

In the Name of God



**Hamadan University of Medical Sciences and Health Services
Educational Deputy of the University
Center for Studies and Development of Medical Sciences Education**

Theory/Practical Lesson Plan Form

Dear Colleagues,

As the teaching-learning process is one that cannot achieve its objectives without planning, it is essential to develop a lesson plan at the beginning of the educational process (as a roadmap and guide for instructors and students). Therefore, it is requested that esteemed instructors exercise utmost care in completing the lesson plan.

Course and Instructor Details (Completion of all items in this section is mandatory)

- **Course Title:** Medical Biochemistry of the Hormones
- **Instructor Name:** Dr. Gholamreza Shafiei
- **Course Coordinator:** Dr. Gholamreza Shafiei
- **Department Head:** Dr. Iraj Khodadadi
- **Type and Credit Hours:** Theoretical •, Σ credits , Practical credits
- **Field and Level of Student Study:**Bachelor's in Laboratory Sciences.....
- **Teaching Location:**Classroom 5, Paramedical Department.....

Session	Title	Learning Objectives	Domain of Learning	Teaching Method	Duration	Teaching Aids	Evaluation Method
Session 1:	Thyroid and Parathyroid Hormones	<ol style="list-style-type: none"> 1. Learner will understand the synthesis of thyroid hormones. 2. Learner will recognize types of thyroid hormones. 3. Learner will understand the regulatory mechanism of thyroid hormones. 4. Learner will know how these hormones are transported in the blood. 5. Learner will understand how these hormones are cleared. 6. Learner will recognize the mechanism of action of these hormones. 7. Learner will identify various disorders of thyroid hormones. 8. Learner will understand clinical manifestations and metabolism of thyroid disorders. 9. Learner will know the drugs and treatment methods for thyroid diseases. 	Cognitive	Lecture, Participatory, Group Discussion	90-100 minutes	Computer with internet access, data projector, display screen, flash drive, Microsoft Office software (PowerPoint and Word), whiteboard, markers	Class assessment through questions, final exam
Session 2:	Pancreatic Hormones, Insulin, and Glucagon	<ol style="list-style-type: none"> 1. Learner will recognize types of pancreatic hormones. 2. Learner will understand the mechanism of action of pancreatic hormones. 3. Learner will understand the regulatory mechanism of pancreatic hormones. 4. Learner will 	Cognitive	Memorization, Lecture, Q&A	90-100 minutes	Computer with internet access, data projector, display screen, flash drive, Microsoft Office software (PowerPoint and Word), whiteboard, markers	Class assessment through questions, final exam

		<p>know the effects of pancreatic hormones.</p> <p>5. Learner will identify diseases related to pancreatic hormones.</p> <p>6. Learner will understand metabolic changes in each pancreatic hormone disease.</p> <p>7. Learner will explain the clinical significance of pancreatic hormonal regulation.</p> <p>8. Learner will explain the effects of lifestyle on each pancreatic hormone disease.</p> <p>9. Learner will explain the genetic effects on each pancreatic hormone disease.</p> <p>10. Learner will describe diagnostic methods for each pancreatic hormone disease.</p> <p>11. Learner will explain prevention and treatment methods for each pancreatic hormone disease.</p>					
۳	Sex Hormones	<p>1. Learner will name sex hormones and explain their functions.</p> <p>2. Learner will describe the synthesis of sex hormones.</p> <p>3. Learner will introduce the biochemistry and physiological function of</p>	Cognitive	Lecture, Participatory, Group Discussion	2 hours	Slides, Animation, Whiteboard	Q&A

		<p>male sex hormones.</p> <p>4. Learner will introduce the biochemistry and physiological function of female sex hormones.</p> <p>5. Learner will describe hormonal changes during the menstrual cycle.</p> <p>6. Learner will describe hormonal changes affecting sperm quality.</p> <p>7. Learner will explain the importance of the hypothalamus-pituitary-gonad axis and its effect on sex hormones.</p> <p>8. Learner will name and explain the clinical significance and disorders related to female sex hormones.</p> <p>9. Learner will name and explain the clinical significance and disorders related to male sex hormones.</p>					
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Notes:

- Each session is designed to last approximately 90-100 minutes.
- The teaching methods primarily include lectures, question and answer sessions, and in some cases, flipped classroom techniques.
- Evaluation is conducted through class assessments and final exams.

Grading Scheme

Type of Evaluation	Evaluation Tool	Score out of Total
Quiz	Oral Exam	1
Project Presentation	Class Seminar	1
Midterm Exam	Written Exam	
Final Exam	Multiple Choice Exam	18
Other	-	-
Total		20

Reference

1. Leninger, A., Nelson, D.L., & Cox, M.M. (2017). *Principles of Biochemistry* (7th ed.). Arjomand Publications. (Translated by Asrar, M.H., Ghavam, P., & Mohammadi, Z.)