

Academic Year	2021-22
----------------------	----------------

**B.P.H.E. Society's
Ahmednagar College, Ahmednagar
Internal Quality Assurance Cell
CO, PO, and PSO Attainment Sheet**

Department Name	ZOOLOGY
------------------------	----------------

Program Name	M.Sc.
---------------------	--------------

Program Outcomes(PO)

PO1	Zoology knowledge: Apply the knowledge of Zoology, Life Sciences and allied subjects to the understanding of complex
PO2	Problem analysis: Identify, review research literature, and analyse complex situations of living forms.
PO3	Design/development of solutions: Design processes/strategies that meet the specified needs with appropriate
PO4	Conduct investigations of complex problems: Use research-based knowledge and research methods including design of
PO5	Modern tool usage: Create, select, and apply appropriate techniques, resources, and
PO6	The Postgraduate and society: Apply reasoning informed by the contextual
PO7	Environment and sustainability: Understand the impact of the natural and anthropogenic activities in societal and
PO8	Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the work/research
PO9	multidisciplinary settings.
PO10	scientific community and with society at large, such as, being able to comprehend and write
PO11	apply these to one's own work, as a member and leader in a team
PO12	learning in the broadest context of technological change.

Program Specific Outcome(PSO)

PSO1	ing problems related to public health, safety, and environmental problems. To learn and apply problem analysis skills by develo
PSO2	t of anthropogenic activities on environment and need for conservation of environment and faunal biodiversity of the countr
PSO3	s orally. Management and leadership: To apply subject knowledge, technological knowledge and demonstrate scientific skill

Academic Year :	2021-22
------------------------	----------------

Class		M.Sc. I	Course Outcomes	Program Outcomes												PSOs		
Subject Code	50121			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name	Biochemistry and Biochemical Techniques.	CO1	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	
Semester No	1	CO2	3	3	3	2	2	3	1	2	2	2	2	1	2	2	3	
Teacher Name	Ms. Anuja Bhalerao	CO3	3	3	3	2	2	3	2	2	2	2	2	1	2	2	3	
Course Outcomes		CO4	3	2	2	2	2	3	2	1	1	2	1	2	2	1	2	
	CO1	Studying basic terms in biochemistry and biochemical techniques. Understanding the applications of the various biochemical techniques.	CO5	3	2	2	2	2	3	1	1	1	2	1	1	2	2	
	CO2	Understanding the structure and functions of various biomolecules.	Average	3.00	2.40	2.40	2.00	2.00	2.60	1.40	1.60	1.60	2.00	1.60	1.40	2.00	1.80	2.40
	CO3	Learning the importance of tools and techniques in biology. Illustrate the principle, working and applications of basic techniques used in biology.																
	CO4	Studying the importance of pH, buffer and water in living systems.																
	CO5	Learning to draw the structures of various carbohydrates and amino acids. Classify enzymes with examples.																

Class		M.Sc. I		Course Outcomes	Program Outcomes												PSOs		
Subject Code	50122				PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name	Cell Biology & Developmental Biology			CO1	1	2	2	3	2	1	2	1	2	2	3	1	2	1	3
Semester No	1			CO2	2	2	3	2	3	2	2	2	1	3	2	3	3	2	2
Teacher Name	Dr. Balraj Khobragade & Mr. Mahesh Gore			CO3	3	3	1	2	2	3	2	3	3	2	1	2	3	3	1
Course Outcomes				CO4	2	1	1	2	1	2	2	1	1	1	1	2	3	1	2
	CO1	Sketch and label various cell parts, types of cells and cell organelles.		CO5	2	2	1	2	1	2	2	2	1	1	1	2	2	1	2
	CO2	Explain concepts of cell signalling.		Average	2.00	2.00	1.60	2.20	1.80	2.00	2.00	1.80	1.60	1.80	1.60	2.00	2.60	1.60	2.00
	CO3	Explain cell cycle phases.																	
	CO4	Learning the terms in developmental biology and understanding the significance of model organism for developmental studies.																	
	CO5	Studying the concept of growth, differentiation and postembryonic development.																	

Class		M.Sc. I		Course Outcomes	Program Outcomes												PSOs		
Subject Code	50123				PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name	Genetics & English in Scientific Communication			CO1	3	2	1	2	1	2	1	1	1	1	2	3	1	3	
Semester No	1			CO2	3	3	2	1	1	2	1	1	2	2	1	2	3	1	3
Teacher Name	Mr. Mahesh Gore & Mr. D. G. Bhalsing			CO3	1	2	2	2	3	2	3	1	2	2	3	2	1	2	3
Course Outcomes				CO4	3	1	1	1	2	3	2	2	1	1	1	1	1	1	2

	CO1	Learning the concept of Mendelian genetics, gene, gene regulation and multiple alleles. Illustrating the modified Mendelian laws of inheritance.	CO5	1	2	3	2	2	1	1	3	2	2	2	2	3	3	2
	CO2		Learning Linkage and crossing with their types and significance. Understanding the principles of Population genetics and its application.	Average	2.20	2.00	1.80	1.60	1.80	2.00	1.60	1.60	1.60	1.60	1.60	1.80	2.20	1.60
	CO3	Writing outline of scientific paper, Title, Abstract, Discussion and Citations.																
	CO4	Preparation of scientific presentation using power point.																
	CO5	Justify importance of plagiarism check and proof reading of research articles.																

