

ST.JOSEPH'S COLLEGE FOR WOMEN (A),VISAKHAPATNAM.

ZOOLOGY SYLLABUS FOR IV SEMESTER

GENETICS, ECOLOGY, EVOLUTION & ZOOGEOGRAPHY

OBJECTIVES:

1. To acquire knowledge of the phenomenon of heredity.
2. To create understanding of the importance of genetic variation in species.
3. To Learn about the dynamic nature of the interrelationships between organisms and their environment.
4. To understand the role of evolution in the formation of new species.
5. To gain knowledge of the geographical distribution of animals.

COURSE:

MARKS:100

Unit - I

Genetics

- 1 .Mendel's work on transmission of traits .
- 2 .Principles of inheritance
3. Interaction of genes.
- 4.Incomplete dominance and co dominance
5. Lethal alleles, Epistasis, Pleiotropy.

UNIT-II

6. Sexdetermination,Genetic abnormalities.
7. Sex linked inheritance
8. Linkage and crossing over
9. Extra chromosomal inheritance
- 10.Human karyotyping, Barr bodies, Lyon hypothesis & amniocentesis.

UNIT -III

ECOLOGY

1. Meaning and scope of Ecology
- 2 .Important abiotic factors of Ecosystem - Temperature, light, water, oxygen .
3. Nutrient cycles - Nitrogen, carbon and phosphorus.

4. Habitat and ecological niche, Community interactions - Mutualism, commensalism, parasitism, competition, predation.
5. Population Ecology - characteristics & factors determining population growth.
6. Biostatistics: scope and applications of statistics in ecology - methods of sampling - advantages and disadvantages of sampling.

UNIT-IV

Evolution

1. Origin of life.
2. Lamarckism, Darwinism, Neo – Darwinism, Hardy-Weinberg Equilibrium.
3. Variations, isolating mechanisms, natural selection
4. Types of natural selection (directional, stabilizing, disruptive)
5. Artificial selection and forces of evolution
6. Speciation (Allopatric and Sympatric)
7. Macro evolutionary principles (Example: Darwin's finches)

Unit - V

Zoogeography

1. Zoogeographical regions
2. Study of physical and faunal peculiarities of Oriental, Australian and Ethiopian Regions.
3. Patterns of Animal distribution. Factors affecting distribution
3. Means of dispersal and barriers to dispersal.
4. Continental drift, Wallace line.

TEXT BOOKS :

1. Genetics by Veer Bala Rastogi. Kedar Nath Ram Nath. Delhi.
2. Genetics by P.K.Gupta. Rastogi Publications. Meerut
3. Cell Biology, Genetics, Evolution and Ecology by P.S. Verma and V.K. Agarwal. S.Chand Company. New Delhi.
4. Elements of Biotechnology by P.K.Gupta
5. Fundamentals of Microbiology and Immunology By A.K. Banerjee and N. Banerjee. Central book Agency. India.
6. Animal Physiology and Biochemistry by Dr. V.S. Tyagi. Kedar Nath Ram Nath. Meerut.

REFERENCE BOOKS :

1. Immunology. I. Kannan
2. Principles of Immunology by N.V. Shastri. Himalaya Publishing House Pvt. Ltd.
3. Genetic Engineering by Mohan P. Arora. Himalaya Publishers.
4. Genetics by Sinott, Dunn, Dobzansky. T.M.H Edition
5. Genomics and Biotechnology by P.K.Gupta.