



INSTRUCTIONAL PACKAGE

MLT 210
Advanced Hematology

Effective Term
Fall 2025/Spring 2026/Summer 2026

INSTRUCTIONAL PACKAGE

Part I: Course Information

COURSE PREFIX: MLT 210

COURSE TITLE: Advanced Hematology

CONTACT HOURS: 6 hours

CREDIT HOURS: 4 hours

RATIONALE FOR THE COURSE:

This course provides a study of the diseases of blood cells and other hematologic procedures including coagulation.

COURSE DESCRIPTION:

This course provides a study of the diseases of blood cells and other hematologic procedures including coagulation.

PREREQUISITES/CO-REQUISITES:

NOTE: Pre-reqs MLT 102, MLT 105, MLT 115, and MLT 131 with a minimum grade of C; Co-req, MLT 205 and MLT 120

A grade of C or higher in all previous general education courses.

REQUIRED MATERIALS:

Please visit the [BOOKSTORE](#) online site for most current textbook information.

Enter the semester, course prefix, number and section when prompted and you will be linked to the correct textbook.

ADDITIONAL REQUIREMENTS:

Lab coats and goggles are provided and required for the lab skills portion.

TECHNICAL REQUIREMENTS:

Access to Desire2Learn (D2L), HGTC's learning management system (LMS) used for course materials.

Access to myHGTC portal for student self-services.

College email access – this is the college's primary official form of communication.

CLASSROOM ETIQUETTE:

As a matter of courtesy to other students and your professor, please turn off cell phones and other communication/entertainment devices before class begins. If you are monitoring for an emergency, please notify your professor prior to class and switch cell phone ringers to vibrate.

Part II: Student Learning Outcomes

COURSE LEARNING OUTCOMES and ASSESSMENTS*:

After successful completion of this course, the student will be able to meet the following terminal behavior outcomes:

1. Explain Blood Cell Production, Structure, and Function
2. Discuss the preanalytical, analytical and post-analytical components in hematology and hemostasis.
3. Discuss the QC & QA systems used in Hematology & hemostasis.
4. Perform WBC differential and correlation with the complete blood count.
5. Describe Erythrocyte Disorders, Leukocyte Disorders
6. Explain Hemostasis and Thrombosis
7. Hematology and Hemostasis in Selected Populations
8. Demonstrate Manual, semiautomated testing in hematology.
9. Discuss Automated blood cell analysis.

Week 1

Lecture

Material Covered: Hematology in Practice: Cesila

Chapter 1

1. Describe the significance of the field of hematology in relation to sickness and health.
2. Define the terms preanalytic variables, postanalytic variables, delta checks, accuracy, precision, reproducibility, and reference intervals.

Lab:

Materials Covered: Lab manual

1. Prepare an acceptable Blood Smear for evaluation.
2. Perform a Manual staining method for a blood smear.
3. Name the type and percentage of normal leukocytes observed on five blood smears.

Week 2

Lecture

Material Covered: Hematology in Practice: Cesila

No Class- MLK Day

Lab: No lab this week

Week 3

Lecture

Material Covered: Hematology in Practice: Cesila

Chapter 2

1. Define the components of hematopoiesis with respect to production, development, maturation, and differentiation of blood cells.
2. Describe the organs used for hematopoiesis throughout fetal and adult life.
3. Define the myeloid:erythroid ratio.
4. List and define the components of the complete blood count (CBC).
5. Calculate red blood cell indices.
6. Recognize normal and critical values in an automated CBC

Lab:

Materials Covered: Lab manual

1. Describe the Erythrocyte maturation and cell changes which occur.
2. Perform 10 blood smears and report results

Week 4

Lecture

Material Covered: Hematology in Practice: Cesila

Chapter 3

1. Outline erythropoietic production from origin to maturation with emphasis on stages of red blood cell development.
2. Describe immature red blood cells with regard to nucleus:cytoplasm ratio, cytoplasm color, nuclear structure, and size.
3. Clarify the role of erythropoietin in health and disease.
4. Differentiate between microcyte and macrocyte and indicate the conditions in which size variations are seen
5. List the most common red blood cell inclusions and the disease states in which they are observed.
6. Describe the value of the reticulocyte count relative to bone marrow function.

Chapter 4

1. Identify the components of hemoglobin.
2. Define the structural elements related to hemoglobin to include globin chain synthesis.
3. Describe hemoglobin function.
4. Describe the origin of hemoglobin synthesis in erythroid precursors.
5. Describe hemolysis in terms of its effect on the bone marrow, blood smear, and blood plasma.
6. Define intravascular and extravascular hemolysis with respect to organ of origin and laboratory diagnosis.

