

**Course Objectives:**

1. To discuss the definition of hormone in terms of its general properties.
2. To differentiate among endocrine, paracrine and autocrine system.
3. To describe different classes and chemical structure of hormone.
4. To explain the roles of the endocrine system in maintain homeostasis, integrating growth and development, responding to environmental insult and promote successful reproduction.
5. To identify the glands, organs, tissues and cell that synthesize and secrete hormones, hormone precursors and associated compounds.
6. To describe synthesis and mode of secretion of hormone, regulation of hormone secretion of hormone, including the principles of negative and positive feedback mechanism.
7. To explain the importance of patterns of hormone secretion such as pulsatile, diurnal, cyclic and how hormones are transported in the blood and consequences of reversible binding of many hormones by plasma proteins
8. To explain the basis of hormone assays and assessment of biological activity
9. To discuss the metabolism, clearance and excretion of hormones and their metabolic derivatives
10. To define and discuss the physiological actions of hormone relating them whenever possible to human disorders

**Course Learning Outcome**

At the end of course the students are able to:

1. Explain the roles of the endocrine system in maintain homeostasis, integrating growth and development, responding to environmental insult and promote successful reproduction.
2. Discuss the definition of hormone in terms of its general properties.
3. Differentiate among endocrine, paracrine and autocrine system.
4. Describe different classes and chemical structure of hormone.
5. Identify the glands, organs, tissues and cell that synthesize and secrete hormones, hormone precursors and associated compounds.
6. Describe synthesis and mode of secretion of hormone.
7. Explain how the secretion of hormone is regulated, including the principles of negative and positive feedback mechanism.
8. Explain the importance of patterns of hormone secretion such as pulsatile, diurnal and cyclic.
9. Explain how hormone are transported in the blood and consequences of reversible binding of many hormones by plasma proteins
10. Explain the basis of hormone assays and assessment of biological activity
11. Describe how hormone are metabolism, clearance and excretion of hormones and their metabolic derivatives.
12. Explain the consequences of under and overproduction of hormones to determine the pathophysiological basis and consequences of specific endocrine disorders.
13. Compare and contrast the different mechanism of action of hormones: i.e. those exerted by modulation of gene expression, those activated by changes in protein activity.
14. Evaluate and assess scientific literature about endocrine function and pathology.

### **Course Contents:**

Hormones and Nutrition; Hormones and the Integument; Hormones and Osmoregulation; Hormones and Reproduction.

### **Teaching-Learning Strategies**

Teaching will be a combination of class lectures, class discussions, and group work. Short videos /films will be shown on occasion.

### **Assignments**

The sessional work will be a combination of written assignments, class quizzes, presentation, and class participation/attendance.

### **Assessments and Examination**

Sessional Work: 25 marks

Midterm Exam: 35 marks

Final term Exam: 40 marks

### **Books Recommended**

1. Bentley, P.J., 1998. Comparative Vertebrate Endocrinology. Cambridge University Press, Cambridge.
2. Guyton, A.C. and Hall, J.E., 2020. Textbook of Medical Physiology, 14<sup>th</sup> Ed. W.B. Saunders Company, Philadelphia.

## **UZO-446 Comparative Vertebrate Endocrinology-II(Lab.)**

**Cr. (1)**

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9. To discuss the metabolism, clearance and excretion of hormones and their metabolic derivatives
10. To define and discuss the physiological actions of hormone relating them whenever possible to human disorders

### **Course Learning Outcome**

At the end of course the students are able to:

1. Explain the roles of the endocrine system in maintain homeostasis, integrating growth and development, responding to environmental insult and promote successful reproduction.
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9. Explain how hormones are transported in the blood and consequences of reversible binding of many hormones by plasma proteins
10. Explain the basis of hormone assays and assessment of biological activity
11. Describe how hormones are metabolism, clearance and excretion of hormones and their metabolic derivatives.
12. Explain the consequences of under and overproduction of hormones to determine the pathophysiological basis and consequences of specific endocrine disorders.
13. Compare and contrast the different mechanism of action of hormones: i.e. those exerted by modulation of gene expression, those activated by changes in protein activity.
14. Evaluate and assess scientific literature about endocrine function and pathology.

### **Course Contents:**

Demonstration of endocrine glands in representative vertebrates; Histological studies of endocrine glands in various vertebrate.

### **Teaching-Learning Strategies**

Teaching will be a combination of class lectures, class discussions, and group work. Short videos /films will be shown on occasion.

### **Assignments**

The sessional work will be a combination of written assignments, class quizzes, presentation, and class participation/attendance.

### **Assessments and Examination**

Sessional Work:	25 marks
Midterm Exam:	35 marks
Final term Exam:	40 marks

### **Books Recommended**

1. Bentley, P.J., 1998. Comparative Vertebrate Endocrinology. Cambridge University Press, Cambridge.
2. Guyton, A.C. and Hall, J.E., 2020. Textbook of Medical Physiology, 14<sup>th</sup> Ed.. W.B. Saunders Company, Philadelphia.