

The University of Texas at El Paso
College of Health Sciences
Clinical Laboratory Science Program



Course Information

CLSC 3368 Immunochemistry (Blood Banking)
CRN: 21047
Term: Spring 2026
Delivery Method: In person
Meeting Day and Time: Monday and Wednesday, 8:00 – 9:20 a.m.
Location: HSSN 135
Restricted for CLIN majors only

Instructor Information

M. Lorraine Torres, Ed. D, MLS (ASCP)
CNHS Room 423, Phone 747-7282,
E-mail: lorit@utep.edu
Office Hours: Tuesday 9:00 – 11:00 a.m., Friday 1:00 – 4:00 p.m. or by appointment. The best time to speak with me is after class.

Course Description

This course covers the immuno-chemical reactivity of blood antigens & antibodies, including the interrelationships of genetics, blood grouping, compatibility testing, hemolytic disease of the newborn, and the implications for transplantation, paternity and forensic testing. Transfusion services are investigated including donor selection, component preparation, and storage, transfusion practices including the quality control/assurance issues in the modern Transfusion center. HLA testing and component therapy is explored. Pre-analytical, analytical, and post-analytical aspects of immunochemistry will be discussed. Restricted to major: CLIN. Corequisite: CLSC 3269. Prerequisites: CLSC 3351 and CLSC 3356 each with a grade of “C” or better.

ILLNESS PRECAUTIONS

Please stay home if you have symptoms of a communicable illness. If you are feeling unwell, please let me know as soon as possible, so that we can work on appropriate accommodations.

Cognitive Objectives

Upon successful completion of the course, the student should be able to:

1. Explain and give rationale for the various quality control procedures performed in a transfusion service laboratory (pre-analytical, analytical and post analytical).
2. Realize the importance of quality control and quality assurance by reviewing case studies of transfusion reactions due to inaccurate quality control and quality assurance issues.
3. Identify the major blood group antigens and antibodies and their specificities and sensitivities as applied to identification and antibody production.
4. Understand the significance of human blood group antigens and antibodies in relation to blood transfusion and the well-being of the patient.
5. Characterize the genetic principles governing the inheritance of blood group and HLA antigens.
6. Describe the protective techniques and safety practices utilized in the transfusion service laboratory and fathom the consequences for not following such techniques and practices.
7. Describe and explain the theory involved in donor selection criteria, approved blood collection procedures, compatibility testing, component preparation, and transfusion therapy procedures.
8. Demonstrate a positive attitude toward Immunohematology and appreciate the value of accurate testing and evaluation in providing the patient and the clinician accurate tools for diagnosis and treatment.
9. Recreate patient's and family member's anxieties and expressions associated with receiving blood transfusions.

NOTE: As a UTEP CLS student all, our courses are interrelated and you may be asked questions over material you have covered in previous CLS courses and or concurrent courses you are taking in a semester.

Affective Domain Objectives

Goals / Purpose: Clinical Laboratory Science students are expected to show growth in professional behaviors appropriate to a laboratory setting and to maintain those behaviors possessed at time of entry.

Objectives: To show the appropriate responsible behaviors, students will demonstrate:

1. A positive attitude by being prepared for lecture and laboratory sessions, completing assigned tasks on time, and displaying self-motivation and initiative.

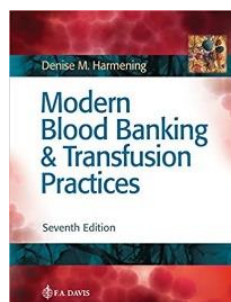
2. Organization by utilizing time efficiently, sequencing and prioritizing tasks for completion with time constraints, and maintaining a neat and clean work area.
3. Attention to detail by diligently pursuing accuracy and documenting data accurately and legibly. Spelling Counts!
4. Problem solving ability by explaining the purpose of each step in a procedure or instrument operation, recognizing discrepancies in techniques or procedures, and repeating lab tests when necessary.
5. Dependability by following directions, working independently, after being given directions, and being present and on time with only excused absences.
6. Stability and self-confidence by approaching and performing routine tasks confidently without assistance and maintaining composure.
7. Appropriate interpersonal skills by cooperating and communicating effectively with classmates and instructors, and displaying courteous, considerate behavior and appropriate appearance.
8. Ethical behavior and integrity by respecting the confidentiality of patient information, complying with professional standards and code of ethics, adhering to safety policies and abiding by all rules and regulations of the institution.

Psychomotor Domain Objectives

Will be covered in the Immunohematology laboratory CLSC 3269.






