

Name of the Programme: M.Sc. Zoology

Course Code: ZOO-631

Title of the Course: Biology of Animal Reproduction

Number of Credits: 02

Effective from AY: 2023-24

Pre-requisites for the Course:	Elementary knowledge of animal anatomy and physiology.	
Course Objectives:	1. To provide fundamental knowledge of animal reproduction at an anatomical, physiological, and endocrinological level. 2. To analyze comparative the structure and function of male and female reproductive systems; endocrine, neuroendocrine and environmental control of reproduction; development of the gametes, embryo, foetus and placenta; and pregnancy and parturition. 3. To elaborate on the management of reproduction and fertility.	
Content:	Module 1 Anatomy, Development, and Hormones: Introduction to reproduction.	8 hours
	Male Reproductive System: Biology of spermatozoa. Seminiferous epithelial cycle, Spermatogenesis, sperm activation, Hormonal control of spermatogenesis, hormonal regulation of accessory male reproductive organs. Biochemistry of semen, semen analysis, and its utility in medico-legal cases	
	Female Reproductive System: Reproductive cycles in mammals and their regulations; Oogenesis and ovarian cycle. Hormonal regulation, sequence, and types of implantation. Menstruation, puberty, reproductive aging, and menopause.	7 hours
	Module 2 Endocrine control of pregnancy, Parturition, and Lactation. Contraception: Types and various methods (Hormonal, barrier, spermicides, IUDs, Periodic abstinence, etc.). Advantages and disadvantages. Male and Female sexual response. Surgical sterilization.	8 hours
	Reproductive health concern: Infertility (factors responsible).	

	Assisted Reproductive Techniques (ART). Reproductive Tract Disorders: - Symptoms and treatment – Onco-fertility (Endometriosis, Testicular Cancer, Ovarian Cancer, Ovarian cysts). Myths and facts on reproduction.	7 hours
Pedagogy:	Lectures/Tutorials/Videos/Assignments/Group discussion/Self-study.	
References/Readings:	1. R. R. Stickney, Aquaculture-An introductory text, Alex Lainsburry, CABI South Asia Edition.2022. 2. FAO,The State of World Fisheries and Aquaculture,2020. Available: http://doi.org/10.4060/ca9229en 3. R.L. Naylor, R.W. Hardy, Buschmann, and A.H.,Bush, “A 20-year retrospective review of global aquaculture”, Nature, 2021. 4. J.S. Lucas,Aquaculture: Farming aquatic animals and plants,John Wiley & Sons,2019. 5. “The state of world fisheries and aquaculture”, The sustainable development goals. FAO. License: CC BY-NC-SA 3.0 IGO.2020. 6. S. Ayyappan, Handbook of Fisheries and Aquaculture, ICAR Publications, New Delhi, 2011. 7. T.V. Pillay, and M.N. Kutty, Aquaculture: Principles and practices (2nd Edition),Blackwell Publishing,2015. 8. D. Mills, Aquarium fishes, Dorling Kindersly Ltd, London,1998. 9. J.D. Jameson, and R. Santhanan, Manual of ornamental fishes and farming technologies, 1996. 10. N.K. Thakur, Culture of live food organisms for aqua hatcheries. Training manual. CIFE (ICAR), Mumbai,1998.	
Course Outcomes:	The learner will 1. Assess comprehensive knowledge of male and female reproductive systems. 2. Develop the ability to think comprehensively in the field of reproductive biology. 3. Design, analyze and interpret the effects of reproduction on the organism and the roles of endocrine secretions of reproductive organs on bodily functions. 4. Justify how the understanding of reproductive physiology informs the management of reproduction and fertility in animals and provides the basis for reproductive technologies.	