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BIOLOGY

for Civil Services Exam

CONTENTS

BIOLOGY

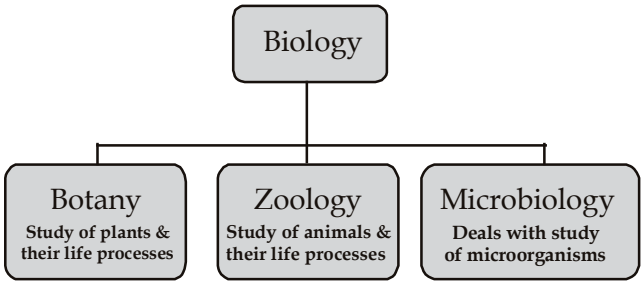
CHAPTER

1 THE LIVING WORLD DISCIPLINE

Biology is the study of living beings which are characterized by the possession of life processes.

Aristotle is considered as the father of Biology.

Important branches of biology are:



Other important disciplines in biology are:

- **Cytology** : Study of cell structure is called cytology.
- **Embryology** : It is the study of fertilization and development of a zygote into an embryo, larva or a miniature adult.
- **Exobiology** : Study of possibility of life in the outer space.
- **Microbiology** : It is the study of structure, life cycle and activities of micro-organisms invisible to naked eye.
- **Pathology** : Study of diseases, their effects, casual agents, transmission and other activities of pathogens.
- **Eugenics** : Study of factors connected with impairment or improvement of a race.
- **Euthenics** : Study of environmental conditions that contribute to the improvement of intellect and other traits of human beings.
- **Euphenics** : Treatment of defective heredity through genetic engineering.
- **Actinology** : (i) Study of radiation effects (ii) Study of radially symmetrical animals.
- **Aerobiology** : Study of air borne organisms as well as structure (e,g spores) and their distribution.
- **Agrobiology** : Quantitative science of plant life and plant nutrition.
- **Agronomy** : Science of soil management of domesticated animals.
- **Animal Husbandry** : Raising and management of domesticated animals.
- **Anthropology** : Study of origin development and culture of present and past races of humans.

- **Agiculture** : Rearing of bees.
- **Biometrics** : (Biometry = Biostatistics). Statistical study of biological problems.
- **Biotechnology** : Technology connected with employing living beings or their products in industrial processes.
- **Cardiology** : Study of heart.
- **Carcinology** : Study of cancers or tumours.
- **Dentistry** : Care of teeth including cure, removal, filling and replacement.
- **Dermatology** : Study of skin and other body coverings.
- **Ecobiology** : (i) Study of adaptations in relation to habitat. (ii) Study of problems connected with existence of life in space and other planets.
- **Economic Botany/ Economic Zoology** : Branch dealing with commercially exploited/exploitable plants/ animals.
- **Ethnology** : Science dealing with different races of mankind.
- **Ethology** : Study of animal behavior.
- **Fishery** : Catching, breeding, rearing and marketing of fish and other aquatic animals.
- **Floriculture** : Cultivation of plants for their flowers.
- **Gastroenterology** : Study of stomach, intestine and their diseases.
- **Geology** : Science of earth.
- **Haematology** : Study of blood.
- **Hepatology** : Study of liver.
- **Horticulture** : Development and management of orchards and gardens.
- **Immunology** : Study of immunity or resistance to disease.
- **Mammology** : Study of mammals.
- **Molecular genetics** : Molecular basis of genetics/science of inheritance and variations.
- **Mycology** : Study of fungi.
- **Myology (Sarcology)** : Study of muscles.
- **Neonatology** : Scientific study of new born.
- **Neontology** : Science of present day or recent living beings.
- **Nephrology** : Study of kidneys.
- **Neurology** : Study of nervous system.
- **Occupational Therapy** : Treating mental and physical defects with occupation.
- **Ornithology** : Study of birds.
- **Osteology** : Study of Bones.
- **Pharmacology** : Study of synthesis and effects of medicine an organisms.
- **Physiotheraphy** : Treatment of body defects through massage and exercise.

- **Psychiatry** : Treatment of mental diseases.
- **Psychology** : Study of human mind and behaviour.
- **Radiology** : Science dealing with X-rays and other imaging techniques for medical diognosis.
- **Radiotheraphy** : Treatment of diseases with X-ray and radio-active substances.
- **Sericullture** : Rearing silkworms of extraction of silk.
- **Serology** : Study of serum; interaction of antigens and antibodies in the blood.
- **Therapeutics** : Treatment of disease.
- **Toxicology** : Study of harmful effects of drugs and other substances.
- **Tricology** : Study of hairs.
- **Urology** : Science dealing with disorders of urinary tract (urinogenital tract in males).
- **Venereology** : Study and treatment of venereal diseases.
- **Virology** : Study of viruses.

Legends of Discipline

- Father of Concept of Evolution - Ampedocles(495-425 B.C.)
- Father of Medicine - Hippocrates(460-375 B.C)
- Father of Biology, Embryodoloy and Zoology. - Aristole (384-287 B.C)
- Father of Botony and Ecology - Theophrastus (370-287 B.C)
- Father of Anatomy - Andreas Veaslius(1514-1564)
- Father of Comparative Anatomy - George Cuvier(1771-1712)
- Father of Microscopic Anatomy - Morcello Malpighi (1628-1694)
- Father of Plant Anatomy - N. Grew (1641-1712)
- Father/Founder of Histology - Francois Bichat (1771-1802)
- Father of Microscopy (Protozoology, Microbiology, Bacteriology) - Anatomy van Leeuwenhick(1632-1723)
- Father of Cytology - Robert Hooke (1635-1703)
- Father of Modern Cytology - Swansan
- Father of Taxonomy and Nomenclature - Caroleus (Carl von) Linnacus (1707-1778)
- Founder of Embryology - C.F.Wolff (1738-1794)
- Father of Modern Embryology - Von Baer (1792-1876)
- Father of Immunology - Edward Jenner (1749-1823)
- Father of Epidemiology - John Snow
- Father of Biochemistry - Liebig
- Father of Plant Physiology - Stephen Hales (1677-1761)
- Father of Experimental Physiology - Galen

- Father of Micology - Micheli
- Father of Bryology - Hedwig
- Father of Plant Pathology - De Bary
- Father of Antiseptic Surgery - Joseph Lister
- Father of Bacteriology - Koch
- Father of Microbiology - Pasteur
- Father of Palynology - Erdtman
- Father of Endocrinology - Thomas Addition
- Father of Stress Physiology - Hans Selye
- Father of Conditioned Reflexes - Pavlov
- Father of ECG - Einthoven
- Father of Gerontology - Korenchevsk
- Father of Palacontology - Cuvier
- Father of Ethology - Konard Lorentz
- Father of Antibiotics - Alexander Fleming (1881-1995)
- Father of Blood Circulation - William Havey (1578-1657)
- Father of Blood Groups - Landsteiner
- Father of Chemotherapy - Paul Ehlrich
- Father of Genetics - Gregor Johann Mendel
- Father of Modern Genetics - Bateson
- Father of Polygenic Inheritence - Kolreuter
- Father of Eugenics - Francis Galton
- Father of Biochemical/Human Genetics - Archibald Garrod
- Father of Experimental Genetics - T.H Morgan
- Father of Genetic Engineering - Paul Berg
- Father of DNA Printing - Alee Jaffrey

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