Class		M.Sc. I	Course Outcomes	Program Outcomes												PSOs		
Subject Code	50125			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name	Freshwater Zoology		CO1	2	1	2	1	1	2	2	1	1	1	1	2	2	2	2
Semester No	1		CO2	2	1	2	1	2	3	3	2	1	1	1	2	2	2	2
Teacher Name	Dr. Avinash Vanjare		CO3	2	1	2	1	2	2	2	1	1	1	1	2	2	2	2
Course Outcomes			CO4	2	1	2	1	2	2	2	2	2	2	1	2	3	3	3
	CO1	Understand types of aquatic habitats	CO5	2	2	3	1	3	3	3	3	3	2	2	3	3	3	3
	CO2	Environmental properties of water	Average	2.00	1.20	2.20	1.00	2.00	2.40	2.40	1.80	1.60	1.40	1.20	2.20	2.40	2.40	2.40
	CO3	Organisms and their adaptation in water																
	CO4	Ecological and economical importance of organisms																
	CO5	Conservation of water																

Class	M.Sc. I	Course	Program Outcomes												PSOs		
-------	---------	--------	------------------	--	--	--	--	--	--	--	--	--	--	--	------	--	--

Subject Code	50126	Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name	Zoology Practical Paper I [Practicals in Freshwater Zoology]	CO1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1
Semester No	1	CO2	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1
Teacher Name	Dr. Avinash Vanjare	CO3	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1
Course Outcomes		CO4	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1
	CO1	Identify commercially important freshwater fish	CO5	1	1	1	1	1	1	1	0	0	1	1	1	1	1
	CO2	Identify aquatic adaptations in freshwater fish	Average	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00
	CO3	Prepare culture of Paramecium and Daphnia															
	CO4	Analyze Zooplankons of local; water body and estimate hardness and chlorinity of water samples															
	CO5	Evaluate bioindicators of pollution															

Class	M.Sc. I	Course Outcomes	Program Outcomes												PSOs		
Subject Code	50127		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name	Basic Zoology Lab I	CO1	2	1	3	2	2	1	2	1	2	2	1	2	2	3	1
Semester No	1	CO2	3	2	2	3	1	2	2	2	1	1	2	2	3	2	3
Teacher Name	Dr. Balraj Khobragade & Mr. D. G. Bhalsing	CO3	3	2	2	2	2	1	1	2	2	1	1	3	2	1	2
Course Outcomes		CO4	3	2	2	2	2	2	1	2	1	1	1	3	2	1	2
	CO1	Understand types of cells and ultrastructure of cell organelles and preparation of human cheek epithelial cells.	CO5	2	1	3	2	2	1	2	2	1	3	2	1	2	3
	CO2	Knowledge of mitosis and meiosis.	Average	2.60	1.60	2.40	2.20	1.80	1.40	1.60	1.80	1.40	1.60	1.40	2.20	2.20	2.00
	CO3	Estimating biomolecules and biochemical techniques.															
	CO4	Experimental study of medelian laws, application of population genetics.															

	CO5	Writing scientific paper, understand common errors in presentations, proof correction symbols, assigning legends and oral presentation.
--	-----	---

Class		M.Sc. I	Course Outcomes	Program Outcomes												PSOs		
Subject Code	50221			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name	Molecular Biology & Bioinformatics		CO1	2	2	2	2	3	2	1	2	2	2	3	3	2	2	
Semester No	2		CO2	2	3	2	3	3	2	2	3	3	1	2	3	3	3	
Teacher Name	Ms. Anuja Bhalerao , Mr. Mahesh Gore		CO3	2	2	2	2	3	2	2	2	2	2	3	3	2	2	
Course Outcomes			CO4	2	3	2	3	3	2	2	3	3	1	2	3	3	2	3
	CO1	Explain the DNA structure & types, topology, Physical properties; chromatin structure and organization.	CO5	2	2	2	2	3	2	3	3	2	1	2	3	3	3	2
	CO2	Discuss genome organization, DNA and Protein sequencing with their application in evolutionary studies.	Average	2.00	2.40	2.00	2.40	3.00	2.00	2.00	2.60	2.40	1.40	2.00	3.00	3.00	2.40	2.40
	CO3	Explain the mobile DNA elements. Explain mechanism of DNA damage and repair.																
	CO4	Illustrate the process of DNA replication, transcription, translation and their regulations. Justify the post translational and post transcriptional modifications.																
	CO5	Illustrate the database tools with their significance.																

Class		M.Sc. I	Course Outcomes	Program Outcomes												PSOs		
Subject Code	50222			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name	Endocrinology & Parasitology		CO1	1	2	2	2	1	3	2	1	2	2	1	2	1	3	2
Semester No	2		CO2	2	2	1	3	2	2	1	1	1	2	2	1	2	2	1
Teacher Name	Mr. D. G. Bhalsing		CO3	1	1	2	1	3	2	2	3	2	1	2	2	3	1	1
Course Outcomes			CO4	2	1	2	2	1	1	2	2	3	2	1	2	2	3	2
	CO1	Discuss roles of pituitary gland and pineal body and Illustrate mechanism of hormone action and role of hormone receptors.	CO5	2	2	2	1	2	1	2	1	3	2	1	2	1	2	3
	CO2	Describe the role of osmoregulatory and gastrointestinal hormone and role of hormones in moulting, change in body colour, yolk synthesis and insect development.	Average	1.60	1.60	1.80	1.80	1.80	1.80	1.80	1.60	2.20	1.80	1.40	1.80	1.80	2.20	1.80
	CO3	Justify hormones as co-ordination molecules and justify significance of biological clocks and rhythms.																
	CO4	Describe role of parasites in public health and hygiene and Explain pathogenicity and control measures of parasites.																
	CO5	Explain morphology and life cycle of common parasites and Justify importance of parasite control strategies and significance of vectors and disease transmission.																

