

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



**CLSC 3368 Immunohematology CRN 21885**  
**(Blood Banking)**

Restricted for CLIN majors only

**On-line asynchronous**

***Spring 2021***

**Instructor**

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**Virtual Office Hours via Blackboard Collaborate: Check Blackboard for the link**

TW 10:00 – 11:00 a.m., after blood bank labs or by appointment.

You can also set up a meeting via e-mail. I would like to invite you to use the office hours to clarify points you did not understand in lecture, to discuss subject matter according to your special interests, or to talk about your career goals. If you feel confused or lost, do not wait until the last minute to see me. The best time to reach me is during my office hours or during the Blood Bank laboratory. If you are unable to see me at this time, you may arrange an appointment at another time. You may schedule meetings by blackboard, telephone, or in person after lecture/laboratory session. Please use office hours to clarify lecture objectives, special interests or career goals at the earliest convenience for both parties. The best time to reach me by phone is during posted office hours. If I am unable to answer your call, please leave a detailed message and I'll return your call as soon as possible.

**Immunohematology** is more commonly known as "blood banking" is a branch of immunology that incorporates hematology and the immunologic properties of blood. Immunohematology deals with the giving and receiving of blood and blood components. This is the area of laboratory medicine dealing with preparing blood and blood components for transfusion as well as selection of appropriate, compatible components for transfusion. Immunohematology, otherwise known as Blood Banking, is the name given to the study of antigens, antibodies, and procedures involved in the transfusion services department. **A background in immunology and genetics is essential to understanding the theory and practice of blood bank.**

## **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 immunohematology will be discussed.

## **Course Goal**

This course is designed to present not only the theoretical and practical basis for all technical procedures accomplished in the modern transfusion services laboratory, but also to present the fears and anxieties by those patients and families who must depend upon your clinical expertise to assure them that they will not be acquiring AIDS or any other blood borne pathogen. You must fathom the importance of your knowledge both theoretical and practical in relation to safety (yours and the patient's) and in relation to the life giving decisions you will be making. Supervision and management procedures unique to this department will be covered including issues of quality control and quality assurance and medicolegal and ethical aspects of providing Blood collection and transfusion services.

## **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 particular 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.

### **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.
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 test 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.**

## **How to Be Successful in This Course**

This course is designed using a 5 sectional format – that is, each section (as described in the tentative lecture schedule) is “packaged” as a single section so that all the materials, lecture notes, etc, are given under one Heading.

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. Try to follow these steps:

1. **DO THIS FIRST!!!** Look at the tentative course schedule (section), read that chapter to be covered.
2. Open PowerPoint lecture and have text book open and take notes alongside the power point. DON'T BE AFRAID TO MARK UP YOUR BOOK.
3. After reviewing the lecture and taking notes, RE-READ THE CHAPTER.
4. Answer the objective in the beginning of the chapter, review case studies, and answer questions in the back of the chapter.
5. Take the quiz uploaded for the specific section
6. Bring questions or ask for clarifications with you when you come to the lab.

## **Technology Requirements**

Course content is delivered via the Internet through the Blackboard learning management system (LMS). Ensure your UTEP e-mail account is working and that you have access to the Web. You may use any of the primary Web browsers—Explorer, Google Chrome, Firefox, Safari, etc. When having technical difficulties, try switching to another browser.

You will need to have or have access to a computer/laptop, printer, scanner, a webcam, and a microphone. You will need to purchase a USB (flash drive). You will need to download or update the following software: Microsoft Office, Adobe, Flashplayer, 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 encounter technical difficulties of any kind, contact the [Help Desk](#).

## **Netiquette: 10 Rules of Netiquette for Students.**

The rules for online learning and classroom learning are virtually the same: You have to study, take notes, attend classes and participate in discussions. In the classroom, your words, gestures, posture and facial expressions communicate your thoughts and observations to your classmates and teachers, but how do you express yourself online, where the written word is all they see?

During your online CLS classes, you will frequently be asked to participate in online discussions and will occasionally do peer reviews of your classmates' work. Here are 10 rules of netiquette that will help you successfully communicate as you learn online.

