



Department of Medical Laboratory Technology (MLT)

College of Erbil Technical Health College

University of Erbil Polytechnic University

Subject: Clinical Hematology.

Course Book – (Year 4)

Lecturer's name: Assistant Prof. Dr. Najat Jabbar Ahmed, PhD

Assistant Lecturer: **Hero Omar Hamad,**

hero.omar@epu.edu.iq

Academic Year: 2022/2023

Course Book

1. Course name	Clinical Haematology.																																																			
2. Lecturer in charge																																																				
3. Department/ College	(MLT) College of Erbil Technical Health College																																																			
4. Contact	e-mail: Najat.narwari@epu.edu.iq najat_mlt@yahoo.com Tel: (optional)																																																			
5. Time (in hours) per week	For example Theory: 2 Practical: 3																																																			
6. Office hours	12 hrs.																																																			
7. Course code																																																				
8. Teacher's academic profile	<p>Reader 2003 Ass. Lecturer 2007 Lecturer 2014, Assistant prof 2018</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="3" style="text-align: left;">Experience: Teaching Activities</th> </tr> <tr> <th style="width: 50%;">Subject</th> <th style="width: 20%;">From-To</th> <th style="width: 30%;">Stage – College</th> </tr> </thead> <tbody> <tr> <td>Parasitology</td> <td>2005 – 2006</td> <td>2rd stage \ Med. Lab. Tech.</td> </tr> <tr> <td>Immunology, Hematology, Histopathology</td> <td>2007 – 2009</td> <td>2rd stage \ Med. Lab. Tech.</td> </tr> <tr> <td>Academic debate</td> <td>2014 - 2015</td> <td>1st stage/ Med. Lab. Tech.</td> </tr> <tr> <td>Immunology</td> <td>2015 - 2016</td> <td>2nd stage MLT dep.</td> </tr> <tr> <td>Histopathology</td> <td>2015 – 2016</td> <td>1st stage MLT dep.</td> </tr> <tr> <td>Immunology</td> <td>2015 -2016</td> <td>(high diploma) MLT dep.</td> </tr> <tr> <td>Immunology</td> <td>2016 -2017</td> <td>2nd stage MLT dep.</td> </tr> <tr> <td>Advance Laboratory technic</td> <td>2016 -2017</td> <td>3rd stage MLT dep.</td> </tr> <tr> <td>Clinical and basic Immunology</td> <td>2016-2017</td> <td>Master MLT dep.</td> </tr> <tr> <td>Clinical and basic Immunology</td> <td>2017-2018</td> <td>Master MLT dep.</td> </tr> <tr> <td>Clinical and basic Immunology</td> <td>2018-2019</td> <td>Master MLT dep.</td> </tr> <tr> <td>Clinical and basic Immunology</td> <td>2019-2020</td> <td>Master MLT dep.</td> </tr> <tr> <td>Clinical Immunology</td> <td>2020-2021</td> <td>Master MLT dep.</td> </tr> <tr> <td>Clinical Immunology</td> <td>2021-2022</td> <td>Master MLT dep.</td> </tr> <tr> <td>Advanced Immunology Master and PhD</td> <td>2017-2022</td> <td>Master MLT dep.</td> </tr> </tbody> </table>	Experience: Teaching Activities			Subject	From-To	Stage – College	Parasitology	2005 – 2006	2 rd stage \ Med. Lab. Tech.	Immunology, Hematology, Histopathology	2007 – 2009	2 rd stage \ Med. Lab. Tech.	Academic debate	2014 - 2015	1 st stage/ Med. Lab. Tech.	Immunology	2015 - 2016	2 nd stage MLT dep.	Histopathology	2015 – 2016	1 st stage MLT dep.	Immunology	2015 -2016	(high diploma) MLT dep.	Immunology	2016 -2017	2 nd stage MLT dep.	Advance Laboratory technic	2016 -2017	3 rd stage MLT dep.	Clinical and basic Immunology	2016-2017	Master MLT dep.	Clinical and basic Immunology	2017-2018	Master MLT dep.	Clinical and basic Immunology	2018-2019	Master MLT dep.	Clinical and basic Immunology	2019-2020	Master MLT dep.	Clinical Immunology	2020-2021	Master MLT dep.	Clinical Immunology	2021-2022	Master MLT dep.	Advanced Immunology Master and PhD	2017-2022	Master MLT dep.
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Supervision of postgraduate students		
Name of student	Degree / place	Title
Zaid Nabeel Elia	PhD in Med. Lab. Technology/ Immunology 2020----	HLA Profile for diagnosis and prognosis celiac disease severity in corresponding with other autoantibodies
Rand Moris Aziz	Master in Med. Lab. Technology Hawer Technical Health College/ Erbil Polytechnic University 2021-----	The Role of HLA, Anti- FSH, Anti LH Antibodies and Vitamin D3 Levels on Polycystic Ovary Syndrome in Kurdish Women
Arjeen Ali Abdullah	Master in Med. Lab. Technology Hawer Technical Health College/ Erbil Polytechnic University 2019 -2020	Estimation of Apolipoprotein E Genotypes and its Serum Concentration with Advanced Glycation End Products among Rheumatoid Arthritis Patients
Aras Othman Rasool	Near East University institute of Health Sciences /Cyprus 2019 -2020	Investigation of Cytomegalovirus Among Male Infertility Disorders
Sanari Kamaran	Master in Med. Lab. Technology Hawer Technical Health College/ Erbil Polytechnic University 2019 -2020	Identifying the association of HLA- DRB1 and advanced glycation end – product with Asthma in Iraqi Kurdish population
Bestoon Salah Othman	Master in Med. Lab. Technology Hawer Technical Health College/ Erbil Polytechnic University 2019 -2020	Evaluation of anti-follicle stimulating hormone antibody and some other biochemical parameters in women with PCOS
Hmdad Mustafa Hamza	High diploma in Med. Lab. Techn. Hawer Technical Health College/ Erbil Polytechnic University 2018	Probability of Using Advanced Glycation End products (AGEs) as a Biomarker for Myocardial infarction
Adnan Zair Husean	High diploma in Med. Lab. Techn. Hawer Technical Health College/ Erbil Polytechnic University 2017 2019 -2020	The Impacts of Smoking on IgE, Oxidative Stress and Some Blood Components
Participation in Academic Discussion Committees		
Name of student	Degree / Place	Title
Avin A. Jalal	PhD/ M.S / College of <u>Dentistry/ Hawler Medical University</u>	Effect of the systemic Admiration of Omega 3 Polyunsaturated Fatty Acid on experimental Periodontitis in Rats
Fayan M. AbdulAllah	M.S /College of Medicine / Hawler Medical University	Macrophage migration Inhibitory Factor and Some Immuno-Molecular Markers in Myocardial infarctions Patients
Alia T. Abdulrahman	M.S /College of Medicine / Hawler Medical University	Frequencies and Genotypes of Apo-lipoprotein E in Relation to Immunological Markers in Atherosclerosis Patients
Shokhan O. Mahmud	M.S /College of Pharmacy/ Hawler Medical University	Immunological and immunohistochemically Evaluation of Vitamin K on Wound Healing Process in Rat Skin Achieved by Commune Wound Dressing Agents
Dlzar S. Asaad	High Diploma / Technical Health College/ Erbil Polytechnic University	Hypoglycemic and Hypolipidemic Potential of Ginger-Thyme Component Extract in Sucrose Induced Hypoglycemic Rats

