



**CLBT 1040 Hematology/Coagulation  
Course syllabus  
Fall Semester 2016**

**Semester:** Fall 2016  
**Course Title:** Hematology/Coagulation  
**Course Number:** CLBT 1040  
**Credit Hours/ Minutes:** 5/6750 minutes  
**Class Location:** Room #739  
**Class Meets:** MTW 8-11am  
**CRN:** 20192

**Instructor:** Cynthia Williams, MS, MT(AMT)(HHS)  
**Office Hours:** Monday-Wednesday 7-8 am;4-5pm;Thursday 9-5  
**Office Location:**716  
**Email Address:** cwilliams@southeasterntech.edu  
**Phone:** 912-538-3183  
**Fax Number:** 912-538-3106  
**Tutoring:** By appointment

**REQUIRED TEXT:** *Clinical Hematology*, by Turgeon, 5<sup>th</sup> ed. and *Clinical Hematology Atlas* by Jacqueline Carr and Rodak 4<sup>th</sup> ed.

**REQUIRED SUPPLIES & SOFTWARE:** Ink pens, pencil, highlighter, permanent marker, paper and any other supplies deemed necessary by instructor.

**METHODS OF INSTRUCTION:** May include, but not limited to, lectures, discussions, videos, laboratory, and handouts.

**COURSE DESCRIPTION:** Introduces the fundamental formation, function, and degradation of blood cells. Topics include: reticuloendothelial system and blood cell formation, complete blood count and differential, other related blood tests, correlation of test results to disease states, coagulation and fibrinolysis, instrumentation for hematology and coagulation, critical values and blood cell dyscrasias, safety and quality control, process improvement, related lab math.

**MAJOR COURSE COMPETENCIES:**

1. Reticuloendothelial system and blood cell formation
2. Complete blood count and differential
3. Other related blood tests
4. Correlation of test results to disease states
5. Coagulation and fibrinolysis
6. Instrumentation for hematology and coagulation
7. Critical values and blood cell dyscrasias
8. Safety and quality control
9. Process improvement
10. Related lab math

**General Core Educational Competencies:** STC has identified the following general education core competencies that graduates will attain:

- 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.

**PRE/COREQUISITE(S):** BIOL 2113, BIOL 2133L, CLBT 1010

**COURSE OUTLINE:****Learning Outcomes****Reticuloendothelial system and blood cell formation**

<b>Order</b>	<b>Description</b>	<b>Learning Domain</b>	<b>Level of Learning</b>
1	Discuss hematopoiesis of WBC, RBC, and platelets.	Cognitive	Comprehension
2	Discuss active and inactive bone marrow through development stages.	Cognitive	Comprehension
3	Describe normal RBC structure and function.	Cognitive	Comprehension
4	Discuss normal hgb structure and selected hemoglobinopathies.	Cognitive	Comprehension
5	Describe normal WBC structure and function.	Cognitive	Comprehension
6	Recognize blood cell maturation characteristics including platelets.	Cognitive	Analysis

**Complete blood count and differential**

<b>Order</b>	<b>Description</b>	<b>Learning Domain</b>	<b>Level of Learning</b>
1	Perform selected automated and manual blood counts including WBC, RBC, and platelets.	Cognitive	Synthesis
2	Calculate indices.	Cognitive	Application
3	Discuss calculated values for automated cell counts.	Cognitive	Comprehension
4	Calculate corrected white counts.	Cognitive	Application
5	Demonstrate slide preparation and perform staining procedure for differentials.	Psychomotor	Guided Response
6	Perform and evaluate differential cell count and platelet estimate on peripheral blood smears.	Psychomotor	Guided Response
7	Demonstrate ability to recognize RBC morphology including normal and abnormal RBC findings.	Psychomotor	Guided Response
8	Demonstrate ability to recognize WBC morphology including normal and abnormal WBC findings.	Psychomotor	Guided Response