1. **Make sure identification is clear in all communications.** Begin with a salutation (“Hi, Jason!”) and end with your signature (“Hannah Kay, CLS Immunology class”).
2. **Review what you wrote and try to interpret it objectively.** When we speak face to face and are misunderstood, we have an on-the-spot opportunity to rephrase our words. In writing, we must strive twice as hard to be understood, as we do not have the benefit of modifying or elaborating in real time. All caps (“I’M SHOUTING”) and exclamation points (“Give me a break!!!”) can be misinterpreted as intense anger or humor without the appropriate context.
3. **If you wouldn’t say it face to face, don’t say it online.** When you’re working online, you’re safe behind a screen, but that’s no excuse to be ill-mannered or say things you would never say in public.
4. **Don’t assume everyone understands where you’re coming from.** Sarcasm and wit is often the spice of in-person conversation, but in online discussion, it can not only lose its edge, it can bite! In your high school classroom, all students were the same age, came from similar backgrounds and lived in the same area. In contrast, your online classroom is made up of people of all ages and cultures who have varied backgrounds, lifestyles and geographic locations. With this in mind, review what you wrote before contributing to the conversation and ask yourself, “Will *everyone* get the joke?”
5. **Don’t spam.** Please don’t take advantage of your connection with the other students in your online classroom to forward emails and links regarding your political/spiritual beliefs or to sell your services.
6. **Use emoticons.** In casual chatroom settings, emoticons can help convey feelings that may otherwise get lost in translation, including humor, exasperation, exhaustion and even confusion.
7. **Respect others’ privacy.** Don’t give out another student’s personal email address without permission.
8. **Remember, if it’s on the internet, it’s everywhere.** Don’t share personal information about yourself in a public online forum, especially something that could put your safety or security at risk.
9. **Follow the rules.** Just as your online college posts guidelines related to [academic integrity and student expectations](#), online forums also have rules of conduct. Make a point to read them every time, as they can vary from class to class.
10. **Forgive and forget.** If you’re offended by something another student says online, keep in mind that you may have misunderstood their intentions. Give them the benefit of the doubt.

## 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.

[UTEP's Technology Support page](#) offers links to three web pages that are available to help the UTEP community learn, teach and work from off-campus: [learning remotely](#), [remote teaching](#), and [working remotely](#). For students, they've included links to [Blackboard tutorials](#) and access to [various software](#) and [OneDrive](#) downloads. Also, check out [tips to optimize your internet home usage](#).

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

## Required Texts

- ❖ Denise M. Harmening. (2019). *Modern Blood Banking and Transfusion Practices. 7th edition*. F.A. Davis Company. ISBN 9780803694620
- ❖ Jarreau, P. (2015). *Clinical Laboratory Science Review a Bottom Line Approach (5thed.)*. Louisiana State University Health sciences Center foundation. New Orleans. ISBN 978-0-9670434-3-2



## UTEP Bookstore

The University Bookstore will be open during the spring semester. In an effort to reduce the number of individuals inside the bookstore, students are encouraged to purchase their items [online](#) and either pick up their products in store or have their items delivered. An online pick up location will be available in the lobby.

University Bookstore Hours: Monday -Friday: 8 a.m. to 5 p.m. Saturday: 10 a.m. to 2 p.m.  
Sunday: Closed

Hours during first week of school: Monday – Thursday: 7 a.m. – 7 p.m. Friday: 8 a.m. – 5 p.m.  
Saturday 9 a.m. – 5 p.m. Sunday: Closed

For more information, please visit the University Bookstore at [utepbookstore.com](http://utepbookstore.com).  
Email: [1006mgr@follett.com](mailto:1006mgr@follett.com) or [1006asm@follett.com](mailto:1006asm@follett.com)

### How Will I Be Graded?

Grade Scale (%)		Course Evaluation	
100 -90	A	5 exams**	(50% of final grade)
89.9 - 80	B	TTC & Quizzes	(15% of final grade)
79.9 - 75	C	Final**	(35% of final grade)
74.9 – 70	D (is not passing in CLS)		
69.9 or below	F		

**\*All exams including the final will be comprehensive**

**\*Information from Laboratory (CLSC 3269) will be included**

### Test Policy:

**Exams will be scheduled on a Thursday and opened from 6 – 8 p.m.** There will be five examinations and a comprehensive final. **All exams are on-line and you will need a camera and responsus lockdown to take the exam.** 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 instructors 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 notice that our grade scale is different from the standard grade scale. In order 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 15% of the final grade. 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. There are no make-up exams or quizzes. **Assignments turned in late will not be accepted.**

### **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. 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 Student Conduct and Conflict Resolution (OSCCR) for possible disciplinary action. To learn more, please visit HOOP: Student Conduct and Discipline.

