UNIVERSITY of NICOSIA

Course Syllabus

Course Code	Course Title	ECTS Credits
HEMA-543	Immunohematology	7.5
Prerequisites	**Department**	**Semester**
HEMA-541	Life Sciences	Spring
Type of Course	**Field**	**Language of Instruction**
Concertation-Hematology	Biomedical Sciences	English
Level of Course	**Lecturer(s)**	**Year of Study**
2nd Cycle	Dr. Laura Koumas	1st
Mode of Delivery	**Work Placement**	**Corequisites**
Face to face	N/A	None

Course Objectives:

The course's main objectives are to provide students with the theory of clinical immunohematology and promote their understanding of the principles of pre-analytical, analytical, and post-analytical immunohematology diagnostic procedures. The specific objectives of the course are to:

- Present the theory and application of blood typing and explain its importance in blood banking and blood transfusions.
- Become familiar with the principles of the methods and techniques used in blood processing, donor selection and address the possible adverse outcomes of transfusion.
- Become aware of the principles of autoimmune hemolytic anemias related to blood groups.
- Install an ethical approach to blood banking and blood transfusion.

Learning Outcomes:

After completion of the course students are expected to be able to:

1. Discuss the clinical importance and categorize common blood groups with regards to genetics and biochemical characteristics and identification.
2. Learn major erythrocyte blood groups, unexpected antibody detection and identification
3. Discuss the significance of HLA (MHC) system and HLA testing.
4. Describe and account for the techniques and applications used in blood banking including pre-analytical testing, compatibility test in donor-recipient screening and cross-matching requirements.

5. Explain the principle of the direct and indirect antiglobulin reactions
6. Discuss the procedures of blood collection, processing, storage and preservation of blood products along with necessary quality assurance procedures for the blood bank.
7. Discuss safe transfusion requirements, transfusion-transmitted diseases and transfusion reactions
8. Explain the mechanisms for hemolytic disease of the newborn
9. Grade and interpret antibody-antigen reactions
10. Explain the ethical dilemmas in blood typing and transfusion and account for the laws/regulations that govern transfusion and transplantation.
11. Discuss real clinical cases.

Course Content:

1. Daily operation of a blood bank
2. Blood and blood components; genetics in blood groups
3. Blood sample collection, processing, storage, transport
4. Antibody detection and identification
5. Donor screening/ Pretransfusion testing
6. Red blood cell groups and HLA (the ABO, Rh, Lewis, Kidd, Kell, Duffy blood groups & HLA).
7. Transfusion practices and adverse effects of transfusion
8. Hemolytic diseases of the newborn
9. Autoimmune hemolytic anemias
10. Quality assurance and safety in immunohematology
11. Regulations and standards; information technology
12. Clinical cases and discussion

Learning Activities and Teaching Methods:

Lectures; problem-based learning, poster and/or oral presentations, case studies, independent study and review sessions. The lecturer will be introducing each topic through lectures and problem-based learning sections.

Assessment Methods:

Assignments/Presentations, Midterm, Final Exam

Required Textbooks / Readings:

Title	Author(s)	Publisher	Year	ISBN
Modern Blood Banking & Transfusion Practices (Modern Blood Banking and Transfusion Practice), 7th Ed.	Denise M. Harmening	F.A. Davis Company;	2018	**ISBN:** 0803694628
NOTE: Original review articles and laboratory case studies will be used for some topics and may also be added as assignments and group discussions.				

Recommended Textbooks / Readings:

Title	Author(s)	Publisher	Year	ISBN
Clinical Hematology Theory and Procedures	Mary Louise Turgeon	Lippincott Williams & Wilkins;	Fifth edition (2011)	**ISBN-13:** 978-1608310760