

DISCIPLINE SPECIFIC ELECTIVE COURSE 23
Reproductive Endocrinology
Zoo-DSE-23

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

| Course title & Code | Credits | Credit distribution of the course | | | Eligibility criteria | Pre-requisite of the course (if any) |
|--|----------|-----------------------------------|----------|---------------------|---------------------------------------|---------------------------------------|
| | | Lecture | Tutorial | Practical/ Practice | | |
| Reproductive Endocrinology Zoo-DSE-23 | 4 | 3 | 0 | 1 | As per the Program Eligibility | Basic understanding of Zoology |

Learning Objectives

The Learning Objectives of this course are as follows:

- To familiarize students with the reproductive anatomy, physiology and endocrinology of males and females.
- To introduce and discuss the interrelationships between reproductive hormones produced by the brain and reproductive glands and how they interact to control the reproductive processes like pregnancy, parturition and lactation.
- To introduce and discuss reproductive management practices and understand endocrine disorders.

Learning Outcomes

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

- Appreciate the reproductive anatomy
- Learn the significance of physiology of the reproductive system, pregnancy and post pregnancy.
- Understand the various reproductive disorders

SYLLABUS- DSE-23**THEORY** **45 hrs****UNIT 1: Reproductive Anatomy- Male Reproductive System** **10 hrs**

Primary and accessory sex organs and secondary sex characters. Histology of testis. Endocrine functions of testis. Spermatogenesis. Hypothalamic control of testicular functions.

UNIT 2: Reproductive Anatomy- Female Reproductive System **15 hrs**

Histology of ovary. Ovarian hormones and their functions. Oogenesis and ovulation. Formation and functions of corpus luteum. Hypothalamic control of ovarian functions. Menstrual cycle and its regulation. Abnormalities in menstrual cycle. Onset of menopause and postmenopausal changes.

UNIT 3: Physiology of Pregnancy, parturition and lactation **10 hrs**

Structure and functions of placenta. Maintenance of pregnancy and role of hormones. Development of mammary gland and lactation - role of hormones. Parturition. Pregnancy tests. Development of mammary glands, lactation and their hormonal control.

UNIT 4: Reproductive Disorders **10 hrs**

Sexual differentiation & developmental abnormalities – male & female Menstrual disorders – Precocious, delayed or absent puberty; Amenorrhea Fertility disorders – Sexual dysfunction; Infertility; Spontaneous pregnancy loss Pregnancy disorders – Pre-eclampsia, IUGR, Labour abnormalities Endocrine disorders – Hyperprolactinemia Autoimmune Disorders Genetic disorders (mutations and syndromes) Cancers and biomarkers – Testicular; Prostate; Ovarian; Endometrial; Cervical and Breast.

PRACTICALS **30 hrs****(Laboratory periods: 15 classes of 2 hours each)**

1. To study surgical techniques via videos 1. Ovariectomy 2. Castration.
2. Histological and histochemical techniques - Study of the different phases of the estrous cycle of rat using permanent slides of its vaginal smears during the different stages of the cycle..
3. To study sections of ovary, uterus, fallopian tube, testis, epididymis.
4. Study of Sperm count and motility and effect of some antifertility agents.
5. Study of modern contraceptive devices.

PROJECT WORK

Project report on survey of reproductive health in any small human community.

Essential/Recommended Readings

1. Endocrinology, Mac E. Hadley, Pearson Education.
2. Vander's Human Physiology, E.P. Widmaier et al., McGraw-Hill, Higher Education.
3. Endocrinology. Vols.I, II and III by L.O. DeGroot. W.B. Saunders Co.

Suggested Readings:

1. Human Physiology An Integrated Approach by D.U. Silverthorn, Pearson.
2. Medical Physiology, A.B. Singha Mahapatra, Current Books International.
3. "Pathways to Pregnancy and Parturition" (3rd Edition 2012, P. L. Senger)

NOTE: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.