Required Texts

- ❖ Denise M. Harmening. (2019). *Modern Blood Banking and Transfusion Practices. 7th edition*. F.A. Davis Company. ISBN 9780803694620
- ❖ Jarreau, P. (2021). *Clinical Laboratory Science Review a Bottom Line Approach (6th ed.)*. Louisiana State University Health sciences Center foundation. New Orleans. ISBN 978-0-9670434-3-2



EDGE ADVANTAGES

This course is designed to equip students with essential Edge Advantages that contribute to their professional and personal development. Through the completion of course requirements and assignments, such as team projects, presentations, and essays, students will develop the following Edge Advantages:

	Problem-Solving	Assignments will challenge students to identify and address complex issues using innovative and analytical approaches.
	Communication	Class discussions and written assignments will improve students' skills in articulating ideas clearly and persuasively in both oral and written forms.
	Social Responsibility	Through community engagement opportunities and course content that encourages ethical considerations, students will foster a sense of responsibility towards their community and society at large.
	Confidence	By actively participating and successfully completing assignments, students will build self-assurance in their abilities to tackle academic and real-world challenges.
	Critical Thinking	The course's emphasis on analysis and synthesis of information will strengthen students' abilities to think critically and make informed decisions.

EXAMINATIONS:

Five exams and a **comprehensive final** will be given. Exams are worth 50% of the total grade and the final is worth 35%. **No make-up exams will be given.** If an exam is missed (0%), the final grade will be based on the average of exams. **None of the test grades will be dropped.**

HOW DO YOU EARN YOUR GRADE?

Assessments of Performance
15% Ticket to Class / Quizzes
50% 5 Exams questions**
35% comprehensive final exam**

***All exams including the final will be comprehensive**
***Information from Laboratory (CLSC 3269) will be included**

Grade Scale (%)

100 - 90	A
89.9 - 80	B
79.9 - 75	C
74.9 - 70	D (is not passing in the CLS program)
69.9 or below	F

Test Policy:

There will be five examinations and a comprehensive final. **All exams will be taken on-line during class time. You will need a camera and Respondus lockdown to take the exam. You will receive a number before class and will sit according to the number chosen. Only your computer and a bottled water / drink will be allowed during the exam, and all backpacks and personal items must be placed either at the back of the room or under the tables.** The lecture exams may include brief essay questions and case studies along with multiple choice questions. **No make-up exams will be offered.** If you cannot attend an exam for a legitimate reason, (death, illness etc.) inform the instructor as soon as possible and the instructor will arrange a new time. At the instructor's discretion an exam may be taken late **with an automatic deduction of 10 points.** If the student does not make any arrangements (s)he will receive a ZERO on the exam. **Please note that our grade scale is different from the standard grade scale. To pass the course you must earn a 75% average and a 74.9% does not constitute a passing grade.** Students in the CLS program cannot continue with the program with a grade of D or below.

Although this course has a separate laboratory, all topics, strategies, methods and procedures covered in the laboratory can and will be tested on in the lecture class.

It is vital that the student not only grasps the basic knowledge but also be able to think critically and to interpret laboratory results. The minute you do not understand, immediately ask for clarification. **A major cause of being unsuccessful in this class is the student's failure to ask for help. DO NOT WAIT UNTIL THE LAST MINUTE TO ASK FOR HELP!**

UNANNOUNCED QUIZZES AND ASSIGNMENTS:

Both announced and unannounced quizzes and assignments will be given throughout the course and will constitute part of your individual performance assessment. You will need to log on to your Immunohematology class every day to make sure you do not miss any of the assignments or quizzes. **Assignments that are turned in late will not be accepted.** **Attendance of Class Sessions:** Being absent from even one class session will hurt your understanding and performance in the class. You are also likely to miss graded in-class assignments or quizzes which make up 15% of your grade. If you are not present, you cannot get the points.

Course Drop policy

According to UTEP Curriculum and Classroom Policies, "When, in the judgment of the instructor, a student has been absent to such a degree as to impair his or her status relative to credit for the course, the instructor may drop the student from the class with a grade of "W" before the course drop deadline and with a grade of "F" after the course drop deadline." See academic regulations in the UTEP Undergraduate Catalog for a list of excuse absences. Therefore, if I find that, due to non-performance in the course, you are at risk of failing, I will drop you from the course. I will provide 24 hours advance notice via email.