**Other related blood tests**

<b>Order</b>	<b>Description</b>	<b>Learning Domain</b>	<b>Level of Learning</b>
1	Discuss selected special stains and their uses.	Cognitive	Comprehension
2	Discuss laboratory tests such as EOS, retics, osmotic fragility, ESR, LE, and sickle cell	Cognitive	Comprehension

	screening.		
3	Perform laboratory tests such as EOS, retics, osmotic fragility, ESR, LE, and sickle cell screening.	Psychomotor	Guided Response

### Related lab math

Order	Description	Learning Domain	Level of Learning
1	Perform related QC math calculations--mean, median, mode, standard deviation, coefficient of variation.	Cognitive	Synthesis
2	Perform related math calculations for manual cell counts.	Cognitive	Synthesis
3	Perform related math calculations for RBC indices (MCV, MCH, MCHC, and RDW).	Cognitive	Synthesis
4	Perform corrected WBC counts, WBC and platelet estimates.	Cognitive	Synthesis
5	Perform calculations using the Rule of 3 (Hgb X 3 = Hct).	Cognitive	Synthesis
6	Calculate international normalized ratio (INR)	Cognitive	Application
7	Calculate absolute versus regular counts.	Cognitive	Application

### Correlation of test results to disease states

Order	Description	Learning Domain	Level of Learning
1	Correlate abnormal findings to selected and congenital abnormalities (e.g., anemias).	Cognitive	Analysis
2	Correlate abnormal findings to selected and congenital abnormalities (e.g., leukemias).	Cognitive	Analysis

### Coagulation and fibrinolysis

Order	Description	Learning Domain	Level of Learning
1	Discuss hemostasis.	Cognitive	Comprehension
2	Illustrate and explain intrinsic and extrinsic systems.	Cognitive	Comprehension
3	Correlate the stages of coagulation with appropriate testing procedures.	Cognitive	Analysis
4	Perform selected coagulation procedures.	Psychomotor	Guided Response
5	Correlate selected hemostasis disorders and related test procedures including PT, APTT, thrombin	Cognitive	Analysis

	time/fibrinogen, and fibrin split products.		
6	Interpret the function of platelets in relation to coagulation.	Cognitive	Evaluation

### **Instrumentation for hematology and coagulation**

<b>Order</b>	<b>Description</b>	<b>Learning Domain</b>	<b>Level of Learning</b>
1	Identify instrumentation used in specific areas of hematology/ coagulation.	Cognitive	Knowledge
2	Discuss and describe the operation of selected automated cell counters.	Cognitive	Comprehension
3	Discuss and understand the need for instrumentation maintenance.	Cognitive	Comprehension

### **Critical values and blood cell dyscrasias**

<b>Order</b>	<b>Description</b>	<b>Learning Domain</b>	<b>Level of Learning</b>
1	Describe normal/abnormal/critical values.	Cognitive	Comprehension
2	Identify blood cell dyscrasias.	Cognitive	Knowledge

### **Safety and quality control**

<b>Order</b>	<b>Description</b>	<b>Learning Domain</b>	<b>Level of Learning</b>
1	Set up and perform selected quality control and safety procedures for hematology/coagulation.	Psychomotor	Guided Response
2	Discuss possible sources of error in clinical testing.	Cognitive	Comprehension
3	Comply with PPE, bio-hazard, and blood borne pathogen safety rules while practicing labs in the school laboratory.	Affective	Receiving

### **Process improvement**

<b>Order</b>	<b>Description</b>	<b>Learning Domain</b>	<b>Level of Learning</b>
1	Describe the methods used by clinical laboratories to improve performance.	Cognitive	Comprehension

**STUDENT REQUIREMENTS:** Students are required to wear name badge. Students are expected to complete all tests, assignments, and Laboratory Reports by the due dates. A ten point penalty will be assessed for each day an assignment or Laboratory Report is late. Students are required to pass all laboratory skills in three attempts. A student may not progress until skills are mastered. Students are responsible for policies, procedures, and requirements (drug screen, background check, immunizations, Fit test, CPR...) included in the STC E-Catalog/CLT handbook. Students are required to read the chapter prior to class. Test will be timed. Points will be deducted for spelling due to Medical Liability in the work place. Laboratory results are legal documents. No cell phones allowed. If you are caught using the cell phone, you will be asked to leave class and receive an “early departure” for the class. (Note: Three (3) tardies or early departures equal one (1) absence for the course involved.) If you are 30 minutes late to class, you will receive an absence for the day.

