Course Code	Course Title	ECTS Credits
IMMU-543	Immunohematology	8
Department	**Semester**	**Prerequisites**
Life and Health Sciences	Spring	IMMU-541 Cellular and Molecular Immunology
Type of Course	**Field**	**Language of Instruction**
Required	Biomedical Sciences	English
Level of Course	**Year of Study**	**Lecturer**
2nd Cycle	1st	Kouma Laura
Mode of Delivery	**Work Placement**	**Co-requisites**
Face to Face	N/A	None

Objectives of the Course:

The aim of this course is to provide students with the theory of clinical immunehematology and promote their understanding of the principles of pre-analytical, analytical and post-analytical immunohematology diagnostic components in blood:

The specific objectives of the course are:

- To present the theory and application of blood typing and explain its importance in organ transplantation, blood banking and blood transfusions
- To promote students' understanding of the complex interrelationships of the immune system in organ transplantation and in blood transfusion
- To increase awareness of the methods and techniques use in blood typing.
- To present the administrative work required for blood banking.
- To install in students an ethical approach to blood testing, banking and reporting

Learning Outcomes:

On completion of this course, the student will be able to:

1. Discuss the clinical importance and categorize all blood groups with regard to genetics and biochemical characteristics and identification.
2. Account for proper controls for blood cell typing, antibody identification and screening.
3. Discuss the significance of HLA (MHC) system and HLA testing.
4. Describe and account for the use of the techniques and application used in blood banking.
5. Explain the principle of the antiglobulin reaction, reaction testings and identification of source.
6. Discuss the compatibility test in donor-recipient screening, and the requirement

for specimen identity and for cross matching.

7. Discuss high incidence antigens and the significance of HTLA antibodies
8. Define transfusion reaction and describe the requirements for hepatitis testing of blood.
9. Explain the mechanisms for hemolytic disease of the newborn and the tests required to identify it.
10. Grade and interpret antibody-antigen reactions according to the established criteria
11. Give the requirements for sample transfer/handling/storage and necessary quality assurance procedures for the blood bank.
12. Explain the ethical dilemmas in blood typing and transfusion and account for the laws/regulations that govern transfusion, transplantation.
13. Apply critical thinking into case study discussion for the immunodiagnosis/ surveillance of hematological diseases.
14. Review critically scientific literature and report on current practices in the relevant fields of immunotechnology for blood samples.

Course Contents:

1. Blood and blood components;
2. Blood sample collection, handling, storage, transport
3. Principles relating blood types to genetics
4. Antibody detection;
5. Molecular testing for blood groups in transfusion
6. Pretransfusion testing
7. Red blood cell groups and HLA (the ABO, Rh, other blood groups and human leukocyte antigens).
8. Transfusion practices and blood banking
9. Blood component isolation-preservation
10. Clinical conditions associated with immunohematology
11. Hemolytic diseases of the newborn
12. Autoimmune hemolytic anaemia; Drugs and hemolytic anaemia
13. Quality assurance and safety in immunohematology
14. Regulations and standards; information technology

Learning Activities and Teaching Methods:

Lectures; problem based learning, poster and/or oral presentations. The lecturer will be introducing each topic through lectures and problem based learning sections with individual tasks related to data analysis.

Assessment Methods:

Assignments, Presentations, Tests and Mid-term Exam/Paper; Final Exam

Required Textbooks/Reading:

Authors	Title	Publisher	Edition	ISBN
Eva D Quinley	Immunohematology Principles and Practice	Lippincott Williams & Wilkins;	Third edition (2010)	**ISBN-10:** 078178204X **ISBN-13:** 978-0781782043
Mary Louise Turgeon	Clinical Hematology Theory and Procedures	Lippincott Williams & Wilkins;	Fifth edition (2011)	**ISBN-10:** 1608310760 **ISBN-13:** 978-1608310760

Recommended Textbooks/Reading:

Authors	Title	Publisher	Edition	ISBN
John P. Greer,John Foerster, George M. et al.	Wintrobe's Clinical Hematology (Clinical Hematology (Wintrobe's)) [Kindle Edition]	Lippincott Williams & Wilkins;	12 edition (2012)	**ASIN:** B008MPNTOY
Christine Dorrestey n Stevens	Clinical Immunology and Serology: A Laboratory Perspective (Clinical Immunology and Serology (Stevens)) [Paperback]	F.A. Davis Company;	3 edition (2009)	**ISBN-10:** 080361814X **ISBN-13:** 978-0803618145
Denise M. Harmenin g	Modern Blood Banking & Transfusion Practices (Modern Blood Banking and Transfusion Practice) [Hardcover]	F.A. Davis Company;	6 edition (2012)	**ISBN-10:** 0803626827 **ISBN-13:** 978-0803626829