Lab:

Materials Covered: Lab manual

1. Identify examples of abnormal red blood cell (RBC) morphology and inclusions.
2. Perform 10 blood smears and report accurate results.

Week 5

Lecture

Material Covered: Hematology in Practice: Cesila

Chapter 5

1. Describe the red blood cell indices related to the anemic process.
2. List the microcytic anemias considered in a differential diagnosis of microcytic processes
3. Describe the clinical presentation, pathogenicity and laboratory findings of:
 - Iron deficiency anemia
 - hereditary hemochromatosis
 - thalassemic conditions

Chapter 6

1. Describe the criteria that distinguish a macrocytic anemia as megaloblastic.
2. List the causes of vitamin B12 and folic acid deficiency.
3. Describe the clinical presentation, pathogenicity and laboratory findings of:
 - megaloblastic anemia.

Lab:

Materials Covered: Lab manual

1. Calculate RBC indices.
2. Fill a capillary tube with whole blood.
3. Explain the procedure and principle of a Spun Hematocrit.
4. Explain the principle of a (ESR) Erythrocyte Sedimentation Rate test.
5. Perform 10 blood smears and report accurate results.

Week 6

Lecture

Material Covered: Hematology in Practice: Cesila

Chapter 7

1. Review the functions of the spleen as they relate to red blood cell membrane integrity.
2. Describe the clinical presentation, pathogenicity and laboratory findings of:
 - hereditary spherocytosis.
 - hereditary stomatocytosis,
 - hereditary elliptocytosis,
 - hereditary pyropoikilocytosis.
 - hereditary stomatocytosis,
 - glucose-6-phosphate dehydrogenase deficiency.
 - Heinz bodies

- hereditary xerocytosis and Southeast Asian
- ovalocytosis.
- aplastic anemia,
- paroxysmal nocturnal hemoglobinuria,
- paroxysmal
- cold hemoglobinuria,
- Fanconi's anemia,
- Diamond-Blackfan syndrome,
- cold agglutinin disease, congenital
- dyserythropoietic anemia,

Chapter 8

1. Recall the general characteristics of the hemoglobinopathies.
2. Describe the clinical presentation, pathogenicity and laboratory findings of:
 - sickle cell anemia,
 - sickle cell trait

Lab:

Materials Covered: Lab manual

1. RBC Morphology & Automated CBC Correlation
2. Perform 10 blood smears and report accurate results.

Week 7

Lecture

Material Covered: Hematology in Practice: Cesila

Chapter 9

1. Describe leukopoiesis and the primary purpose of white blood cells.
2. List the maturation sequence of the granulocytic series.
3. Name four morphologic features that are helpful in differentiating the leukocytes.
4. Characterize the difference between absolute and relative values.
5. Describe the lymphatic system and its relationship to lymphocyte production.

Lab:

Materials Covered: Lab manual

1. Corrected WBC Cell Count
2. WBC & Platelet Estimates
3. Read 10 slides

Week 8

Lecture

Material Covered: Hematology in Practice: Cesila

Chapter 10

1. Identify conditions that cause the white blood cells to mobilize.
2. Differentiate conditions that cause a quantitative increase or decrease in a particular white blood cell line.
3. Define white blood cell-related terms, such as leukocytes, left shift, leukemoid reaction, and leukoerythroblastosis.
4. Explain the steps involved in phagocytosis.
5. Describe the clinical presentation, pathogenicity and laboratory findings of:
 - Gaucher's disease,
 - Niemann-Pick disease,
 - Tay-Sachs disease.

Lab:

Materials Covered: Lab manual

1. Handling Abnormal Automated CBC Results
2. Read 10 slides

Week 9

Lecture

Material Covered: Hematology in Practice: Cesila

Chapter 11

1. Briefly describe the World Health Organization (WHO) classification for acute myeloid leukemias (AMLs) and related neoplasms and the WHO classification for acute lymphoblastic leukemia/lymphoma (ALL).
2. Describe staining methods to distinguish acute leukemias.
3. Describe the clinical presentation, pathogenicity and laboratory findings of:
 - AML
 - MLL
 - CML
 - CLL.

Chapter 12

1. Describe the clinical presentation, pathogenicity and laboratory findings of myeloproliferative neoplasms.
2. Identify the major cell lines involved with myeloproliferative neoplasms.