**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 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. If you are 30 minutes late to class, you are considered absent for the day.

For this class, which meets 3 days a week for 15 weeks, the maximum number of days a student may miss is 5 days during the semester.

**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” is assigned when the student completes the withdrawal form from the course.

**Students who are dropped from courses due to attendance 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 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.**

**Withdrawing from Learning Support and/or College Success and Survival Skills courses are not permitted unless the student intends to withdraw totally from the College.**

**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 the Special Needs Office. Vidalia Campus: Helen Thomas, Room 108, (912) 538-3126.**

**MAKEUP GUIDELINES: Exams or labs missed for any reason will be made up at the discretion of the instructor. A maximum of one exam can be made up. If more than one exam is missed the student will only be allowed to make up the first exam missed and a grade of “0” will be awarded for any other missed exams including the final. If you are 30 minutes late for class, you are considered absent and missed the test. Remember, the first test can be made up and the second will be a zero this includes the final.**

**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).

**ACCESS TO TECHNOLOGY:** For information regarding Blackboard, the Information Delivery System (IDS), Student Owl Mail, and BannerWeb, please see the IT Department link on STC's website at <http://www.southeasterntech.edu>.

**GRADING:** Chapter test average of 70 or higher is required to sit for the final exam (grades of 69.9 will not be rounded up: Chapter tests will determine your eligibility to sit for the final (no lab grades will be included). Only one makeup exam will be given for chapter test. If you miss a second exam you will receive a zero for the second exam missed. You MUST pass all skills in this course to pass this course. Test and labs will be timed. Points will be deducted for spelling due to Medical Liability in the work place. Laboratory results are legal documents. **NO GRADES WILL BE DROPPED!!!** You must receive a "C" or higher in all CLBT, core, and clinical courses to progress in the CLT program.

**GRADING POLICY:**

<b>Chapter Tests</b>	<b>60%</b>
<b>Lab Reports</b>	<b>5%</b>
<b>Laboratory Final Exam</b>	<b>10%</b>
<b>Comprehensive Final Test</b>	<b>25%</b>

**GRADING SCALE**

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

**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.

**CLBT 1040 Hematology/ Coagulation  
Fall SEMESTER 2016 LESSON PLAN**

**Lesson Plan is subject to change at the discretion of the instructor.**

<b>Week</b>	<b>Chap / Less</b>	<b>Content</b>	<b>Assignments &amp; Tests Due</b>	<b>Comp Area</b>
<b>Week 1 Aug. 15-19</b>				
1	4	4-Hematopoiesis- bone marrow and blood	Review syllabus/TCSG std's Articles on Stem cell-assignment Atlas 1-4 Lab 1 Safety Cell lineage handout CBC normal values	Course 1,2,3,7,8,9,10 Core A,B,C,D
<b>Week 2 Aug. 22-26</b>				
2	5	5-Normal RBC lifecycle and physiology	Lab 2 retic count-QC Lab 3 MCV calculations Articles on Stem cell- discussion	Course 1 Core A,C,D
<b>Week 3 AUG. 29- Sept.2</b>				
3	14	14-WBC granulocytic and monocytic series	<b>Test 4,5</b> Atlas 5-9 Draw granulocytic lineage View Proficiency survey slides	Course 1,2,3,6,7,8,9,10 Core A,B,C
<b>Week 4 (Sept. 5= Holiday!!) 6 - 9</b>				
4	16	16-Lymphocytes and plasma cells	Sed rate Lab 4 Draw blood- make slides and run on Cell Dyn Lab 5 eo count/ Absolute value Lab 6 WBC diff count/platelet count & est. Lab 7 HGB & HCT/rule of 3 Lab 8 sickle cell, Correct for NRBC View Proficiency survey slides CBC/ Diff staining WBC, plt. est. and indices	Course 1,4,7 Core A,B,C
<b>Week 5 Sept. 12-16</b>				