Class		M.Sc. I	Course Outcomes	Program Outcomes												PSOs		
Subject Code	50223			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3

Subject Name	Comparative Animal Physiology & Environmental Biology		CO1	1	0	1	1	0	1	0	1	0	0	1	1	1	1	
Semester No	2		CO2	1	0	1	1	0	1	0	1	0	0	1	1	0	1	1
Teacher Name	Dr. Pande G S ...&..		CO3	1	0	1	1	0	1	0	1	0	0	1	1	1	1	1
Course Outcomes			CO4	1	1	1	1	1	1	1	0	0	0	1	1	1	1	1
	CO1	Explain physiology of: digestion, respiration, Muscle contraction, excretion and thermoregulation	CO5	1	1	1	1	1	1	1	0	0	0	1	1	1	1	1
	CO2	Explain Mechanisms of: Chemical communication and structure and functions of sense organs	Average	1.00	0.40	1.00	1.00	0.40	1.00	0.40	0.60	0.00	0.00	1.00	1.00	0.80	1.00	1.00
	CO3	Explain regulatory mechanisms in animals, and illustrate process of osmoregulation in animals. Justify survival strategies of animals in varied climatic conditions																
	CO4	List the endangered, endemic and extinct species of India. Identify human impact on natural resources and explain concepts in population ecology.																
	CO5	Illustrate wildlife management practices, and, effect of climate and human activities on Biodiversity. Effect of lifestyle on environment																

Class	M.Sc. I	Course Outcomes	Program Outcomes												PSOs		
Subject Code	50224		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name	Metabolic Pathways	CO1	2	3	2	1	2	0	0	1	2	2	1	2	2	0	2
Semester No	2	CO2	2	2	2	2	2	0	0	1	1	2	0	1	1	0	2
Teacher Name	Mr. Mahesh Gore	CO3	3	2	1	1	2	0	0	1	1	2	0	1	1	0	2

Course Outcomes		CO4	2	2	2	2	2	2	0	1	2	3	1	2	2	0	2	
	CO1	Studying basic terminologies of metabolic pathways. Understanding the laws of thermodynamics, concept of free energy and ATP as currency molecule.	CO5															
	CO2	Learning the Concepts and regulation of metabolism. understanding the oxidation of fatty acids and its significance.	Average	3	3	1	1	2	0	0	1	1	2	0	2	2	0	2
	CO3	Studying electron transport chain and oxidative phosphorylation.																
	CO4	Illustrating the reactions, energetics and regulation of glycolysis, glycogen biosynthesis, TCA cycle, Purine and Pyrimidine metabolism.																
	CO5	Learning to write the general reactions of various metabolic pathways and justifying the role of enzymes in metabolism.																

Class	M.Sc. I	Course Outcomes	Program Outcomes												PSOs			
Subject Code	50226		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	
Subject Name	Zoology Practical Paper II	CO1	3	3	3	3	3	3	3	3	3	2	2	2	3	1	3	
Semester No	2	CO2	3	3	3	3	3	3	2	2	2	2	2	3	3	0	3	
Teacher Name	Mr. Mahesh Gore	CO3	3	3	3	2	2	2	2	2	2	2	2	3	3	0	3	
Course Outcomes		CO4	3	3	3	2	3	2	1	2	2	2	2	3	3	0	3	
	CO1	Identifying the common diseases/conditions caused due to errors in metabolism.	CO5	3	3	3	2	2	2	1	2	2	3	2	3	3	0	3

	CO2	Learning the use of basic equipment in biochemistry lab.	Average	3.00	3.00	3.00	2.40	2.60	2.40	1.80	2.20	2.20	2.20	2.00	2.80	3.00	0.20	3.00
	CO3	Studying the enzyme activity from suitable material and learning the effect of various physical and chemical factors on enzyme activity.																
	CO4	Understanding the absorption studies of biomolecules and principle of Colorimetry and Spectrophotometry.																
	CO5	Estimating the concentration of cholesterol, uric acid, amino acids and starch. learning Separation of biomolecules by chromatographic methods.																

Class		M.Sc. I	Course Outcomes	Program Outcomes												PSOs		
Subject Code	50227	PO1		PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	
Subject Name	Basic Zoology Lab II	CO1	3	2	2	2	3	1	1	2	2	1	1	2	2	1	3	
Semester No	2	CO2	2	2	1	2	1	1	2	1	2	1	3	1	2	2	1	
Teacher Name	Mr. Mahesh Gore & Mr. D. G. Bhalsing & Dr. Pande G S, Ms. Anuja Bhalerao	CO3	1	1	2	2	3	1	2	2	3	1	2	2	1	3	2	
Course Outcomes		CO4	0	0	0	0	1	0	1	1	1	1	1	1	1	0	1	
	CO1	Understanding isolation of nucleic acid and their estimation.	CO5	3	2	2	2	3	1	1	1	1	1	2	2	1	3	
	CO2	Understand retrocerebral complex of cockroach and Perform gonadectomy, pancreatectomy, and thyroidectomy in rat.	Average	1.80	1.40	1.40	1.60	2.20	0.80	1.40	1.40	1.80	1.00	1.60	1.60	1.60	1.40	2.00

	CO3	Study parasites from digestive tract of cockroach. Understand lifecycle of parasitic protozoa and helminths.
	CO4	Demonstrate RBCs in vertebrates; Effect of body size on oxygen consumption; Determine bleeding and clotting time in vertebrates; Determine heartbeat of crab
	CO5	Learning various nucleotide and protein databases.

