UZO-479 General and Comparative Endocrinology-I Cr. (2)

Course Objectives:

- To discuss the definition of hormone in terms of its general properties.
- To differentiate among endocrine, paracrine and autocrine system.
- To describe different classes and chemical structure of hormone.
- To explain the roles of the endocrine system in maintain homeostasis, integrating growth and development, responding to environmental insult and promote successful reproduction.
- To identify the glands, organs, tissues and cell that synthesize and secrete hormones, hormone precursors and associated compounds.
- To describe synthesis and mode of secretion of hormone, regulation of hormone secretion of hormone, including the principles of negative and positive feedback mechanism.

- To explain the importance of patterns of hormone secretion such as pulsatile, diurnal,cyclicle and how hormones are transported in the blood and consequences of reversible binding of many hormones by plasma proteins
- To explain the basis of hormone assays and assessment of biological activity
- To discuss the metabolism, clearance and excretion of hormones and their metabolic derivatives
- To define and discuss the physiological actions of hormone relating them whenever possible to human disorders
- To explain the consequences of under and overproduction of hormones to determine the pathophysiological basis and consequences of specific endocrine disorders.
- To 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.

Course Learning Outcome

At the end of course the students are able to:

- Explain the roles of the endocrine system in maintain homeostasis, integrating growth and development, responding to environmental insult and promote successful reproduction.
- Discuss the definition of hormone in terms of its general properties.
- Differentiate among endocrine, paracrine and autocrine system.
- Describe different classes and chemical structure of hormone.
- Identify the glands, organs, tissues and cell that synthesize and secrete hormones, hormone precursors and associated compounds.
- Describe synthesis and mode of secretion of hormone.
- Explain how the secretion of hormone is regulated, including the principles of negative and positive feedback mechanism.
- Explain the importance of patterns of hormone secretion such as pulsatile, diurnal and cyclicle.
- Explain how hormone are transported in the blood and consequences of reversible binding of many hormones by plasma proteins
- Explain the basis of hormone assays and assessment of biological activity
- Describe how hormone are metabolism, clearance and excretion of hormones and their metabolic derivatives.
- Explain the consequences of under and overproduction of hormones to determine the pathophysiological basis and consequences of specific endocrine disorders.
- 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.
- Evaluate and assess scientific literature about endocrine function and pathology.

Course Contents:

An overview of general concepts and principles of endocrinology: The endocrine system; Type of hormones; Endocrine and nervous system relationship; General principles in function, interaction, nature, synthesis, transport of hormones; General concept of feed back, biorhythms, pathology and assessment of endocrine function; Evolution of endocrine system.

Hypothalamus and pituitary: Hypothalamic hormones: Origin, chemistry and actions; Anterior pituitary and hormones: Hypothalamic pituitary regulation, General chemistry, Physiological action and metabolism of prolactin-growth hormone family, glycoprotein hormone family, corticotiophins and other pro-opiomelanocortin peptides; posterior pituitary: Release, regulation and actions of varopressin and oxytocin.

Thyroid gland: Anatomy and histology of gland; Formation and secretion of thyroid hormones; Thyroid hormones in peripheral tissues, Regulation and factors affecting thyroid function.

Calciotrophic and Mineral Metabolism Hormones: Chemistry, physiological actions and metabolism of parathyroid hormone, calcitonin and calciferols; Homeostasis of calcium, phosphate and magnesium.

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. Greenspan, F.S. and Strewler, G.J., 2011. Basic and clinical endocrinology, th Ed.. Prentice Hall International Inc., London.
2. Shomo, M., Richard, J.,; Goldfine Etal 2020. Williams textbook of endocrinology, 14th Ed.. W.D. Saunders Company, Philadelphia.
3. DeGroot, L.J., Jameson, J.L. *et al*., 2006. Endocrinology, Vol.I, II and III, 5th Ed.. W.B. Saunders, Philadelphia.
4. Giffin, J.E. and Ojeda, S.R., 2000. 4th Ed.. Textbook of Endocrine Physiology. Oxford University Press, Oxford.
5. Neal, J.M., 2000. Basic Endocrinology: An interactive approach. Blackwell Science Inc., London.

UZO-480 General and Comparative Endocrinology-I (Lab) Cr. (1)

Course Objectives:

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

Course Learning Outcome

At the end of course the students are able to:

- Explain the roles of the endocrine system in maintain homeostasis, integrating growth and development, responding to environmental insult and promote successful reproduction.
- Discuss the definition of hormone in terms of its general properties.
- Differentiate among endocrine, paracrine and autocrine system.
- Describe different classes and chemical structure of hormone.
- Identify the glands, organs, tissues and cell that synthesize and secrete hormones, hormone precursors and associated compounds.
- Describe synthesis and mode of secretion of hormone.
- Explain how the secretion of hormone is regulated, including the principles of negative and positive feedback mechanism.
- Explain the importance of patterns of hormone secretion such as pulsatile, diurnal and cyclicle.
- Explain how hormone are transported in the blood and consequences of reversible binding of many hormones by plasma proteins
- Explain the basis of hormone assays and assessment of biological activity
- Describe how hormone are metabolism, clearance and excretion of hormones and their metabolic derivatives.
- Explain the consequences of under and overproduction of hormones to determine the pathophysiological basis and consequences of specific endocrine disorders.
- 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.
- Evaluate and assess scientific literature about endocrine function and pathology.

Course Contents:

Studies on recognition and response of receptors; Studies of disorders of pituitary by observing anatomical and histological features; Studies of thyroid status in deficient and excess hormone functions;

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