5	26	26-Manuel procedures; Buffy coat procedure, Sickle cell procedure, how to make malaria slides and video	Bone marrow slides & Plasma cells, malaria slides Micro Hct lab, calculate Hgb Student to student diffs HO: reason for test Chp 26	Course 1,2,3,4,6,7,8,9,10  Core A,B,C
<b>Week 6 Sept. 19-23</b>				
6	6	6-RBC inclusions	<b>Test 14,16,26</b> <b>Malaria video</b> Atlas10-12 Lab 9 draw RBC abnormal forms/inclusions Hand out- RBC inclusion& variations malaria slides and video View Proficiency survey slides	Course 1,3,4,7,9 Core A,B,C
<b>Week 7 Sept. 26-30</b>				
7	7,15	15-Nonmalignant Disorders of grans and monos 7-Classification of Anemias	Lab 10 count diffs w/ morphology Pelger Huet/SS Howell jolly Promyelocyte slides, compare student to student results Review SS procedure Manuel RBC & WBC hemacytometer	Course 1,2,4,6,7,8,9,10 Core A,B,C
<b>Week 8 Oct. 3-7</b>				
8	8,9,10	8-Acute and chronic blood loss anemias 9-Aplastic anemias 10-Hypochromic anemia and iron metabolism  <b>MID TERM</b>	<b>Test 6,15,7</b> Atlas 14-20	Course 1,2,3,4,6,7,10 Core A,B,C
<b>Week 9 Oct. 10-14</b>				
9	11	11-Megaloblastic anemias 12-Hemolytic anemias 13-Hemoglobinopathies	Leukemia slides Morphology book p. 18-117 Power point: Immature grans and Bone marrow  Morphology of human blood cells pg 18-37	Course 1,2,4,7 Core A,B,C
<b>Week 10 Oct. 17-21</b>				

10	12,13	Leukemia videos series 6 Morphology of human blood cells pg 18-37	Leukemia power point	Course 1,2,4,7,8,9,10 Core A,B,C
<b>Week 11 Oct. 24-28</b>				
11	17,18,19	17-Nonmalignant Lymph disorders 18-Leukemias and Lymphomas 19-Acute Leukemias	<b>Test 8-13</b> Lab: slides: ALL,CLL.AML,CML CMML,AMML Count 10 abnormal slides	Course 1,2,3,4,6,7,10 Core A,B,C
<b>Week 12 Oct.31-Nov.4</b>				
12	23	23-Hemostasis and Thrombosis	PT,PTT,FSP, D-Dimer pg. 472-484	Course 1,3,4,5,6,7,8,9,10 Core A,B,C
<b>Week 13 Nov. 7-11</b>				
13	24	24-Disorders of hemostasis and Thrombosis	Case studies	Course 1,3,4,5,6,7,8,9,10 Core A,B,C
<b>Week 14 Nov. 14-18</b>				
14		Histograms Review QC, SD,CV... Pre-analytical, analytical, and post analytical	<b>TEST 17,18,19,23,24</b> Review Polanski cards, study stack, Clinical Lab review, Handouts and Atlas TCSG standards due Review Histogram and Coulter operation	Course 1-10 Core A,B,C
<b>Week 15 Nov. 21-22 Holiday 23-24!</b>				
15		<b>Review</b>	<b>MOCK final</b>	Course 1-10 Core A,B,C
<b>Finals! Nov. 28-Dec.1</b>				
		<b>Final</b>	<b>Lab Final and Comprehensive Final</b>	Course 1-10 Core A,B,C

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