Scientific Positions		
Head of Department MLT department, Erbil Technical Health College, Erbil Polytechnic University Since 2019		
Head of Scientific Upgrades Committee / Medical and Agricultural departments, Erbil Polytechnic University, since -2020.		
Head of Scientific Affairs / Erbil Technical Health College, Erbil Polytechnic University, 2015-2018		
Head of Department MLT department, Hawler Medical Institute, Erbil Polytechnic University 2008-2009.		
Head of High exam committee / Erbil Technical Health College, Erbil Polytechnic University, 2016-2018.		
Member of Upgrades Committee / Medical departments, Erbil Polytechnic University, since 2017-2020.		
Publications		
Anti-Inflammatory And Oral Toxicity Assessment Of R-38tm: A Traditional Herbal Supplement For Arthritis	Jurnal Teknologi (Sciences & Engineering)	84:1 (2022) 249–262
Advanced Glycation End Products in Rheumatoid Arthritis Patients	<i>Biochem. Cell. Arch.</i>	Vol. 21 No. 1, Pp. 1895-1899, 2021
Molecular Mechanism Underlying Histology, Immunological And Biochemical Effects Of Caffeine Against Cardiovascular Diseases In Depressive Rats – Induced By Reserpine	<i>Plant Archives</i>	Volume 20 No. 2, 2020 pp. 7465-7477
The Effects of Smoking on IgE, Oxidative Stress and Haemoglobin Concentration	<i>Asian Pacific Journal of Cancer Prevention</i>	Vol 21 2020
Therapeutic Effect Of Silver Nanoparticles Against Diethyl Nitrosamin And Carbon Tetrachloride-Induced Hepatocellular Carcinoma In Rats	International Journal of Pharmacy and Pharmaceutical Sciences	Vol 12, Issue 9, 2020
Relation of Anti FSH Antibodies and Polycystic Ovarian Syndrome in Women	<i>Indian Journal of Public Health Research & Development</i>	January 2020, Vol. 11, No. 01
Estimation of Anti-thyroglobulin and Anti-Thyroid peroxidase among thalassemia major patients	Annals of Tropical Medicine & Public Health	December 2019 Vol. 22 (12)