Academic Year :	2021-22
------------------------	----------------

Class		M.Sc. II	Course Outcomes	Program Outcomes												PSOs		
Subject Code	50331B	PO1		PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	
Subject Name	Entomology-I	CO1	3	3	3	2	2	3	3	2	3	2	3	3	2	2	3	
Semester No	3	CO2	3	2	2	1	2	2	2	1	1	2	2	2	2	1	2	
Teacher Name	Dr. Rahul Gaikwad	CO3	2	2	3	1	1	2	3	1	1	2	2	2	2	1	2	
Course Outcomes		CO4	3	2	3	1	1	2	3	1	1	2	2	2	2	1	2	
	CO1	Understanding entomology applications. Learning Insects and understand origin and evolution of insects and their relation to other arthropods.	CO5															
	CO2	Learning the outline of Classification of insects up to family with distinguishing characters and examples of each order and family.	Average	2	2	2	1	1	2	2	1	1	2	2	2	1	2	
	CO3	Studying the structure, chemical composition and functions of Integument and Derivatives of Integument.		2.60	2.20	2.60	1.20	1.40	2.20	2.60	1.20	1.40	2.00	2.20	2.20	2.00	1.20	2.20
	CO4	Understanding the structure, modifications of insect body regions and their appendages. Learning the Comparative anatomical and histological structure of various body systems.																

	CO5	Learning the location structure and functions of various Endocrine glands, Exocrine glands and Light and Sound producing organs in various insects
--	-----	--

Class		M.Sc. II	Course Outcomes	Program Outcomes												PSOs		
Subject Code	50332			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name	Fundamentals of Systematics & Economic Zoology		CO1	0	0	0	1	0	0	1	0	0	1	1	0	1	1	1
Semester No	3		CO2	1	1	0	0	2	0	2	0	1	0	0	0	1	1	1
Teacher Name	Dr. Pande GS & Dr. Balraj Khobragade		CO3	3	2	2	3	1	2	3	1	2	2	1	3	2	1	3
Course Outcomes			CO4	1	3	2	2	3	2	2	3	3	2	2	1	1	2	3
	CO1	Explain principles, methods of biological classification and Animal diversity. Explain the importance of taxonomic keys and taxonomic characters	CO5	2	1	2	2	2	1	3	2	1	3	2	2	3	2	1
	CO2	Explain the principles classification, nomenclature and learn basic taxonomic procedures and techniques in molecular systematics	Average	1.40	1.40	1.20	1.60	1.60	1.00	2.20	1.20	1.40	1.60	1.20	1.20	1.60	1.40	1.80
	CO3	Explain importance of various animal husbandry industries.																
	CO4	Explain the role of parasitic protozoans and helminths.																
	CO5	Explain role of economically important insects and coral reefs																

Class		M.Sc. II	Course Outcomes	Program Outcomes												PSOs		
Subject Code	50333			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name	Research Methodology & Insect Physiology		CO1	2	3	1	3	2	1	1	2	2	2	2	2	2	2	2
Semester No	3		CO2	2	2	1	2	2	1	1	3	2	2	3	2	2	2	2
Teacher Name	Dr Pande G S & Dr. Avinash Vanjare		CO3	1	1	0	2	1	0	0	1	0	0	0	1	1	1	1
Course Outcomes			CO4	1	1	0	1	1	0	0	1	0	0	0	1	1	1	1
	CO1	Demonstrate knowledge of research processes, instruments used	CO5	1	1	0	1	1	0	0	1	0	0	0	1	1	1	1
	CO2	IMRAD format, publication process, research proposal, research ethics	Average	1.40	1.60	0.40	1.80	1.40	0.40	0.40	1.60	0.80	0.80	1.00	1.40	1.40	1.40	1.40
	CO3	Explain integument structure & describe the process of digestion in insects																
	CO4	Explain the characteristics of haemolymph and types of haemocytes. Illustrate the structure, physiology and biochemistry of flight muscle.																
	CO5	Demonstrate the process of excretion, detoxification and water balance. Justify the role of insect hormones in physiological processes.																

Class		M.Sc. II	Course Outcomes	Program Outcomes												PSOs		
Subject Code	50334A			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name	Immunology		CO1	3	2	3	3	2	3	3	2	2	2	3	3	3	2	3
Semester No	3		CO2	2	3	3	3	2	2	2	2	3	3	3	2	2	2	2
Teacher Name	Dr. Ivan Aranha		CO3	3	3	2	3	3	2	2	3	3	3	2	3	2	2	2
Course Outcomes			CO4	2	2	2	2	3	2	2	3	3	3	2	3	2	2	2
	CO1	List the primary and secondary immune organs.	CO5	3	2	2	2	3	2	2	3	2	2	2	2	2	2	2

	CO2	Explain the concepts of immunity, self-nonsel immune response, autoimmune disease.	Average	2.60	2.40	2.40	2.60	2.60	2.20	2.20	2.60	2.60	2.60	2.40	2.80	2.20	2.00	2.20
	CO3	Explain the theories of antibody synthesis and generation of antibody diversity.																
	CO4	Explain the principle and application of the common techniques used in Immunology, Illustrate the events and dynamics of inflammation																
	CO5	Compare the MHC molecules and diseases associated with HLA. Differentiate between active and passive immunization, Compare the three pathways of complement fixation pathway.																

