

# 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:** Hormones
- **Instructor Name:** Dr. Gholamreza Shafiei
- **Course Coordinator:** Dr. Gholamreza Shafiei
- **Department Head:** Dr. Iraj Khodadadi
- **Type and Credit Hours:** Theoretical 0.4 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           | <p>1. Learner will understand the synthesis of thyroid hormones.</p> <p>2. Learner will recognize types of thyroid hormones.</p> <p>3. Learner will understand the regulatory mechanism of thyroid hormones.</p> <p>4. Learner will know how these hormones are transported in the blood.</p> <p>5. Learner will understand how these hormones are cleared.</p> <p>6. Learner will recognize the mechanism of action of these hormones.</p> <p>7. Learner will identify various disorders of thyroid hormones.</p> <p>8. Learner will understand clinical manifestations and metabolism of thyroid disorders.</p> <p>9. Learner will know the drugs and treatment methods for thyroid diseases.</p> | 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 | <p>1. Learner will recognize types of pancreatic hormones.</p> <p>2. Learner will understand the mechanism of action of pancreatic hormones.</p> <p>3. Learner will understand the regulatory mechanism of</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 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>pancreatic hormones.</p> <p>4. Learner will 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> |           |                                          |         |                               |     |
| 3 | Sex Hormones | <p>1. Learner will name sex hormones and explain their functions.</p> <p>2. Learner will describe the</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Cognitive | Lecture, Participatory, Group Discussion | 2 hours | Slides, Animation, Whiteboard | Q&A |

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|--|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|
|  |  | <p>synthesis of sex hormones.</p> <p>3. Learner will introduce the biochemistry and physiological function of 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                | -                    | -                  |
| <b>Total</b>         |                      | <b>20</b>          |

### 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.)