



## SYLLABUS

Course Code	Course Num.	Course Name	Credit Hours	Lec.	Lab.	Tut.	Private study	Pre-requisites	Course Level	Teaching Language
BIO	461	Endocrinology	3	2	2	0	3-5	BIO 314	7	English

### A. Course Description

This course will discuss endocrinology from both an anatomical and physiological view. We will discuss synthesis, distribution and regulation of the entire human endocrine system. In addition, contextual examples of these functions through human endocrine disorders will also be explored. The goal is to provide students with a basic knowledge of the complex endocrine system.

### B. Course Outcomes

At the end of this course the student will be able to:

1. Acquire basic knowledge of properties and structures of hormones.
2. Enable to understand the hormone synthesis.
3. Measure hormones.
4. Determine hormonal impact and syndromes.
5. Understand patterns of gland tissues.
6. Acquire knowledge regarding receptors analysis.

### C. References:

#### Required Textbook

- *Basic Medical Endocrinology; Fourth Edition, By H. Maurice Goodman, Elsevier/Academic Press © 2009; ISBN: 978-0-12-373975-9.*
- *Endocrine Physiology, by Griffin, Oxford University Press(2004).*
- *“Hormones” by A.W. Norman and G. Litwack, Academic Press 2<sup>nd</sup> Edition*

#### Other references:

- Guyton and Hall. *Textbook of Medical Physiology, 12<sup>th</sup> edition.* Elsevier, Inc
- *Endocrinology (6<sup>th</sup> edition) by Mac E. Hadley, Prentice-Hall, New Jersey(2007).*
- *Comparative Vertebrate Endocrinology, by Bentley, Cambridge Univ. Press. Cambridge, (2000).*
- *Guyton Physiology Review, Elsevier, Inc. ISBN 978-1-4160-5452-8.*
- *Human Physiology, Lauralee Sherwood, Thompson, ISBN 0-534-39501-5.*

**Course Website:** Google Classroom Webpage: <http://www.imamm.org/>



## D. Topics Outline

### D1. Theoretical Topics

- 1. General Principles of Endocrinology.** What are hormones, types of release, homeostasis and feedback, causative vs. permissive, organizational vs. activational.
- 2. Peptide Hormones.** Steroids, catechol amines and prostaglandins.
- 3. The Hypothalamic-Pituitary System I:** Anatomy, Tropic Hormones. The Hypothalamic-Pituitary System II: Tropic hormone regulation. The Hypothalamic-Pituitary System III : Tropic hormone regulation; Vasopressin and Oxytocin.
- 4. Melatonin and Thyroid Hormones I :** Biochemistry and Mechanisms of Action. Thyroid Hormones II: Biological functions.
- 5. Endocrine disruptors and development.** Reproduction I – Males: Spermatogenesis, Testicular function, Sex Differentiation.
- 6. Reproduction II – Females:** Ovarian cycles, Pregnancy, Lactation.
- 7. Reproduction III – Comparative Aspects:** Vitellogenesis, Sex determination, Clinical Diseases. Reproduction IV: Seasonal Breeding.
- 8. Metabolism I – The Endocrine Pancreas:** Pancreatic Anatomy, Insulin and Glucagon. Metabolism II – Pancreatic Functions: Metabolism, Gluconeogenesis, Diabetes, Feeding.
- 9. Gastrointestinal Hormones:** Pepsin, Gastrin, Secretin, and Cholecystokinin.
- 10. Calcium and Phosphate Homeostasis:** Parathyroid hormone, Calcitonin. Adrenal Steroids: Adrenal anatomy, Aldosterone, Adrenal Medulla.
- 11. Stress I:** Glucocorticoids and Catechol amines. Stress II: how excessive eating alters hormone release.

### D2. Laboratories Topics

1. Introduction to Laboratory Reagents and Equipment Safety
2. Measurements of anterior lobe of pituitary gland hormones. Measurements of posterior lobe of pituitary gland hormones.
3. Measurements of thyroid hormones.
4. Measurements of pancreatic hormones and Determination of blood glucose.
5. Estimation for female hormones and pregnancy hormones.
6. Estimation for male hormones. Determination of male sex functions.
7. Determination of some Gastrointestinal Hormones.
8. Determination of Parathyroid hormone, Calcitonin.
9. Determination of Adrenal Steroids hormones.



## E. Office Hours

Office hours give students the opportunity to ask in-depth questions and to explore points of confusion or interest that cannot be fully addressed in class.

## F. Exams & Grading System

The semi-official dates of the exams for this course are:

- **Midterm 1:** 6<sup>th</sup> or 7<sup>th</sup> week.
- **Midterm 2:** 11<sup>th</sup> or 12<sup>th</sup> week.
- **Quizzes & Homework:** During the semester.
- **Lab Exam:** 15<sup>th</sup> week
- **Final Exam:** 15<sup>th</sup> - 16<sup>th</sup> week.

Your course grade will be based on your semester work as follows:

<b>Midterm 1:</b> 15 %	<b>Midterm 2:</b> 15 %	<b>Final Exam:</b> 40 %	<b>Final Lab Exam:</b> 20 %
<b>Quizzes, Homework, Attendance &amp; Participation:</b> 10%			

The grading distribution:

A+	A	B+	B	C+	C	D+	D	F
[95, 100]	[90, 95]	[85, 90]	[80, 85]	[75, 80]	[70, 75]	[65, 70]	[60, 65]	[0, 60]

## G. Student Attendance/Absence

Only three situations will be considered as possible excused absences:

- Occurrence of a birth or death in the immediate family will be excused. (“Immediate family” is defined by the University as spouse, grandparents, parents, brother, or sister).
- Severe illness in which a student is under the care of a doctor and physically unable to attend class will be excused. Students are not excused for a doctor's appointment. Do not make appointments that conflict with rehearsals. Notes from the University Health Center will be accepted.

[Executive Rules for Study Regulations and Exams](#)

[goo.gl/ykm7t3](http://goo.gl/ykm7t3)

