Department of Chemistry

College of Education

University of Salahaddin

Subject: Hormones -First Semester

Course Book – (Year 4)

Lecturer's name: Dr. Parween Abdulsamad Ismail

Academic Year: 2023/2024

Course Book

1. Course name	**Hormones**
2. Lecturer in charge	**Parween Abdulsamad Ismail**
3. Department/ College	**Chemistry/ Education**
4. Contact	**e-mail: parween7abdulsamad@yahoo.com** **Tel:07504567405**
5. Time (in hours) per week	**Theory: 2** **Practical:**
6. Office hours	**Sunday: 9am-12 pm** **Thursday: 10am-12pm**
7. Course code	
8. Teacher's academic profile	I graduated from Salahaddin University in 1995 with a BSc in chemistry .After that, I accessed to work at the University of Salahaddin as Assistant Chemist till 1995-1997 in Education College /Chemistry Dept. Then I completed the MSc in Clinical Biochemistry at Salahaddin University in(1998_ 2000). Following this, I worked as an assistance lecturer and then upgrading to lecturer in 2007 in Chemistry department,college of Education, Salahaddin University-Erbil. The teaching experience is both theoretical and practical in theClinical Biochemistry . In 2008 I began my doctorate research at the Hawler Medical University, Biochemistry Dept., College of Medicine. I completed my PhD-Clinical Biochemistry in 2011and since then I have had the opportunity to work as academic staff at Salahaddin university-Erbil,college of education, department of Chemistry. Following this, I got upgrading to assistance professor in 2014 .Above and beyond of teaching both undergraduate and graduate students I am currently working as a researcher **,**My academic and research program interest focus on Clinical Biochemistry . I have more than 24 published articles and supervised a PhD student in Clinical Biochemistry and going to publish some other articles, oversee MSc and PhD students in the mentioned fields

9. Keywords	

10. Course overview:

The course is designed to provide an understanding to structures and function of endocrine glands. It also provides an understanding of the common endocrine disorders, metabolic regulations, and metabolic abnormalities, and their management. Vast amounts of information and knowledge are accumulating rapidly concerning metabolism and endocrinology. Their tremendous importance is being increasingly recognized, especially in the light of new advances in medicine, because all diseases, including psychiatric and genetic abnormalities, are associated with metabolic changes. Furthermore, in all body cells, hormones influence the metabolism of nucleotides, proteins, lipids, carbohydrates, vitamins, water, and Therefore, knowledge of endocrinology and metabolism is important in every branch of medicine

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11. Course objective

- To provide a broad overview of the endocrine signaling system and its function/dysfunction in humans.
- To integrate aspects of molecular endocrinology and cellular biochemistry with in vivo physiology and pathophysiology.
- To illustrate how the study of the molecular genetics, cell biology, biochemistry and pathobiology of an endocrine disorder reveals insights into the molecular/cellular mechanisms and physiology of normal endocrine function.
- To introduce students to the biomedical literature and to learn some techniques of clinical/molecular investigation in a hypothesis-based, problem-solving paradigm.

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12. Student's obligation

1-The student attention in all theoretical lectures in academic year.
2-Completion of all classes
3-Attendance in exams.
4-Write or prepare reports.

13. Forms of teaching

Our lecture is depending directly on showing the strong point in the lecture via data show depending on the power point program and explain some figures on the white board with the students.

14. Assessment scheme

Final exam: 50 marks
Midterm-exams: 20 marks for Midterm-exam1 and 20 marks for Midterm-exam 2
And 10 marks for activity

15. Student learning outcome:

- ✓ Students should know the chemical nature of hormones, the relationship between structure and function of hormones, quantitative aspects of hormonal action in relation to endocrine disorder, the role of hormones as a regulatory factor of a living system, the neurotransmitters and their relation with some diseases and drug addiction.

- ✓ The students should be able to: • Examine and describe glands. • Determine hormonal impact and syndromes.

-The student will demonstrate an understanding of the anatomy of the endocrine

- ✓ system.
- ✓ The students should be able to explain the mechanism of action of certain hormones
- ✓ The student will demonstrate the role of the hormones in maintaining body function.

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16. Course Reading List and References:

The Williams' Textbook of Endocrinology, 13th edition (Melmed et al, eds.), Saunders Elsevier, 2016 can be linked to directly from this page.