Class		M.Sc. II	Course Outcomes	Program Outcomes												PSOs		
Subject Code	50335			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name	Zoology Practical Paper - III		CO1	3	3	3	3	3	3	3	2	2	3	2	3	3	3	3
Semester No	3		CO2	3	3	3	3	3	3	3	2	2	3	2	3	3	2	2
Teacher Name	Dr. Ivan Aranha		CO3	3	2	2	3	1	2	2	3	1	2	3	2	1	3	2
Course Outcomes			CO4	2	1	3	1	2	2	3	1	2	3	1	2	3	1	2
	CO1	Identify the pattern of identity of antigen- antibody reaction.	CO5	2	2	1	2	3	3	1	3	3	2	2	3	2	2	3
	CO2	Identify the microscopic structure of the lymphoid organs.	Average	2.60	2.20	2.40	2.40	2.40	2.60	2.40	2.20	2.00	2.60	2.00	2.60	2.40	2.20	2.40
	CO3	Demonstrate immunoelectrophoresis and double diffusion techniques.																
	CO4	Detect the human blood groups by antigen -antibody reactions																

	CO5	Prepare the human blood smear to identify various blood cells.
--	-----	--

Class		M.Sc. II	Course Outcomes	Program Outcomes												PSOs		
Subject Code	50336			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name	Special Lab - I		CO1	2	2	2	1	1	1	2	2	1	2	1	3	3	1	2
Semester No	3		CO2	1	3	1	2	2	1	1	2	1	2	2	1	2	2	2
Teacher Name	Dr. Avinash Vanjare & Dr. Balraj Khobragade..& Dr. Pande G S & Dr. Rahul Gaikwad		CO3															
				1	1	1	2	2	1	1	1	1	1	1	1	1	1	1
Course Outcomes			CO4	3	2	2	1	2	3	2	2	3	1	2	1	3	2	1
	CO1	To study collection and preservation of insects. Understanding various morphological and anatomical features in generalised insects	CO5															
				2	3	1	3	2	1	3	1	2	3	1	3	2	1	3
	CO2	IMRAD format, research process, tools, techniques, statistics, publication process, funding	Average	1.80	2.20	1.40	1.80	1.80	1.40	1.80	1.60	1.60	1.80	1.40	1.80	2.20	1.40	1.80
	CO3	Learn practical skills in the field of systematics (Collection, Preservation, Curation and Identification of taxa; Reporting Field visit/Research institute visit). Learn practical skills in Insect physiology (Estimation of glycogen, effect of temperature on insect, study of heart and hemocytes of insect).																
	CO4	Understand prawn culture, Apiculture equipment, fishing tools and poultry breeds and poultry utensils.																

CO5	Knowledge of economic importance of freshwater fishes.
-----	--

Class		M.Sc. II	Course Outcomes	Program Outcomes												PSOs		
Subject Code	50431B			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name	Entomology II		CO1	3	3	3	2	2	3	1	2	1	2	2	2	3	2	2
Semester No	4		CO2	2	2	2	2	2	1	1	1	1	2	2	2	2	0	2
Teacher Name	Dr. Rahul Gaikwad		CO3	3	3	3	3	2	3	2	2	1	2	3	3	3	2	3
Course Outcomes			CO4	2	2	2	2	2	1	1	1	1	1	2	2	2	0	2
	CO1	Learning Gametogenesis, Fertilization and oviposition in insects.	CO5	3	3	3	3	2	3	2	2	1	1	3	3	2	1	3
	CO2	Studying embryonic developmental stages such as Cleavage, Blastoderm and Germ band formation; Gastrulation, Blastokinesis, differentiation of germ layers, Segmentation and Appendages formation and organogenesis.	Average	2.60	2.60	2.60	2.40	2.00	2.20	1.40	1.60	1.00	1.60	2.40	2.40	2.40	1.00	2.40
	CO3	Understanding post-embryonic developmental stages such as Nymph, Naiad, larva, Pupa and Metamorphosis. Studying specialized reproductive mechanisms.																
	CO4	Understanding Hadorn's experiments with imaginal disc, Regeneration and Aging.																
	CO5	Studying Occurrence, Initiation, Preparations for diapauses and its Controls.																

Class		M.Sc. II	Course Outcomes	Program Outcomes												PSOs		
Subject Code	50432			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3

Subject Name	Mammalian Reproductive Physiology & Aquaculture	CO1	3	3	3	3	3	3	3	2	2	3	2	3	3	3	3	
Semester No	4	CO2	3	3	3	3	3	3	3	2	2	3	2	3	3	2	2	
Teacher Name	Dr. Ivan Aranha & Dr. Balraj Khobragade	CO3	3	3	2	3	3	2	2	3	3	2	3	2	1	3	2	
Course Outcomes		CO4	2	1	3	1	2	2	3	1	2	3	1	2	3	1	2	
	CO1	Explain the male and female reproductive systems and sexual dimorphic	CO5	2	2	1	2	3	3	1	3	3	2	2	3	2	2	3
	CO2	Illustrate the reproductive dysfunctions. Diagrammatically represent the hormonal regulation of reproductive processes like pregnancy, lactation and parturition.	Average	2.60	2.40	2.40	2.40	2.80	2.60	2.40	2.20	2.40	2.60	2.00	2.60	2.40	2.20	2.40
	CO3	Understand fish harvesting, preservation, processing, packaging and transportation.																
	CO4	Describe fish, prawn, pearl culture and their management.																
	CO5	Identify fish diseases and causative organisms.																

