

BIOL 329 (Applied Endocrinology) – Course Outline

Course Title: Applied Endocrinology

Course Code: BIOL 329

Course Credits: 4 (3 + 1)

Instructor: Dr. Saba Butt

Room No: S-117

On Campus Office hours: M, W, F (12-1 pm)

Course Overview

This course is designed to provide students an understanding of the hormonal control and regulation of the animal bodies. Applied aspects of endocrinology will be discussed. Course contents will include an overview of endocrine systems in animals and humans, classical and non-classical endocrinology, hormone biosynthesis and metabolism, mechanisms of hormone action, interactions among hormones and environmental interactions with hormonal systems. Clinical disorders associated with endocrine glands and hormones will also be covered. Clinical case studies and endocrine-related technologies will also be included with emphasis on diagnosis and treatment.

Course Objectives:

Objectives of this course are:

- To introduce students with of endocrine structures and functions.
- To educate students about applied and clinical aspects of endocrine structures and hormones.
- To enable students to apply scientific approach towards understanding and resolving clinical problems in endocrinology.
- To enable students to analyze and resolve practical problems and solutions related to hormone-related disorders using technology.
- To analyze and interpret the results of experiments and case studies in endocrinology.

Learning Outcomes:

After the successful completion of this course students will be able to:

1. Explain and synthesize on the basic and applied concepts in endocrinology.
2. Analyze critically the roles of endocrine structures and hormones and their interactions with environments.
3. Solve case studies in endocrinology and critically analyze the solved case studies.
4. Analyze and resolve problems related to hormone systems using technology.
5. Analyze the experimental results and case studies in endocrinology

Books Recommended

1. Squires, E.J. Applied Animal Endocrinology, 1st edition. CABI Publishing, USA, 2010.

- Melmed, S., Polonsky, K., Larson, P.R. and Kroneneberg, H. Williams Textbook of Endocrinology, 13th Edition. W.D. Saunders Company, Philadelphia, 2015.
- DeGroot, L.J., Jameson, J.L. ENDOCRINOLOGY, 4th Edition. W.B. Saunders, Philadelphia, 2001.

COURSE CONTENTS AND WEEKLY BREAKUP

Week	Contents	Activities
1.	Introduction to the course, review of previous knowledge, terminology, history of endocrinology, current endocrinology, applications of endocrinology	
2.	Classical and modern endocrinology Endocrine structures in animals and humans	
3.	Evolution of endocrine systems in animals	Class activity
4.	Hormone classes Feedback loops in endocrine systems	Quiz 1
5.	Hormone biosynthesis and metabolism	
6.	Hormone biosynthesis and metabolism -contd	Class activity
7.	Mechanism of hormone action	
8.	Mechanism of hormone action - contd	
9.	Mid term Exam	
10.	Interactions among hormones and environmental interactions with hormonal systems	Class activity
11.	Clinical disorders associated with endocrine glands and hormones	Quiz 2
12.	Case studies	
13.	Case studies	
14.	Case studies	Class activity
15.	Case studies	
16.	Final Exam and Viva	

Grading

Grading will be based on the following criteria:

Activity to be Assessed	Weight age (%age)	Activity to be Assessed	Weight age (%age)
Final Examination	25	Lab activities	20
Mid-Term Examination	25	Graded Discussions	10
Quizzes	10	Total	100
Assignments	10		

Lab Work:

Lab work of this course will include demonstration of various endocrine systems in animal models. Study of structure of preserved endocrine glands of various animals. Histological studies of various endocrine glands including all kinds of views and sections to identify and differentiate between normal and abnormal. Studying models of endocrine disorders for diagnosis and treatment.

Library Resources:

A soft copy of chapter readings in email and handouts on Moodle.

Course Policies

- Moodle will be used throughout the course for all kinds of communication.
- **Attendance:** Attendance for all on campus and online sessions will be recorded. Attendance will include participation in online activities like discussions or forums.
- **Projects/ presentation:** All projects, assignments will be accepted in soft copy (Moodle) only. Projects should be submitted following deadlines.
- All communication for the course will be through your official FCC email ID given in EMPOWER or Moodle.
- **Lab Rules:** Lab projects/reports should be submitted on time. You are expected to participate each lab activity (on campus or virtual).
- **Plagiarism / Cheating:** There will be no tolerance for cheating or plagiarism. The plagiarism policy given in the Student Handbook will be strictly followed.