Another helpful text (Jameson& DeGroot) is also available as an e-Book (Jameson, JL & DeGroot LJ (eds) Endocrinology: adult andpediatric, 7th edition, Elsevier Saunders, 2016)

- Endocrinology (6th edition) by Mac E. Hadley, Prentice-Hall, New Jersey (2007).

• Comparative Vertebrate Endocrinology, by Bentley, Cambridge Univ. Press. Cambridge. (2000).

• Textbook of Endocrine Physiology, by Griffin, Oxford University Press (2004).

- **Key references**:

"The Endocrine System, Basic Science and Clinical Conditions" second edition 2010 by Joy Hinson, Peter Raven and Shern Chew published by Churchill Livingstone/Elsevier.

The useful links:

http://www.vivo.colostate.edu/hbooks/pathphys/endocrine/basics/index.html
http://www.emc.maricopa.edu/faculty/farabee/BIOBK/BioBookENDOCR.h tml
http://www.hormone.org/endo101/
http://canvas.dartmouth.edu

17. The Topics:	Lecturer's name
Week 1 General Principles of Endocrine Physiology The Endocrine System: Physiologic Functions and Components Hormone Chemistry and Mechanisms of Action Hormone Cellular Effects Hormone Receptors and Signal Transduction Control of Hormone Release Assessment of Endocrine Function **Week 2:** The pituitary. This is the master gland that controls multiple other endocrine glands as well as secreting growth hormone, prolactin and other important hormones. We will discuss how the pituitary regulates the thyroid, adrenals and gonads. We will then focus on growth hormone (GH) and diseases of too much (Gigantism and Acromegaly) and too little GH leading to increased or decreased growth. Prolactin . **Week 3** Th e Hypothalamus and Posterior Pituitary Gland Functional Anatomy / Hormones of the Posterior Pituitary Hormones secreted by endocrine glands/ Physiological effects of hormone. Hypothalamus . **Week 4:** Anterior Pituitary Gland Functional Anatomy Hypothalamic Control of Anterior Pituitary Hormone Release Hormones of the Anterior Pituitary Diseases of the Anterior Pituitary **Week 5,6:** Thyroid Gland Functional Anatomy Regulation of Biosynthesis, Storage, and Secretion of Thyroid Hormones Diseases of Thyroid Hormone Overproduction and Undersecretion Evaluation of the Hypothalamic-pituitary-Thyroid Axis / **Week 7:**	Dr. Parween (2 hrs)

Parathyroid Gland and Ca2+ and PO4 – Regulation Functional Anatomy Parathyroid Hormone Biosynthesis and Transport / Parathyroid Hormone Target Organs and Physiologic Effects Calcium Homeostasis Diseases of Parathyroid Hormone Production **Week 8:** Adrenal Gland Functional Anatomy and Zonation Hormones of the Adrenal Cortex Hormones of the Adrenal Medulla **Week9** Endocrine Pancreas Functional Anatomy Pancreatic Hormones Diseases Associated with Pancreatic Hormones Complications of Diabetes / **Week10,11** Male Reproductive System Functional Anatomy Gonadotropin Regulation of Gonadal Function / Gonadal Function / Physiologic Effects of Androgens at Target Organs / Neuroendocrine and Vascular Control of Erection and Ejaculation / Diseases of Testosterone Excess or Deficiency **Week12,13**: Female Reproductive System Functional Anatomy Gonadotropin Regulation of Ovarian Function Ovarian Hormone Synthesis / Ovarian Cycle Endometrial Cycle / Physiologic Effects of Ovarian Hormones Age-Related Changes in the Female Reproductive System Contraception and the Female Reproductive Tract Diseases of Overproduction and Undersecretion of Ovarian Hormones **Week 14:** Endocrine Integration of Energy and Electrolyte Balance Neuroendocrine Regulation of Energy Storage,	

Mobilization, and Utilization Electrolyte Balance Neuroendocrine Regulation of the Stress Response **Week 15** • Normal Values of Metabolic Parameters and Tests of Endocrine Function Table A. Plasma and serum values Table B. Urinary levels• •	
18. Practical Topics ()	
19. Examinations: Question Styles Q1. Mention the Q2. Write short note on Q3. Answer the following; Q4.Which of the following	
20. Extra notes:	
21. Peer review .	