Class	M.Sc.II	Course Outcomes	Program Outcomes												PSOs			
Subject Code	50433B		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	
Subject Name	Pest Control	CO1	1	2	2	1	2	2	3	2	1	2	2	1	2	3	1	
Semester No	4	CO2	2	2	1	2	2	1	1	2	2	1	3	2	1	2	3	
Teacher Name	Mr. D. G. Bhalsing	CO3	1	1	2	2	3	2	2	1	3	2	1	2	2	1	2	
Course Outcomes		CO4	1	2	3	2	1	2	2	2	1	1	2	1	2	1	3	
	CO1	Understand pest, nature of damage caused by pests and pest control and principles and methods of pest control.	CO5	2	1	3	1	2	2	1	3	2	2	1	2	3	2	1

	CO2	Knowledge of medical, veterinary, household and stored grain pests.	Average	1.40	1.60	2.20	1.60	2.00	1.80	1.80	2.00	1.80	1.60	1.80	1.60	2.00	1.80	2.00
	CO3	Knowledge of integrated pest management (IPM).																
	CO4	Knowledge of non-insect pest and their control.																
	CO5	Understand principle and working of pesticide appliances.																

Class		M.Sc. II	Course Outcomes	Program Outcomes												PSOs		
Subject Code	50434			PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Subject Name	Zoology Practical Paper - IV		CO1	2	2	2	2	1	1	2	2	1	2	1	2	2	1	2
Semester No	4		CO2	2	2	2	2	2	2	2	2	1	2	1	3	2	2	3
Teacher Name	Dr. Rahul Gaikwad & Mr. D. G. Bhalsing		CO3	2	1	1	2	1	2	1	2	3	1	2	2	2	3	1
Course Outcomes			CO4	1	2	2	1	2	1	2	2	1	3	1	1	2	2	3
	CO1	Studying the histological structure of male and female reproductive system of insect. Learning to demonstrate various body organs, systems and appendages of housefly and butterfly.	CO5	2	2	1	2	2	3	2	1	2	2	2	1	3	1	2
	CO2	Studying the eggs, embryonic stages, post-embryonic stages of different insects.	Average	1.80	1.80	1.60	1.80	1.60	1.80	1.80	1.80	1.60	2.00	1.40	1.80	2.20	1.80	2.20
	CO3	Identify and classify beneficial and harmful insect.																
	CO4	Knowledge of effects of insecticides and fumigants on behaviour of insect pests.																
	CO5	Knowledge of principle and working of pesticide appliances.																

Class		M.Sc. II		Course Outcomes	Program Outcomes												PSOs		
Subject Code	50435A	PO1	PO2		PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3		
Subject Name	Pollution Biology	CO1	3	2	2	2	1	2	2	2	2	2	2	2	2	3	2		
Semester No	4	CO2	3	2	2	2	1	3	3	2	2	2	2	2	3	3	2		
Teacher Name	Dr. Avinash Vanjare	CO3	3	2	2	2	1	3	3	2	2	2	2	2	3	3	2		
Course Outcomes		CO4	3	2	2	2	1	3	3	2	2	2	2	2	3	3	2		
	CO1	Understand Biosphere	CO5	3	2	2	2	1	3	3	2	2	2	2	3	3	2		
	CO2	Understand Pollution, its types, control and monitoring	Average	3.00	2.00	2.00	2.00	1.00	2.80	2.80	2.00	2.00	2.00	2.00	2.80	3.00	2.00		
	CO3	Illustrate the bioassay methods																	
	CO4	Elucidate the methods to study the impact of pollutants																	
	CO5	Justify the importance of biomedical waste management																	

Class		M.Sc. II		Course Outcomes	Program Outcomes												PSOs		
Subject Code	50436	PO1	PO2		PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3		
Subject Name	Zoology Practical Paper - V	CO1	3	3	3	2	2	2	2	3	3	3	2	3	3	2	3		
Semester No	4	CO2	3	3	2	2	2	3	2	2	2	2	2	2	2	3	2		
Teacher Name	Dr. Ivan Aranha & Dr. Balraj Khobragade	CO3	3	2	2	2	2	1	3	1	1	1	3	1	1	2	2		
Course Outcomes		CO4	3	2	2	1	2	3	2	1	2	2	3	2	3	3	2		
	CO1	Identify the histological slides of reproductive organ/tissues, Explain the various types of placenta in mammals. Comment on merits and demerits of contraceptive devices/methods, Illustrate the technique of gonadectomy.	CO5																
	CO2	Comment on merits and demerits of contraceptive devices/methods, Illustrate the technique of gonadectomy.	Average	2.80	2.20	2.40	1.80	1.80	2.40	2.40	2.00	2.20	1.80	2.40	2.20	2.20	2.40		

	CO3	Prepare the flow chart to demonstrate the hormonal coordination of reproductive Processes ,Justify the artificial control of reproduction.
	CO4	Understanding common freshwater fishes, prawns and oysters and knowledge of induced breeding and diseases in fish.
	CO5	Knowledge of control methods of aquatic weeds

