

**REGISTRAR**



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No.ANU/Acad./U.G/CBCS/III B.Sc. Zoo/SEM-VI/Syllabus/2017 Date: 14-10-2017

**PROCEEDINGS OF THE VICE-CHANCELLOR**

Sub:- ANU – Academic –UG courses –CBCS – III year B.Sc Zoology VI semester  
Syllabus - Approval - Orders – Issued.

- Ref:- 1. Minutes of the meeting of the Board of Studies (UG) in Zoology  
held on 25-09-2017.  
2. Vice-Chancellor's orders dated 13-10-2017.

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**ORDER:-**

The Vice-Chancellor, after having considered the minutes 1<sup>st</sup> cited, has approved the III year B.Sc Zoology VI Semester syllabus under CBCS pattern for the academic year 2017-18 prepared by the Board of Studies (UG) in Zoology. The titles of the papers are mentioned below.

**Semester-VI**

Elective paper in paper VII.

VII –A – Immunology

**OR**

VII –B –Cellular Metabolism & Molecular Biology

Cluster Electives in paper VIII .

VII –A : Medical Diagnostics

1. Clinical Bio chemistry
2. Hematology
3. Clinical Micro- Biology

**OR**

VIII –B : Aqua Culture

1. Principals of Aquaculture
2. Aquaculture Management
3. Postharvest Technology

It is ordered that the modified syllabus in paper V- Animal Bio Technology in V Semester be implemented from next academic year i.e 2018-19 onwards as per the recommendations of the BoS (UG) in Zoology.

(BY ORDER)

  
**JOINT REGISTRAR**  
Academic

To  
The Chairman and all members, Board of Studies (UG) in Zoology, ANU.  
All the Principals of the Affiliated Colleges under ANU area.  
Copy to:  
The Dean, Faculty of Natural Science, ANU.  
The Dean, CDC, ANU.  
The Coordinator, UG (Exams), ANU  
The Addl. Controller of Examinations, ANU.  
The In- Charge, ANU website.  
The P.A. to Vice-Chancellor/ Registrar/Rector, ANU.

corrected copy - 16/10/17



**ZOOLOGY SYLLABUS FOR V SEMESTER FOR 2018-19**  
**ZOOLOGY - PAPER - V**  
**ANIMAL BIOTECHNOLOGY**

**Periods:60**

**Max. Marks:100**

**Unit 1: Introduction to Bio-Technology and its applications:**

**Tools of Recombinant DNA technology - Enzymes and Vectors**

**Restriction modification systems:** Types I, II and III. Mode of action, nomenclature, applications of Type II restriction enzymes in genetic engineering

**Cloning Vectors:** Plasmid vectors:pBR and pUC series, Bacteriophage lambda and M13 based vectors, Cosmids, BACs, YACs,

**Unit 2 Techniques of Recombinant DNA technology**

**Cloning:** gene cloning

**Gene delivery:** Microinjection, electroporation, biolistic method (gene gun), liposome and viral-mediated delivery

**PCR:** Basics of PCR.

**Hybridization techniques:** Southern, Northern and Western blotting,

**Genomic and cDNA libraries:** Preparation and uses

**UNIT 3 Animal Cell Technology**

Culture; Established Cell lines (common examples such as MRC, HeLa, CHO, BHK, Vero); Organ culture; Cryopreservation of cultures.

**Hybridoma Technology:** Cell fusion, Production of Monoclonal antibodies (mAb), Applications of mAb

**Stem cells:** Types of stem cells, applications

**Unit 4 Reproductive Technologies & Transgenic Animals**

Embryo transfer, Embryo cloning

**Transgenic Animals:** Strategies of Gene transfer; Transgenic - sheep, - fish; applications

**Unit 5 Applied Biotechnology**

**Industry:** Fermentation: Different types of Fermentation: Short notes on - Submerged & Solid state; batch, Fed batch & Continuous; Stirred tank, Air Lift, Fixed Bed and Fluidized; Downstream processing - Filtration, centrifugation, extraction, spray drying and lyophilization

**Agriculture:** fisheries – monoculture in fishes, polyploidy in fishes.

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7/11/17

AP STATE COUNCIL OF HIGHER EDUCATION

ZOOLOGY SYLLABUS FOR VI SEMESTER

ZOOLOGY –ELECTIVE PAPER:VII-(A)

**IMMUNOLOGY**

**Periods:60**

**Max. Marks:100**

**Unit - I**

- 1.1 Overview of Immune system**
  - 1.1.1 Introduction to basic concepts in Immunology
  - 1.1.2 Innate and adaptive immunity
- 1.2 Cells and organs of Immune system**
  - 1.2.1 Cells of immune system
  - 1.2.2 Organs of immune system

**Unit - II**

- 2.1 Antigens**
  - 2.1.1 Basic properties of antigens
  - 2.1.2 Factors influencing immunogenicity

**Unit - III**

- 3.1 Antibodies**
  - 3.1.1 Structure of antibody
  - 3.1.2 Classes and functions of antibodies

**Unit - IV**

- 4.1 Working of Immune system**
  - 4.1.1 Structure and functions of major histocompatibility complexes
  - 4.1.2 Basic properties and functions of cytokines

**Unit - V**

- 5.1 Immune system in health and disease**
  - 5.1.1 Classification and brief description of various types of hyper sensitivities
- 5.2 Vaccines**
  - 5.2.1 General introduction to vaccines
  - 5.2.2 Types of vaccines

