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**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**

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| **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 n**ajat\_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**  | **Reader 2003 Ass. Lecturer 2007 Lecturer 2014, Assistant prof 2018**

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| **Experience: Teaching Activities**  |
| **Subject** | **From-To** | **Stage – College** |
| Parasitology  | 2005 – 2006 | 2rd stage \ Med. Lab. Tech. |
| Immunology, Hematology, Histopathology | 2007 – 2009 | 2rd stage \ Med. Lab. Tech. |
| Academic debate  | 2014 - 2015 | 1st stage/ Med. Lab. Tech.  |
| Immunology | 2015 - 2016  | 2nd stage MLT dep. |
| Histopathology | 2015 – 2016  | 1st stage MLT dep. |
| Immunology  | 2015 -2016 | (high diploma) MLT dep. |
| Immunology  | 2016 -2017 | 2nd stage MLT dep. |
| Advance Laboratory technic  | 2016 -2017 | 3rd 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. TechnologyHawer Technical Health College/ Erbil Polytechnic University2021----- | 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. TechnologyHawer Technical Health College/ Erbil Polytechnic University2019 -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. TechnologyHawer Technical Health College/ Erbil Polytechnic University2019 -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. TechnologyHawer Technical Health College/ Erbil Polytechnic University2019 -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 University2018 | 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 20172019 -2020 | The Impacts of Smoking on IgE, Oxidative Stress and Some Blood Components |

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| **Participation in Academic Discussion Committees** |
| **Name of student**  | **Degree / Place**  | **Title**  |
| Avin A. Jalal | PhD/ M.S / College of Dentistry/ Hawler Medical University | Effect of the systemic Admiration of Omega A3 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 |

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| **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. |

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| **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 ArthritisPatients | *Biochem. Cell. Arch.* | Vol. 21, No. 1, Pp. 1895-1899, 2021 |
| Molecular Mechanism Underlying Histology, Immunological And Biochemical Effects Of CaffeineAgainst Cardiovascular Diseases In Depressive Rats –Induced By Reserpine | *Plant Archives* | Volume 20 No. 2, 2020 pp. 7465-7477 |
| The Effects of Smoking on IgE, Oxidative Stress and Haemoglobin Concentration | *Asian Pacific Journal of Cancer Prevention* | *Vol 21**2020* |
| Therapeutic Effect Of Silver Nanoparticles Against Diethyl Nitrosamin And Carbon Tettrachloride-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 | *Indian Journal of Public Health Research & Development* | *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 theimmunological parameters among Erbilian Women | Polytechnic Journal | Vol.7 No.4 (December 2017):Pp: 85-94 |
| Diagnostic Value of Thrombocytopenia in *Helicobacter pylori* 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 GlycationEnd 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 |

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| **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 2nd 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 | OnlineErbil 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 |

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| **9. Keywords** | **Basic immunology, humoral and genetic immunity, body line defecnce.**  |
| **10. Course overview:**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.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.
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| **16. Course Reading List and References‌:**1. Clinical Hematology: Theory & Procedures, SIXTH EDITION, Mary Lou Turgeon, EdD, MT, © 2018.
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).
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|  | **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: * 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.a. Naturally. (Menstrual cycle and delivery).b. Artificially. (Accidents, trauma and surgical operations). |  |
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| **19. Examinations:*****1. Compositional:*** In this type of exam the questions usually starts with Explain how, What are the reasons for…?, Why…?, How….?With their typical answersExamples should be provided***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***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. |
| **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. |
| **21. Peer reviewپێداچوونه‌وه‌ی هاوه‌ڵ** 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.*(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).*ئه‌م کۆرسبووکه‌ ده‌بێت له‌لایه‌ن هاوه‌ڵێکی ئه‌کادیمیه‌وه‌ سه‌یر بکرێت و ناوه‌ڕۆکی بابه‌ته‌کانی کۆرسه‌که‌ په‌سه‌ند بکات و جه‌ند ووشه‌یه‌ک بنووسێت له‌سه‌ر شیاوی ناوه‌ڕۆکی کۆرسه‌که و واژووی له‌سه‌ر بکات.هاوه‌ڵ ئه‌و که‌سه‌یه‌ که‌ زانیاری هه‌بێت له‌سه‌ر کۆرسه‌که‌ و ده‌بیت پله‌ی زانستی له‌ مامۆستا که‌متر نه‌بێت.‌‌ Nawsherwan Sadiq ٍMohammad Lecturer (consultant): College of Medicine, Department of Basic Sciences, Hawler Medical University.nawsherwan.sadiq@hmu.edu.krd  |

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