Class		M.Sc. II	Course Outcomes	Program Outcomes												PSOs		
Subject Code	50437	PO1		PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	
Subject Name	Project	CO1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	
Semester No	4	CO2	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	
Teacher Name	Prof. DG Bhalsing, Dr. Balraj Khobragade, Dr. Pande GS, Dr. Ivan Aranha, Dr. Avinash Vanjare, Dr. Rahul Gaikwad	CO3	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	
Course Outcomes		CO4	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	
	CO1	To design, and plan a scientific research work	CO5	1	1	1	2	1	1	1	1	1	1	1	1	1	1	
	CO2	To learn to review and refer scientific literature	Average	1.00	1.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
	CO3	To learn how to execute experimental work																
	CO4	To learn to analyze results of experiments and observations																
	CO5	To learn to Publish Research findings. To Present research findings in Conferences and other scientific gatherings																

CO-PO Mapping

		Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12		
FY	FY	1	50121	3.00	2.40	2.40	2.00	2.00	2.60	1.40	1.60	1.60	2.00	1.60	1.40	
		2	50122	2.00	2.00	1.60	2.20	1.80	2.00	2.00	1.80	1.60	1.80	1.60	2.00	
		3	50123	2.20	2.00	1.80	1.60	1.80	2.00	1.60	1.60	1.60	1.60	1.60	1.80	
		4	50125	2.00	1.20	2.20	1.00	2.00	2.40	2.40	1.80	1.60	1.40	1.20	2.20	
		5	50126	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
		6	50127	2.60	1.60	2.40	2.20	1.80	1.40	1.60	1.80	1.40	1.60	1.40	2.20	
		7	50221	2.00	2.40	2.00	2.40	3.00	2.00	2.00	2.60	2.40	1.40	2.00	3.00	
		8	50222	1.60	1.60	1.80	1.80	1.80	1.80	1.80	1.60	2.20	1.80	1.40	1.80	
		9	50223	1.00	0.40	1.00	1.00	0.40	1.00	0.40	0.60	0.00	0.00	1.00	1.00	
		10	50224	2.40	2.40	1.60	1.40	2.00	0.40	0.00	1.00	1.40	2.20	0.40	1.60	
		11	50226	3.00	3.00	3.00	2.40	2.60	2.40	1.80	2.20	2.20	2.20	2.00	2.80	
		12	50227	1.80	1.40	1.40	1.60	2.20	0.80	1.40	1.40	1.80	1.00	1.60	1.60	
SY	SY	1	50331B	2.60	2.20	2.60	1.20	1.40	2.20	2.60	1.20	1.40	2.00	2.20	2.20	
		2	50332	1.40	1.40	1.20	1.60	1.60	1.00	2.20	1.20	1.40	1.60	1.20	1.20	
		3	50333	1.40	1.60	0.40	1.80	1.40	0.40	0.40	1.60	0.80	0.80	1.00	1.40	
		4	50334A	2.60	2.40	2.40	2.60	2.60	2.20	2.20	2.60	2.60	2.60	2.40	2.80	
		5	50335	2.60	2.20	2.40	2.40	2.40	2.60	2.40	2.20	2.00	2.60	2.00	2.60	
		6	50336	1.80	2.20	1.40	1.80	1.80	1.40	1.80	1.60	1.60	1.80	1.40	1.80	
		7	50431B	2.60	2.60	2.60	2.40	2.00	2.20	1.40	1.60	1.00	1.60	2.40	2.40	
		8	50432	2.60	2.40	2.40	2.40	2.80	2.60	2.40	2.20	2.40	2.60	2.00	2.60	
		9	50433B	1.40	1.60	2.20	1.60	2.00	1.80	1.80	2.00	1.80	1.60	1.80	1.60	
		10	50434	1.80	1.80	1.60	1.80	1.60	1.80	1.80	1.80	1.60	2.00	1.40	1.80	
		11	50435A	3.00	2.00	2.00	2.00	1.00	2.80	2.80	2.00	2.00	2.00	2.00	2.00	
		12	50436	2.80	2.20	2.40	1.80	1.80	2.40	2.40	2.00	2.20	1.80	2.40	2.20	
		13	50437	1.00	1.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

