3/28 Tuesday	Chapter 18	The Urinary System (18)	Test 11 (Ch. 16, Digestive) Read chapter 18, complete review questions at end of chapter and workbooks.	*11 **a-c
3/30 Thursday	Chapter 18	The Urinary System (18)	Study for test.	* 11 **a-c
		Week 13		

4/4 Tuesday	Chapter 21	The Reproductive System (21)	Test 12 (Ch. 18, Urinary) Read chapter 21, complete review questions at end of chapter and workbooks.	*12 **a-c
4/6 Thursday	Chapter 21	The Reproductive System (21)	Study for test.	*12 **a-c
		Week 14		
4/11 Tuesday	Chapter 21	The Reproductive System (21)	Test 13 (Ch. 21, Reproductive) Review previous chapters.	*12 **a-c
4/13 Thursday	Chap 1-21	Make up test day	Study for test. Make up ONE test day.	*1-12 **a-c
		Week 15		
4/18 Tuesday	Chap 1-21	Review for Final Exam	Study for test.	*1-12 **a-c
4/20 Tuesday	Chap 1-21	Review for Final Exam	Study for test.	*1-12 **a-c
		Finals Week		
04/27 Thursday	Chap 1-21	Comprehensive Final Exam	Final Exam	*1-12 **a-c

- \* Competency Areas:
  General Plan and Function of the Human Body
  Integumentary System
  Skeletal System
  Muscular System
  Nervous and Sensory Systems
  Endocrine System
  Cardiovascular System
- 3.

- 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.