Scholastic Integrity

Academic dishonesty is prohibited and is considered a violation of the UTEP Handbook of Operating Procedures. It includes, but is not limited to, cheating, plagiarism, and collusion. Cheating may involve copying from or providing information to another student, possessing unauthorized materials during a test, or falsifying research data on laboratory reports. Plagiarism occurs when someone intentionally or knowingly represents the words or ideas of another as ones' own. Collusion involves collaborating with another person to commit any academically dishonest act, for example giving someone the access codes for exams. Any act of academic dishonesty attempted by a UTEP student is unacceptable and will not be tolerated. All suspected violations of academic integrity at The University of Texas at El Paso must be reported to the [Office of Community Standards](#) for possible disciplinary action. To learn more, please visit [HOOP: Student Conduct and Discipline](#) .

Accommodations Policy

The University is committed to providing reasonable accommodations for students with documented disabilities. Students who become pregnant may also request reasonable accommodations, in accordance with state and federal laws and regulations and University policy. Accommodations that constitute undue hardship are not reasonable. To make a request, please register with the UTEP Center for Accommodations and Support Services (CASS). Contact CASS at 915-747-5148, email them at cass@utep.edu, or apply for accommodations online via the CASS portal.

Harassment:

Please be aware that harassment is unacceptable in the classroom. No jokes, comments of sexual nature as well as racists will be tolerated. The student that uses harassment will be sent to the Dean of students for disciplinary action.

Course Resources: Where you can go for assistance

UTEP provides a variety of student services and support. Please refer to the QR code below for a listing of campus resources or visit https://www.utep.edu/advising/student_resources/student-success-resource-hub.html.



TIME NEEDED TO STUDY! How to be successful in this course

The typical rule is for each hour you spend in class, you should spend 2-3 hours outside of class studying. On average, you need to read a minimum of one chapter per day and complete the individual assignments.

Try to follow these steps:

1. DO THIS FIRST!!! Look at the TENTATIVE course schedule and read the assigned chapter to be covered that day before reviewing the power points
2. Open PowerPoint lecture and have textbook open and take notes alongside the power point. **DO NOT BE AFRAID TO MARK UP YOUR BOOK.**
3. After reviewing the lecture and taking notes, RE-READ THE CHAPTER.
4. Come prepared to class by completing your group and or individual assignment **BEFORE** class. Answer the objective in the beginning of the chapter, review case studies, and answer questions in the back of the chapter.
5. Bring questions or ask for clarifications with you when you come to the lab.

Major Mistakes Students Make that Negatively Affect Their Grades:

- 1) Not actively contributing to class discussions or asking questions.
- 2) Being absent in-class and missing quizzes.
- 3) Procrastinating, not working in advance of a deadline or not completing the study guides.
- 4) Having poor time management skills and strategies leading to not putting in the necessary work and time outside of class.
- 5) Relying on others' work and not questioning why they chose answers
- 6) Scholastic Dishonesty

Technology Requirements

Some course content is delivered via the Internet through the Blackboard learning management system. Ensure your UTEP e-mail account is working and that you have access to the Web and a stable web browser. Google Chrome and Mozilla Firefox are the best browsers for Blackboard; other browsers may cause complications. When having technical difficulties, update your browser, clear your cache, or try switching to another browser.

You will need to have access to a computer/laptop. You will need to download or update the following software: Microsoft Office, Adobe Acrobat Reader, Windows Media Player, QuickTime, and Java. Check that your computer hardware and software are up-to-date and able to access all parts of the course.

If you do not have word-processing software, you can download Word and other Microsoft Office programs (including Excel, PowerPoint, Outlook and more) for free via UTEP's Microsoft Office Portal. Click the following link for more information about [Microsoft Office 365](#) and follow the instructions.

IMPORTANT: If you encounter technical difficulties beyond your scope of troubleshooting, please contact the UTEP [Technology Support](#) as they are trained specifically in assisting with technological needs of students.

Technology Support, Study Spaces, and Wi-Fi

Technology Support will be available for all students studying remotely or taking classes on campus. Students may contact Technology Support for laptop repair, academic software needs or to set up personal computers to print documents utilizing campus printers. Laptops and Wi-fi hotspots also are available for checkout. Students should contact [Technology Support](#) when help is needed with Blackboard or the online proctoring software.

Lounges, lobbies, and common areas for studying have been reconfigured to support social distancing. Students are encouraged to take advantage of outdoor venues where Wi-Fi has been expanded and enhanced. These venues include:

- Centennial Plaza
- Engineering breezeway
- Interdisciplinary Research Building patio
- Fox Fine Arts 2nd floor breezeway

Title IX Statement:

Title IX of the Education Amendments of 1972 (Title IX), prohibit discrimination on the basis of sex in education programs or activities operated by recipients of Federal financial assistance. Sexual harassment of students, which includes acts of sexual violence, is a form of sex discrimination prohibited by Title IX. Sexual violence refers to physical sexual acts perpetrated against a person's will or where a person is incapable of giving consent due to the victim's use of drugs or alcohol. An individual also may be unable to give consent due to an intellectual or other disability. A number of different acts fall into the category of sexual violence, including rape, sexual assault, sexual battery, sexual coercion, stalking, and relationship violence. All such acts of sexual violence are forms of sexual harassment covered under Title IX.