Lab:

Materials Covered: Lab manual

1. Leukemia disorders- Clinical hematology Atlas
2. Absolute WBC Count
3. Non-Malignant WBC Drawing series
4. Read 10 slides

Week 10

Lecture

Material Covered: Hematology in Practice: Cesila

Chapter 13

1. Distinguish common features of the chronic lymphoproliferative disorders.
2. Describe the clinical presentation, pathogenicity and laboratory findings of:
 - Hodgkin's lymphoma
 - non-Hodgkin's lymphoma
 - multiple myeloma.
 - Waldenstrom's macroglobulinemia.

Chapter 14

1. Describe the clinical presentation, pathogenicity and laboratory findings of myelodysplastic syndromes (MDSs).
2. Discuss the management of MDSs.

Lab:

Materials Covered: Lab manual

1. Immature, Reactive, or Abnormal WBCs
2. Read 10 slides

Week 11

Lecture

Material Covered: Hematology in Practice: Cesila

Chapter 15

1. Describe the functions of the systems of hemostasis.
2. Describe the interaction of the vascular system and platelets as it relates to activation, adhesion, and vasoconstriction.
3. Identify the process involved in the coagulation cascade.
4. List the coagulation factors and their common names.
5. Briefly describe the international normalized ratio and its role in monitoring anticoagulant therapy.

Lab:

Materials Covered: Lab manual

1. Prothrombin Time- manual method
2. Read 10 slides

Week 12

Lecture

Material Covered: Hematology in Practice: Cesila

Chapter 16

1. Define quantitative platelet disorders.
2. State how preanalytic variables may affect the platelet count
3. Describe the clinical presentation, pathogenicity and laboratory findings of:
 - qualitative platelet disorders
 - von Willebrand disease,
 - Bernard-Soulier syndrome,
 - Glanzmann's thrombasthenia.
 - immune thrombocytopenia
 - chronic idiopathic thrombocytopenic purpura
 - hemolytic uremic syndrome
 - thrombotic thrombocytopenic

Chapter 17

1. Describe the variable types of bleeding found in patients with clotting factor deficiencies versus platelet disorders.
2. Describe the role of vitamin K with regard to maintaining hemostasis
3. Describe the types of bleeding secondary to a chronic disease process
4. Describe the clinical presentation, pathogenicity and laboratory findings of hemophilia A and hemophilia B.

Lab:

Materials Covered: Lab manual

1. BFT Analyzer Condensed procedure
2. Read 10 slides

Week 13

Lecture

Material Covered: Hematology in Practice: Cesila

Chapter 18

1. Recall the role of fibrinogen in the coagulation and fibrinolytic systems
2. Describe the clinical presentation, pathogenicity and laboratory findings of:

- disseminated intravascular coagulation (DIC)
- thromboembolic disorders

Chapter 19

1. Define thrombophilia and thrombosis.
2. Identify hemostatic changes responsible for pathologic thrombosis
3. Describe antithrombin, protein C, and protein S with regard to properties, mode of action, factors affected, and complications associated with their deficiencies.
4. Describe the clinical presentation, pathogenicity and laboratory findings of:
 - heparin-induced thrombocytopenia
 - Factor V Leiden thrombocytopenia
 - heparin-induced thrombocytopenia.
5. List the types of anticoagulant drugs used for treatment of thrombotic disorders.

Lab:

Materials Covered: Lab manual

1. Hematology Case Studies
2. Read 10 slides

Week 14

Lecture

Material Covered: Hematology in Practice: Cesila

Chapter 20

1. Describe the principle of electrical impedance.
2. Summarize how histograms and scatterplots assist in automated data reporting.

Lab:

Materials Covered: Lab manual

1. Lab practice for Competency

Week 15

Lecture

Material Covered: Hematology in Practice: Cecila

Final Exam Review

Lab:

Lab Comprehensive Competency

***Students – please refer to the Instructor's Course Information sheet for specific information on assessments and due dates.**

Part III: Grading and Assessment

EVALUATION OF REQUIRED COURSE MEASURES/ARTIFACTS*:

Students' performance will be assessed, and the weight associated with the various measures/artifacts are listed below.

EVALUATION*

Chapter Tests	50%
Lab Assignments	20%
Lab Comprehensive evaluation	50%
Lab skills competencies	25%
Weekly Affective Skills	25%
Homework Assignments	5%
In class quizzes	5%
Final Exam	<u>20%</u>
	100%

***Students, for the specific number and type of evaluations, please refer to the Instructor's Course Information Sheet.**

GRADING SYSTEM:

State the College's or departmental grading system as delineated in the Catalog. Please note the College adheres to a 10-point grading scale A = 100 – 90, B = 89- 80, C = 79 – 70, D = 69 – 60, F = 59 and below. You must have your Dean's approval if changes in the scale are made.