### **Accommodations Policy**

The University is committed to providing reasonable accommodations and auxiliary services to students, staff, faculty, job applicants, applicants for admissions, and other beneficiaries of University programs, services and activities with documented disabilities in order to provide them with equal opportunities to participate in programs, services, and activities in compliance with sections 503 and 504 of the Rehabilitation Act of 1973, as amended, and the Americans with Disabilities Act (ADA) of 1990 and the Americans with Disabilities Act Amendments Act (ADAAA) of 2008. Reasonable accommodations will be made unless it is determined that doing so would cause undue hardship on the University. Students requesting an accommodation based on a disability must register with the UTEP Center for Accommodations and Support Services (CASS). Contact the Center for Accommodations and Support Services at 915-7475148, or email them at [cass@utep.edu](mailto: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.

### **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):**

Sandy Vasquez , Title IX Coordinator (Investigation of concerns related to Faculty and Staff)

**915.747.5662 [svasquez@utep.edu](mailto:svasquez@utep.edu)**

Dr. Catie McCorry-Andalis, Deputy Title IX Coordinator (Education, Training and Outreach)

**915.747.5648 [cmandalis@utep.edu](mailto:cmandalis@utep.edu)**

Dr. Charlie Gibbens Deputy Title IX Coordinator (Interim Assistant Vice President for Student Support) Oversees investigations of concerns related to Students

**915-747-7448 [cegibbens@utep.edu](mailto:cegibbens@utep.edu)**

**Related Resources**

- Center Against Family Violence Hopelines: **915.593.7300 or 1.800.727.0511**
- El Paso Police Department (**911**) or UTEP Police Department (**747-5611**).
- For suspected harm of children or older persons, Child/Adult Protective Services **1-800-252-5400**.
- National Domestic Violence Hotline **1-800-799-SAFE (7233)**.

**Student Support Services:**

All students experience stress and emotional challenges. The following resources can help those feeling stressed, experiencing loss, and considering ending their life.

- UTEP's Counseling Center offers free counseling to all students with the same number leading to an after-hours crisis line: **(915) 747-5302**
- Mental Health Crisis Line **(915) 779-1800**
- National Suicide Prevention Hotline **1-800-273-8255** and Veterans Crisis Line **1-800-273-8255**
- NAMI of El Paso (National Alliance Against Mental Illness) **(915) 534-5478**

**Blood Bank Tentative Section Schedule**  
**All EXAMS WILL BE OPEN ON A THURSDAY FROM 6 – 8 P.M.**

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

**JAN 19 - FEB 11**

Basic genetics /Basic immunology/ Antiglobulin test  
Basic genetics /Basic immunology/ Antiglobulin test  
Basic genetics /Basic immunology/ Antiglobulin test  
ABO blood group system  
ABO blood group system /ABO antibodies  
ABO blood group system /ABO antibodies Lectins/ABO Discrepancies

**FEB 11 EXAM I**

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

**FEB 11 - FEB 25**

Rh Blood group system  
Rh Blood group system Lewis/MNSs/P/I  
Rh Blood group system Lewis/MNSs/P/I

**FEB 25 ABO/Rh Exam II**

**Section III: Major blood group systems (Chapters 9 – 10)**

**FEB 23 - MARCH 11**

Lewis/MNSs/P/I  
Kell/Kidd/Duffy/Lutheran  
Kell/Kidd/Duffy/Lutheran  
Kell/Kidd/Duffy/Lutheran/Miscellaneous systems

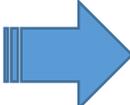
**March 11 ABO/Rh/ COLD and Warm antibodies Exam III**

**Section IV: Donor selection, Antibody I.D., (Chapters 10 - 11, 13, 15 - 18)**

**MARCH 22 – APRIL 15**

Detection and Identification of Antibodies also covered in lab  
Pretransfusion testing – compatibility  
Pretransfusion testing – compatibility  
Donor screening and Component Preparation  
Transfusion Therapy, Aphaeresis, Transplantation  
Adverse effects of Blood Transfusion

**APR 15 EXAM IV**



**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, 20, 21, 23, 24)**

**APRIL 20 – MAY 6**

Transfusion-Transmitted Diseases  
HDN and Autoimmune Hemolytic Anemia  
Relationship testing, HLA TESTING

**MAY 6 EXAM V**

**MAY 13 COMPREHENSIVE FINAL 9-12**