	Case study: Mistake Diagnosis of Thrombocytopenia	Journal of Kirkuk Medical College	Vol. 6, No. 1, December 2018
	Prevalence of Urinary Tract Infection and Its effect on the immunological parameters among Erbilian Women	Polytechnic Journal	Vol.7 No.4 (December 2017): Pp: 85-94
	Diagnostic Value of Thrombocytopenia in <i>Helicobacter pylori</i> Infection Among Pregnant and Non-pregnant Women in Erbil City	Polytechnic Journal	Vol. 7 No. 3 (Aug 2017): Pp:12-16
	Effect of H. pylori and Cag-A on the infertility among males	International Journal of Bioassays	6.03 (2017): 5292-5296
	Viruses Induce Type 1 Diabetes Mellitus in the Presence of HLA-DR3, DR4 Genes.	Middle-East Journal of Scientific Research	18 (7): 916-925, 2013
	The Mechanisms of Inhibition of Advanced Glycation End Products Formation through Polyphenols in Hyperglycemic Condition	Planta Med	ISSN 0032-0943
	Immunity, Environmental and Genetic Factors Induced Type 1 Diabetes Mellitus.	World Applied Sciences Journal	23 (6): 771-781. 2013
	Type 1 Diabetes Mellitus (T1DM): Induced by Environmental, genetic and immunity factors	Life Science Journal	10 (3). 2013
	CRP as Risk Marker in Diabetic and Obese Women.	Zanko, Erbil	21(4), 97-101. 2009

Scientific Conferences		
Conferences	Year	Place
4th International Conference on Biological & Health Sciences (CIC-BIOHS'2022) (Chair committee (biological & Medical Science))	2022	Jihan University, Erbil
The 2 nd International Conference of Medical and Biological Techniques "ICMBT" (Member of scientific committee)	2021	Erbil Polytechnic University
International Virtual Scientific Conference 2020 "CORONAVIRUS PANDEMIC PRESENT AND FUTURE"	2020	Online Erbil Polytechnic University and Mosul University
The Second Excellent Paper Symposium	2019	Sulaymaniyah / Iraq
International postgraduate conference on Engineering, Science & Humanities	2013	Johor Bahru, Malaysia
International postgraduate conference on Biotechnology (IPCB)	2011	Terengganu, Malaysia.
International Conference on Higher Education in Kurdistan Region	2008	Iraq –Erbil
9. Keywords	Basic immunology, humoral and genetic immunity, body line defecence.	
10. Course overview:		
<p>The Clinical Hematology course will cover the diagnosis and management of blood cell disorders, anatomy and physiology of hematopoiesis, routine specialized haematology tests, analysis, classification, and monitoring of blood cell abnormalities.</p>		

Explore the principles of clinical haematology in this course designed for aspiring clinical laboratory professionals. While this course is ideally suited for those needing a haematology prerequisite for Clinical Laboratory Scientist programs, all pre-health professionals are welcome. This course is LFS (Laboratory Field Services) accredited but does not include a lab component. An effort has been made to increase clinical relevance and problem-solving skills through an essay assignment and faculty presented clinical correlations, and a team based learning exercise. Any questions on the lecture material should be addressed to Dr. Najat Jabbar who is directly responsible to that lecturer.

11. Course objective:

1. Theoretical part:

Haematology principles include a sequence of lectures and courses that lead to understanding the most important principles in clinical haematology, the importance of clinical haematology in the diagnosis of diseases or its relationship with other diseases.

1. The aim of the course is that the student in a laboratory with a specialisation in clinical should obtain the occasion to test/apply theoretical knowledge in a laboratory environment study and use methods that occur in a laboratory with a specialisation in clinical haematology. The students must be able to understand the relationship between blood diseases and methods to reach the correct diagnosis. The aim is also that the course should contribute to the development of occupational identity to reflect professional exercise and to an understanding of the profession in a medical laboratory.