Grades earned in courses impact academic progression and financial aid status. Before withdrawing from a course, be sure to talk with your instructor and financial aid counselor about the implications of that course of action. Ds, Fs, Ws, WFs and Is also negatively impact academic progression and financial aid status.

The Add/Drop Period is the first 5 days of the semester for **full term** classes. Add/Drop periods are shorter for accelerated format courses. Please refer to the [academic calendar](#) for deadlines for add/drop. You must attend at least one meeting of all your classes during that period. If you do not, you will be dropped from the course(s) and your Financial Aid will be reduced accordingly.

Part IV: Attendance

Horry-Georgetown Technical College maintains a general attendance policy requiring students to be present for a minimum of 80 percent (80%) of their classes in order to receive credit for any course. Due to the varied nature of courses taught at the college, some faculty may require

up to 90 percent (90%) attendance. Pursuant to 34 Code of Federal Regulations 228.22 - Return to Title IV Funds, once a student has missed over 20% of the course or has missed two (2) consecutive weeks, the faculty is obligated to withdraw the student, and a student may not be permitted to reenroll. **Instructors define absentee limits for their class at the beginning of each term; please refer to the Instructor Course Information Sheet.**

For online and hybrid courses, check your Instructor's Course Information Sheet for any required on-site meeting times. Please note, instructors may require tests to be taken at approved testing sites, and if you use a testing center other than those provided by HGTC, the center may charge a fee for its services.

Part V: Student Resources



THE STUDENT SUCCESS AND TUTORING CENTER (SSTC):

The SSTC offers to all students the following free resources:

1. Academic tutors for most subject areas, Writing Center support, and Academic Coaching for college success skills.
2. Online tutoring and academic support resources.
3. Professional and interpersonal communication coaching in the EPIC Labs.

Visit the [Student Success & Tutoring Center](#) website for more information. To schedule tutoring or coaching, contact the SSTC at sstc@hgtc.edu or self-schedule in the Penji iOS/Android app or at www.penjiapp.com. Email sstc@hgtc.edu or call SSTC Conway, 349-7872; SSTC Grand Strand, 477-2113; and SSTC Georgetown, 520-1455, or go to the SSTC [Online Resource Center](#) to access on-demand resources.



STUDENT INFORMATION CENTER: TECH Central

TECH Central offers to all students the following free resources:

1. Getting around HGTC: General information and guidance for enrollment, financial aid, registration, and payment plan support!
2. In-person and remote assistance are available for Desire2Learn, Student Portal, Degree Works, and Office 365.

3. Chat with our staff on TECH Talk, our live chat service. TECH Talk can be accessed on the student portal and on TECH Central's website, or by texting questions to (843) 375-8552. Visit the Tech Central website for more information. Live Chat and Center locations are posted on the website. Or please call (843) 349 – TECH (8324), Option # 1.



HGTC LIBRARY:

Each campus location has a library where HGTC students, faculty, and staff may check out materials with their HGTC ID. All three HGTC campus libraries have librarians and staff who can aid with research, computers to support academic research and related school-work, and individual/group study rooms. Printing is available as well at each location. Visit the [Library](#) website for more information or call (843) 349-5268.

STUDENT TESTING:

Testing in an **online/hybrid** course and in **make-up exam** situations may be accomplished in a variety of ways:

- Test administered within D2L.
- Test administered in writing on paper.
- Test administered through Publisher Platforms (which may have a fee associated with the usage)

Furthermore, tests may have time limits and/or require a proctor.

Testing candidates must make their appointments 24 hours in advance.

Students must bring a physical ID in order to take a test.

Proctoring can be accomplished either face-to-face at an approved site or online through our online proctoring service. To find out more about proctoring services, please visit the [Online Testing](#) section of the HGTC's Testing Center webpage.

The **Instructor Information Sheet** will have more details on test requirements for your course.

DISABILITY SERVICES:

HGTC is committed to providing an accessible environment for students with disabilities. Students seeking accommodations are encouraged to visit HGTC's [Accessibility and Disability Service webpage](#) for detailed information.

It is the student's responsibility to self-identify as needing accommodations and to provide

appropriate documentation. Once documentation is submitted, the student will participate in an interactive process with Accessibility and Disability Services staff to determine reasonable accommodations. Students may begin the accommodations process at any time; however, accommodations are **not retroactive** and will only be applied from the point at which they are approved. Students must contact the office **each semester** to renew their accommodations.

For assistance, please contact the Accessibility and Disability Services team at disabilityservices@hgtc.edu or 843-796-8818 (call or text).

