

III B.Sc Zoology	DEVELOPMENTAL BIOLOGY & IMMUNOLOGY	20ZO510
SEMESTER – V		HRS/WK - 5
CORE – X		CREDIT - 4

Objective:

1. To learn basic concepts of developmental biology and artificial reproductive technology
2. To acquire knowledge on immune system and immune deficiency diseases

Course Outcomes (CO's):

On completion of the course students will be able

CO1: To acquire knowledge on gametogenesis and parthenogenesis

CO2: To understand the process of cleavage and blastulation.

CO3: To realize embryonic adaptation and artificial reproductive technology.

CO4: To describe lymphoid organ and immune system

CO5: To gain information regarding immunoglobulin and immune deficiency diseases

Relationship Matrix Course Outcomes, Programme Outcomes and Programme Specific Outcomes

SEMESTER V	COURSE CODE: 20ZO510					COURSE TITLE: DEVELOPMENTAL BIOLOGY & IMMUNOLOGY										HOURS: 5	CREDITS :4
	PROGRAMME OUTCOMES(PO)					PROGRAMME SPECIFIC OUTCOMES(PSO)											
COURSE OUTCOMES	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7	PSO 8	PSO 9	PSO 10		
CO1	5	5	4	5	4	5	5	4	5	5	4	1	5	2	5	4.3	
CO2	5	5	4	5	4	5	5	3	5	5	4	1	5	2	5	4.2	
CO3	5	5	4	5	4	4	5	2	5	5	4	2	5	4	5	4.3	
CO4	5	5	4	5	4	5	5	3	4	5	4	1	5	2	5	4.1	
CO5	5	5	4	5	4	4	5	3	4	5	4	1	5	1	5	4.0	
Mean Overall Score																4.2	

Result: The Score of this Course is 4.2 (Very High)

Association	1%-20%	21%-40%	41%-60%	61%-80%	81%-100%
Scale	1	2	3	4	5
Interval	0<=rating<=1	1.1<=rating<=2	2.1<=rating<=3	3.1<=rating<=4	4.1<=rating<=5
Rating	Very Poor	Poor	Moderate	High	Very High

This Course is having **VERY HIGH** association with Programme Outcome and Programme Specific Outcome

DEVELOPMENTAL BIOLOGY

UNIT – I

15 Hours

Gametogenesis – Fertilization - polarity & symmetry of eggs – types of eggs – Fertilization Mechanism, Physiology & theories – parthenogenesis –Natural – artificial – Experiments on Artificial Parthenogenesis.

UNIT – II

15 Hours

Cleavage – Factors influencing cleavage – fate map – blastulation and gastrulation in amphioxus, frog and chick – Experimental works of Speeman and Mangold- Development of brain and eye in frog.

UNIT – III

15 Hours

Embryonic adaptations; Embryonic membranes and their functions in chick – placentation in mammals. Puberty – Menstrual cycle-contraception – family welfare reproductive technology; Artificial insemination - cryopreservation - IVF - Embryotransfer – Test tube babies – Bioethics.

IMMUNOLOGY

UNIT- IV

15 Hours

Introduction - **Lymphoid organs**, cells of immune system – their role in immune response. Types of immunity – their role in parasitic, bacterial & Viral Infection, in hyper – sensitivity and graft rejection. –Antigen – Antibody reaction.

UNIT – V

15 Hours

Immunoglobulin – types, structure, Physico chemical and biological properties – Immunoprophylaxis – Immunization schedule of children. Immuno deficiency – AIDS, Immunotechniques.

Text Books:

1. M.S.Jayaraj An Introduction to embryology Veer Bala Rastogi Publication.
2. Verma, P.S., V.K. Agarwal and Tyagi, 1995. Chordate embryology. S. Chand & co., New Delhi.

Reference Books:

1. Balinsky, B.L., Introduction to embryology 1981.Saunders, Philadelphia.
2. Berril & Corp Developmental Biology. McGraw Hill Book Company, MC.,New York.
3. Majumdar, N.N. 1990. Text Book of Vertebrate embryology. Tata McGraw – hill Publishing company Ltd. New Delhi.
4. McEwen, R.S., 1969.Vertebrate Embryology. Oxford and IBH Publishing Co., New Delhi.
5. Jain, P.C 1998, Elements of Developmental Biology. Vishal Publication, New Delhi.
6. Roitt.I.M 2000 Essential Immunology, Blackwell Scientific Publishers.
7. Paul, W.E.M. 1989,Fundamental Immunology, Raven Press, New York.
8. Kuby. J.1999, Immunology. W. H. Free man and Co. New York.
9. Current protocols in Immunology – 3 Volumes 1994 Wiley Publications.
10. Roitt. I, Brostoff, J. and Male. D. 2002. Immunology, Mosby, New York.
11. Richard, A. Golds, Thomas I, Kindt & Barbara A. Osborne 2000 Kuby Immunology, Freeman and Co.New York.