2. Practical part:

The student should, during the entire course, participate in practical work under supervision in a laboratory and there apply various methods and techniques that are used. The student should acquire knowledge of the steps in the laboratory process that may influence the result of the analysis. It implies that the student through practical work and theoretical studies acquires knowledge of analysis principles, technical performance and result assessment from a technical as well as medical point of view. The student should also acquire information about the quality assurance work that the laboratory conducts. The student should also acquire knowledge of the organisation and function of the laboratory in health care. Literature studies should be included as an integrated

part of the whole course. The student documents his/her work in a workbook that should be approved by the responsible supervisor in the laboratory. The workbook also constitutes a basis for the final examination. The aim of the course is that the student in a laboratory with a specialisation in clinical should obtain the occasion to test/apply theoretical knowledge in a laboratory environment study and use methods that occur in a laboratory with a specialisation in clinical haematology.

12. Student's obligation

Theory: lecture, group discussion, seminar, group work.

Laboratory practice: Lecture, group discussion, workshop, group work, role play, team teaching.

13. Forms of teaching

Theory: lecture halls with computers equipment for lecture presentations, white board, overhead projector, posters.

Laboratory practice: Using instruments for detection Ag and Ab, gloves, white coat, white board, computer with equipment for PowerPoint presentations, overhead projector, posters

General: library, computer suite with internet access.

14. Assessment scheme

1. Every week performing a quiz about previous lecture in theory & practical part.
2. Daily discussion within the lecture.
3. Open question for students also one of my style.

15. Student learning outcome:

- Differentiate various hematological procedures and the use of basic equipment essential to working in a Clinical Hematology Laboratory.
 - Discuss differences between Quality control, Quality Assurance, and Continuing Quality Improvement principles as used in the Hematology Laboratory.
 - Categorize various hematology analyses , operational principles of various hematology instruments, and troubleshooting of various instruments.
 - Explain the principles and theories utilized in a variety of problem-solving situations.
 - Differentiate various laboratory test findings with their associated clinical conditions.
 - Identify the various skills necessary to perform blood counts, evaluate blood elements, and report results within the stated limits of accuracy.
 - Describe the various components of blood ,their functions, and roles in various disease states.
 - Know OSHA safety regulations for blood borne pathogens.
 - Define testing suitability standards for Hematology specimens.

16. Course Reading List and References:

1. Clinical Hematology: Theory & Procedures, SIXTH EDITION, Mary Lou Turgeon, EdD, MT, © 2018.

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| 2. Clinical Laboratory Hematology (Pearson Clinical Laboratory Science Series) 3rd Edition, by Shirlyn McKenzie Ph.D. CLS (NCA) (Author), Lynne Williams (Author). |
| 3. Textbook of Hematology Subsequent Edition, by Ph.D. McKenzie, Shirlyn B. (Author). |

	17. The Topics:	Lecturer's name
1	Introduction to clinical haematology	Dr. Najat Jabbar (2 hrs)
2	Classification of anaemia.	Dr. Najat Jabbar (2 hrs)
3	Iron deficiency anaemia	Dr. Najat Jabbar (2 hrs)
4	Megaloblastic anaemia	Dr. Najat Jabbar (2 hrs)
5	Sickle cell anaemia	Dr. Najat Jabbar (2 hrs)
6	Thalassemia anaemia	Dr. Najat Jabbar (2 hrs)
7	G6PD deficiency anaemia	Dr. Najat Jabbar (2 hrs)
8	Pyruvate kinase deficiency anaemia	Dr. Najat Jabbar (2 hrs)
9	Spherocytosis. Elliptocytosis.	Dr. Najat Jabbar (2 hrs)
10	Acquired haemolytic anaemia: <ul style="list-style-type: none"> • Blood transfusion reaction. • Infection and Trauma. 	Dr. Najat Jabbar (2 hrs)
11	Drug induce hemolytic anemia and Malignancies.	Dr. Najat Jabbar (2 hrs)
12	Blood loss. <ol style="list-style-type: none"> a. Naturally. (Menstrual cycle and delivery). b. Artificially. (Accidents, trauma and surgical operations). 	
	<p>19. Examinations:</p> <p>1. Compositional: In this type of exam the questions usually starts with Explain how, What are the reasons for...?, Why...?, How...? With their typical answers Examples should be provided</p> <p>2. True or false type of exams: In this type of exam a short sentence about a specific subject will be provided, and then students will comment on the trueness or falseness of this particular sentence. Examples should be provided</p> <p>3. Multiple choices: In this type of exam there will be a number of phrases next or below a statement, students will match the correct phrase. Examples should be provided.</p>	
	<p>20. Extra notes: Here the lecturer shall write any note or comment that is not covered in this template and he/she wishes to enrich the course book with his/her valuable remarks.</p>	
	<p>21. Peer review پندچونہوی ہاویل</p> <p>This course book has to be reviewed and signed by a peer. The peer approves the contents of your course book by writing few sentences in this section.</p>	

(A peer is person who has enough knowledge about the subject you are teaching, he/she has to be a professor, assistant professor, a lecturer or an expert in the field of your subject).