COUNSELING SERVICES:

HGTC Counseling Services strives to optimize student success through managing personal and academic concerns that may interfere with achieving educational goals. Staff are available to every student for assistance and guidance on personal matters, academic concerns and other areas of concern. HGTC offers free in-person and telehealth counseling services to students. For more information about counseling services, please reach out to counseling@hgtc.edu or visit the website the [Counseling Services webpage](#).

STATEMENT OF EQUAL OPPORTUNITY/NON-DISCRIMINATION STATEMENT:

Our sincere commitment to both effective business management and equitable treatment of our employees requires that we present this Policy Statement as an embodiment of that commitment to the fullest.

Discrimination is conduct that includes unjust or prejudicial treatment based upon an individual's sex, race/color, religion, national origin, age, disability, service in the uniformed services (as defined in state and federal law), veteran status, political ideas, marital or family status, pregnancy, childbirth, or related medical conditions, including, but not limited to, lactation, genetic information, genetic identity, gender expression, or sexual orientation that excludes an individual from participation in, denies the individual the benefits of, treats the individual differently, or otherwise adversely affects a term or condition of a person's working or learning environment. This includes failing to provide reasonable accommodation, consistent with state and federal law, to persons with disabilities.

INQUIRIES REGARDING THE NON-DISCRIMINATION/TITLE IX POLICIES:

Student and prospective student inquiries concerning Section 504, Title II, Title VII, and Title IX and their application to the College or any student decision may be directed to the Vice President for Student Affairs.

Dr. Melissa Batten, VP Student Affairs

Title IX, Section 504, and Title II Coordinator

Building 1100, Room 107A, Conway Campus

PO Box 261966, Conway, SC 29528-6066
843-349-5228
Melissa.Batten@hgtc.edu

Employee and applicant inquiries concerning Section 504, Title II, and Title IX and their application to the College may be directed to the Vice President for Human Resources.

Jacquelyne Snyder, VP Human Resources

Affirmative Action/Equal Opportunity Officer and Title IX Coordinator
Building 200, Room 205B, Conway Campus
PO Box 261966, Conway, SC 29528-6066
843-349-5212
Jacquelyne.Snyder@hgtc.edu

TITLE IX REQUIREMENTS:

Title IX of the Education Amendments of 1972 protects students, employees, applicants for admission and employment, and other persons from all forms of sex discrimination.

HGTC prohibits the offenses of domestic violence, dating violence, sexual assault, and stalking and will provide students, faculty, and staff with necessary information regarding prevention, policies, procedures, and resources.

Any student, or other member of the college community, who believes that they have been a victim of sexual harassment, domestic violence, dating violence, sexual assault, or stalking may file a report with the college's Title IX Coordinator or campus law enforcement*.

*Faculty and Staff are required to report these incidents to the Title IX Coordinator when involving students. The only HGTC employees exempt from mandatory reporting are licensed mental health professionals (only as part of their job description such as counseling services).

Student and prospective student inquiries concerning Title IX and its application to the College or any student decision may be directed to the Vice President for Student Affairs.

Dr. Melissa Batten, VP Student Affairs

Title IX, Section 504, and Title II Coordinator
Building 1100, Room 107A, Conway Campus
PO Box 261966, Conway, SC 29528-6066
843-349-5228
Melissa.Batten@hgtc.edu

Employee and applicant inquiries concerning Title IX and its application to the College may be directed to the Vice President for Human Resources.

Jacquelyne Snyder, VP Human Resources

Affirmative Action/Equal Opportunity Officer and Title IX Coordinator
Building 200, Room 205B, Conway Campus
PO Box 261966, Conway, SC 29528-6066
843-349-5212
Jacquelyne.Snyder@hgtc.edu

PREGNANCY ACCOMMODATIONS

Under Title IX, colleges must not exclude a pregnant student from participating in any part of an educational program. Horry-Georgetown Technical College is committed to ensuring that pregnant students receive reasonable accommodations to ensure access to our educational programs.

Students should advise the Title IX Coordinator of a potential need for accommodations as soon as they know they are pregnant. It is extremely important that communication between student, instructors, and the Title IX Coordinator begin as soon as possible. Each situation is unique and will be addressed individually.

Title IX accommodations DO NOT apply to Financial Aid. Financial Aid regulations do not give the College any discretion in terms of Financial Aid eligibility.

Certain educational programs may have strict certification requirements or requirements mandated by outside regulatory agencies. Therefore, in some programs, the application of Title IX accommodations may be limited.

To request pregnancy accommodations, please complete the *Pregnancy Intake Form* that can be found [here](#).