In accordance with Title IX of the Education Amendments of 1972, UTEP does not discriminate on the basis of sex in the operation of its educational programs and activities. This commitment to non-discrimination applies to both employment in and admission to such programs and activities. [Link to full text at <http://admin.utep.edu/Default.aspx?tabid=68750>]

Inquiries regarding Title IX should be referred to the University's Title IX Coordinator(s):

Gabriel Ramirez, J.D., Title IX Coordinator (Oversees investigations and policy implementation)

915-747-8358 gramirez2@utep.edu

William A. Epperson, Title IX Coordinator (Primary investigator, institutional compliance)

915-747-8797 waepperson@utep.edu

Beatriz Tapia, Deputy Title IX Coordinator Director for Equal Opportunity

915-747-5839 betapia@utep.edu

Dr. Charles Gibbens, Deputy Title IX Coordinator (Student Affairs)

915-747-5076 cegibbens@utep.edu

Student Due Process

Students who believe they have been unfairly evaluated must:

Step 1: Attempt to resolve the difficulty with the faculty member.

Step 2: If the dispute cannot be resolved in Step 1, the student may within 5 school days appeal to the program director stating the evidence for the continued dispute in writing.

Step 3: If still unresolved a written complainant, evidence, and reason for the dissatisfaction must be submitted to the Assistant Dean of the College of Health Sciences. The Assistant Dean will call upon the Due Process Committee to review and make recommendations to the Assistant Dean based on statements, written evidence, and interviews with all parties involved.

Step 4: If the matter is still not settled, the complainant will notify the Dean, within five (5) school days. The Dean will then pursue the matter with the Vice President for Student Affairs

The process will continue until the matter is resolved.

Course schedule on next page

Blood Bank Tentative Section Schedule

Section I: Introduction, Genetics, ABH (Chapters 1 – 3, 5, 6)

JAN 19 - FEB 9

- Jan 21 Basic genetics /Basic immunology/ Antiglobulin test
- Jan 26 Basic genetics /Basic immunology/ Antiglobulin test
- Jan 28 ABO blood group system
- Feb 2 ABO blood group system /ABO antibodies
- Feb 4 ABO blood group system /ABO antibodies Lectins/ABO Discrepancies

Feb 9 EXAM I

Section II: Rh and other major blood group systems (Chapters 7 – 9)

FEB 11 - FEB 23

- Feb 11 Rh Blood group system
- Feb 16 Rh Blood group system Lewis/MNSs/P/I
- Feb 18 Rh Blood group system Lewis/MNSs/P/I

Feb 23 ABO/Rh Exam II:

Section III: Major blood group systems (Chapters 8 – 9)

Feb 25 - March 18

- Feb 25 Lewis/MNSs/P/I
- March 2 Kell/Kidd/Duffy/Lutheran
- March 4 Kell/Kidd/Duffy/Lutheran
- March 9 Kell/Kidd/Duffy/Lutheran/Miscellaneous systems

March 11 ABO/Rh/ COLD and Warm antibodies Exam III (you also have a hematology exam this day)

March 16 Spring Break

March 18 Spring Break

Section IV: Donor selection, Antibody I.D., (Chapters 10 - 13,)

MARCH 23 – APRIL 8

- Mar 23 Detection and Identification of Antibodies also covered in lab
- Mar 25 Detection and Identification of Antibodies also covered in lab
- Mar 30 Pretransfusion testing – compatibility
- April 1 Donor screening and Component Preparation
- April 6 Blood bank Technologies

April 8 EXAM IV Donor selection, Antibody I.D.,

I strongly suggest that you go give blood in order for you to comprehend Donor selection.

Section V: HDN, Relationship, AIHA, Stem Cell, and miscellaneous, (Chap 14 – 21, 24)

APRIL 13 – MAY 7

- April 13 Transfusion Therapy, Aphaeresis, Transplantation
- April 15 Transfusion Therapy, Aphaeresis, Transplantation
- April 20 Adverse effects of Blood Transfusion
- April 22 Transfusion-Transmitted Diseases
- April 27 Transfusion-Transmitted Diseases
- April 29 HDN and Autoimmune Hemolytic Anemia
- May 4 Relationship testing, HLA TESTING

May 6 EXAM V

COMPREHENSIVE FINAL May 11 – 15 TBD