



Course Overview -Laboratory Medicine program

(Male students 1441H)

Course team:

Course code	1701453-3
Course title	Principles of Modern Blood Banking
Level/semester	4 th year / 1 st semester
Credit hours	3 CU (2 hours lecture + 2 hours practical)
Instructor	Dr. Saeed M Kabrah (Course coordinator): Assistant professor of stem cell and tissue modelling smkabrah@uqu.edu.sa Mobile: 0508009555 Dr. Mohammed Akhmad Aslam: Assistant Professor of Immunology. akhmed_aslam@hotmail.co.uk Mobile: 0505524982
Office Hours	4 hours for each staff member per week

Overview and aims:

This course has been designed to encompass the theoretical and practical aspects of the modern blood banking and transfusion technology. The study focuses on red cell antigens and the corresponding antibodies and their clinical importance, donor selection & blood donation, blood storage and component preparation, blood typing, unit testing and antibody identification.

Learning outcomes/ Objectives:

By the end of this course students will able to:

1. Describe the genetic and chemical consideration of different blood groups (ABO, Rh, Lewis, and others).
2. Explain the clinical importance of different blood group antigens and antibodies.
3. Review the different disorders that require treatment with blood or blood components, and which type of components should be used in each case.
4. Evaluate the eligibility of volunteers for blood donation.
5. Explain the principle and application of plasmapheresis and cell apheresis.
6. List the essential tests that should be done for both donors and recipients.
7. Discuss component preparation, appropriate use, shelf-life, and storage requirements.
8. Explain the pathophysiology of complications of blood transfusion and how to avoid and treat in practical life.
9. Take responsibility in performing blood bank laboratory investigations e.g. blood grouping, antibody identification, cross matching, Coomb's test.

Course Description:

	Theoretical lecture	Practical session
Week 1	Donor selection, screening and blood donation	---
Week 2	Types of blood donation and autologous transfusion	Preparation of red cell suspension
Week 3	Apheresis	Blood grouping and discrepancies
Week 4	ABO blood grouping	--
Week 5	ABO blood grouping	Direct and indirect antiglobulin test
Week 6	RH system	Antibody screening
Week 7	RH system	Antibody identification
Week 8	--	--
Week 9	Lewis system, P and I systems	Rh antibody titration
Week 10	Other blood group antigens	Cross-matching
Week 11	Blood storage and changes occurring during storage	Antigen phenotyping
Week 12	Blood component preparation and usages	Elution technique
Week 13	Blood component preparation and usages	Adsorption technique
Week 14	Complications of blood transfusion	Revision
Week 15	Haemolytic disease of the new born	

Course timetable (the instructors mentioned for the male students)

Lecturer: Thursday 1, 2 (08:00 – 09:50 am) – Q6
Lecturers: Dr Saeed Kabrah and Dr Mohammed Aslam

Week No.	Date	Title	Lecturer
1	06/01/1441H 05/09/2019G	Donor selection, screening and blood donation	Dr Kabrah
2	13/01/1441H 12/09/2019G	Types of blood donation and autologous transfusion	Dr Kabrah
3	20/01/1441H 19/09/2019G	Apheresis	Dr Kabrah
4	27/01/1441H 26/09/2019G	ABO blood grouping system	Dr Aslam
5	04/02/1441H 03/10/2019G	ABO blood grouping system	Dr Aslam
6	11/02/1441H 10/10/2019G	Rhesus (Rh) blood grouping system	Dr Aslam
7	18/02/1441H 17/10/2019G	Rhesus (Rh) blood grouping system	Dr Aslam
8	25/02/1441H 24/10/2019G	Mid Term Exams	
9	03/03/1441H 31/10/2019G	Lewis system, P and I systems	Dr Aslam
10	10/03/1441H 07/11/2019G	Other blood group antigens	Dr Kabrah
11	17/03/1441H 14/11/2019G	Blood storage and changes occurring during storage	Dr Kabrah
12	24/03/1441H 21/11/2019G	Blood component preparation and usages	Dr Kabrah
13	01/04/1441H 28/11/2019G	Blood component preparation and usages	Dr Kabrah
14	08/04/1441H 05/12/2019G	Complications of blood transfusion	Dr Aslam
15	15/04/1441H 12/12/2019G	Haemolytic disease of the new born	Dr Kabrah
16		Final Exams	
17		End of semester- Beginning of Mid-Term break	

Practical: **Group 1 Sunday 5, 6 (13:00 – 14:50 p.m) – Lab**
Group 2 Monday 5, 6 (13:00 – 14:50 p.m) – Lab
Lecturers: Dr Mohammed Aslam

Week No.	Date	Practical session	Tutor
1	02/01/1441H 01/09/2019G	--	--
2	09/01/1441H 08/09/2019G	Preparation of red cell suspension	Dr Aslam
3	16/01/1441H 15/09/2019G	Blood grouping and discrepancies	Dr Aslam
4	23/01/1441H 22/09/2019G	National Day	--
5	30/01/1441H 29/09/2019G	Direct and Indirect Antiglobulin test	Dr Aslam
6	07/02/1441H 06/10/2019G	Antibody screening	Dr Aslam
7	14/02/1441H 13/10/2019G	Antibody identification <i>Delivery of Case study</i>	Dr Aslam
8	21/02/1441H 20/10/2019G	Mid Term Exam	--
9	28/02/1441H 27/10/2019G	Rh antibody titration	Dr Aslam
10	06/03/1441H 03/11/2019G	Cross matching	Dr Aslam
11	13/03/1441H 10/11/2019G	Ag phenotype	Dr Aslam
12	20/03/1441H 17/11/2019G	Elution Techniques	Dr Aslam
13	27/03/1441H 24/11/2019G	Adsorption Techniques	Dr Aslam
14	04/04/1441H 01/12/2019G	Revision	Dr Aslam
15	11/04/1441H 08/12/2019G	Final practical exam	--
16	18/04/1441H 15/12/2019G	Final Written Exams	--
17	25/04/1441H 22/12/2019G	End of semester- Beginning of Mid-Term break	--

Evaluation:

The overall course marks are divided into 70% for the theory and 30% for the practical. The scores are further classified as follow;

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
Theoretical	Mid term theoretical exam	8 th	20%
	Delivery of the assignment 1	9 th	10%
	Final theoretical exam	16 th	40%
Practical	Practical Evaluation	All through	10%
	Case studies	14 th	5%
	Final practical exam	15 th	15%
	Total		100%

Learning Resources:

1. Required Text(s)

- Technical Manual by American Association of Blood Bankers by AABB (American Association of Blood Banks)
- Modern Blood Banking & Transfusion Practices by Denise M. Harming

2. Essential References

- Text Book of Blood Banking & Transfusion Medicine by Sally V. Rudman.
- Text Book of Transfusion Medicine by Mollison.

3- Recommended Books and Reference Material (Journals, Reports, etc.)

- Transfusion and transplantation science by Neil D. Avent.
- Essential of Blood Banking; a Handbook for students of blood banking and clinical residents by SR Mehdi.
- Medical Journals (blood bank, Blood and Transfusion)

4- Electronic Materials

- Guidelines for the Blood Transfusion Services in the UK (Red Book), available on <https://www.transfusionguidelines.org/red-book> .