ئەم كۆرسىۋوكە دەپنەت لەلایەن ھاوملئىكى ئەكادىمىيە سەمىر بىكرىت و ناوەرۆكى بابەتەكانى كۆرسەكە پەسەند بىكات و جەند وشەپەك بنوسنەت لەسەر شىاوى ناوەرۆكى كۆرسەكە و واژووى لەسەر بىكات. ھاومل ئەو كەسەپە كە زانىارى ھەپنەت لەسەر كۆرسەكە و دەپنەت پلەى زانستى لە مامۇستا كەمتر نەپنەت.

Nawsherwan Sadiq Mohammad

Nawsherwan Sadiq Mohammad

**Lecturer (consultant): College of Medicine, Department of Basic Sciences,
Hawler Medical University.**

nawsherwan.sadiq@hmu.edu.krd

WEEKLY LESSON PLANNER SEMESTER -7- (2022 - 2023)

Date/Time	8:30 - 9:30	9:30 - 10:30	10:30 - 11:30	11:30 - 12:30	12:30 - 1:30	1:30 - 2:30
Sunday	Virology د. شیلان صلاح عبدالله ابراهیم		Clinical Bacteriology پ.ی. سناریا فوزی جرجیس عیسی		Clinical Parasitology پ.ی. کاروان سلو نجم سلو	
Monday	Molecular Biology د. نزار علی امین شوان		Clinical Hematology پ.ی. د. گوران قادر عثمان			
Tuesday	Virology (A) د. شیلان صلاح عبدالله ابراهیم زیرهك محمد حسن 0 كاوه عولا حمد عبدالصمد قادر		Virology (B) د. شیلان صلاح عبدالله ابراهیم زیرهك محمد حسن 0 كاوه عولا حمد عبدالصمد قادر		Virology (C) د. شیلان صلاح عبدالله ابراهیم زیرهك محمد حسن 0 كاوه عولا حمد عبدالصمد قادر	
	Clinical Bacteriology (B) پ.ی. سناریا فوزی جرجیس عیسی م. سارا ابراهیم عثمان عمر عباس بهرام یونس یمنی مولانا خالد		Clinical Bacteriology (C) پ.ی. سناریا فوزی جرجیس عیسی م. سارا ابراهیم عثمان عمر عباس بهرام یونس یمنی مولانا خالد		Clinical Bacteriology (A) پ.ی. سناریا فوزی جرجیس عیسی م. سارا ابراهیم عثمان عمر عباس بهرام یونس یمنی مولانا خالد	
Wednesday	Clinical Parasitology (A) پ.ی. کاروان سلو نجم سلو م. لیزا جمال یوسف کورده 0 مهدی احمد خضر		Clinical Parasitology (B) پ.ی. کاروان سلو نجم سلو م. لیزا جمال یوسف کورده 0 مهدی احمد خضر		Clinical Parasitology (C) پ.ی. کاروان سلو نجم سلو م. لیزا جمال یوسف کورده 0 مهدی احمد خضر	
	Clinical Hematology (B) پ.ی. د. گوران قادر عثمان م. هېرۆ عمر حمد كاكوك چار یاسین حسین ههوال جمال رشید		Clinical Hematology (C) پ.ی. د. گوران قادر عثمان م. هېرۆ عمر حمد كاكوك چار یاسین حسین ههوال جمال رشید		Clinical Hematology (A) پ.ی. د. گوران قادر عثمان م. هېرۆ عمر حمد كاكوك چار یاسین حسین ههوال جمال رشید	
Thursday	Molecular Biology -A- پ.ی. د. گوران قادر عثمان م. احمد نوزاد حسن احمد هېرش رسول مینه ههوال جمال رشید		Molecular Biology -B- پ.ی. د. گوران قادر عثمان م. احمد نوزاد حسن احمد هېرش رسول مینه ههوال جمال رشید		Molecular Biology -C- پ.ی. د. گوران قادر عثمان م. احمد نوزاد حسن احمد هېرش رسول مینه ههوال جمال رشید	