CO-PO ATTAINMENT

PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
2.52	2.016	2.016	1.68	1.68	2.184	1.176	1.344	1.344	1.68	1.344	1.176
1.146667	1.146667	0.917333	1.261333333	1.032	1.146667	1.146667	1.032	0.917333	1.032	0.917333	1.146667
1.848	1.68	1.512	1.344	1.512	1.68	1.344	1.344	1.344	1.344	1.344	1.512
1.68	1.008	1.848	0.84	1.68	2.016	2.016	1.512	1.344	1.176	1.008	1.848
1	1	1	1	1	1	1	1	0	0	1	1
2.6	1.6	2.4	2.2	1.8	1.4	1.6	1.8	1.4	1.6	1.4	2.2
1.146667	1.376	1.146667	1.376	1.72	1.146667	1.146667	1.490667	1.376	0.802667	1.146667	1.72
1.173333	1.173333	1.32	1.32	1.32	1.32	1.32	1.173333	1.613333	1.32	1.026667	1.32
0.733333	0.293333	0.733333	0.733333333	0.293333	0.733333	0.293333	0.44	0	0	0.733333	0.733333
1.76	1.76	1.173333	1.026666667	1.466667	0.293333	0	0.733333	1.026667	1.613333	0.293333	1.173333
3	3	3	2.4	2.6	2.4	1.8	2.2	2.2	2.2	2	2.8
1.8	1.4	1.4	1.6	2.2	0.8	1.4	1.4	1.8	1	1.6	1.6
1.906667	1.613333	1.906667	0.88	1.026667	1.613333	1.906667	0.88	1.026667	1.466667	1.613333	1.613333
1.026667	1.026667	0.88	1.173333333	1.173333	0.733333	1.613333	0.88	1.026667	1.173333	0.88	0.88
1.4	1.6	0.4	1.8	1.4	0.4	0.4	1.6	0.8	0.8	1	1.4
1.906667	1.76	1.76	1.906666667	1.906667	1.613333	1.613333	1.906667	1.906667	1.906667	1.76	2.053333
2.6	2.2	2.4	2.4	2.4	2.6	2.4	2.2	2	2.6	2	2.6
1.8	2.2	1.4	1.8	1.8	1.4	1.8	1.6	1.6	1.8	1.4	1.8
1.906667	1.906667	1.906667	1.76	1.466667	1.613333	1.026667	1.173333	0.733333	1.173333	1.76	1.76
2.322667	2.144	2.144	2.144	2.501333	2.322667	2.144	1.965333	2.144	2.322667	1.786667	2.322667
1.026667	1.173333	1.613333	1.173333333	1.466667	1.32	1.32	1.466667	1.32	1.173333	1.32	1.173333
1.608	1.608	1.429333	1.608	1.429333	1.608	1.608	1.608	1.429333	1.786667	1.250667	1.608
2.68	1.786667	1.786667	1.786666667	0.893333	2.501333	2.501333	1.786667	1.786667	1.786667	1.786667	1.786667
2.8	2.2	2.4	1.8	1.8	2.4	2.4	2	2.2	1.8	2.4	2.2
1	1	1	2	1	1	1	1	1	1	1	1

Percentage CO-PO ATTAINMENT

PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
84	84	84	84	84	84	84	84	84	84	84	84
57.33333	57.33333	57.33333333	57.33333	57.33333	57.33333	57.33333	57.33333	57.33333	57.33333	57.33333	57.33333
84	84	84	84	84	84	84	84	84	84	84	84
84	84	84	84	84	84	84	84	84	84	84	84
100	100	100	100	100	100	100	100	#DIV/0!	#DIV/0!	100	100
100	100	100	100	100	100	100	100	100	100	100	100
57.33333	57.33333	57.33333333	57.33333	57.33333	57.33333	57.33333	57.33333	57.33333	57.33333	57.33333	57.33333
73.33333	73.33333	73.33333333	73.33333	73.33333	73.33333	73.33333	73.33333	73.33333	73.33333	73.33333	73.33333
73.33333	73.33333	73.33333333	73.33333	73.33333	73.33333	73.33333	73.33333	#DIV/0!	#DIV/0!	73.33333	73.33333
73.33333	73.33333	73.33333333	73.33333	73.33333	73.33333	#DIV/0!	73.33333	73.33333	73.33333	73.33333	73.33333
100	100	100	100	100	100	100	100	100	100	100	100
100	100	100	100	100	100	100	100	100	100	100	100
73.33333	73.33333	73.33333333	73.33333	73.33333	73.33333	73.33333	73.33333	73.33333	73.33333	73.33333	73.33333
73.33333	73.33333	73.33333333	73.33333	73.33333	73.33333	73.33333	73.33333	73.33333	73.33333	73.33333	73.33333
100	100	100	100	100	100	100	100	100	100	100	100
73.33333	73.33333	73.33333333	73.33333	73.33333	73.33333	73.33333	73.33333	73.33333	73.33333	73.33333	73.33333
100	100	100	100	100	100	100	100	100	100	100	100
73.33333	73.33333	73.33333333	73.33333	73.33333	73.33333	73.33333	73.33333	73.33333	73.33333	73.33333	73.33333
89.33333	89.33333	89.33333333	89.33333	89.33333	89.33333	89.33333	89.33333	89.33333	89.33333	89.33333	89.33333
73.33333	73.33333	73.33333333	73.33333	73.33333	73.33333	73.33333	73.33333	73.33333	73.33333	73.33333	73.33333
89.33333	89.33333	89.33333333	89.33333	89.33333	89.33333	89.33333	89.33333	89.33333	89.33333	89.33333	89.33333
89.33333	89.33333	89.33333333	89.33333	89.33333	89.33333	89.33333	89.33333	89.33333	89.33333	89.33333	89.33333
100	100	100	100	100	100	100	100	100	100	100	100
100	100	100	100	100	100	100	100	100	100	100	100

CO-PSO MAPPING

CO-PSO ATTAINMENT

Percentage CO-PSO ATTAINMENT

	Course	PSO1	PSO2	PSO3
FY	1 50121	2.00	1.80	2.40
	2 50122	2.60	1.60	2.00
	3 50123	2.20	1.60	2.60
	4 50125	2.40	2.40	2.40
	5 50126	1.00	1.00	1.00
	6 50127	2.20	2.00	1.80
	7 50221	3.00	2.40	2.40
	8 50222	1.80	2.20	1.80
	9 50223	0.80	1.00	1.00
	10 50224	1.60	0.00	2.00
	11 50226	3.00	0.20	3.00
	12 50227	1.60	1.40	2.00
SY	1 50331B	2.00	1.20	2.20
	2 50332	1.60	1.40	1.80
	3 50333	1.40	1.40	1.40
	4 50334A	2.20	2.00	2.20
	5 50335	2.40	2.20	2.40
	6 50336	2.20	1.40	1.80
	7 50431B	2.40	1.00	2.40
	8 50432	2.40	2.20	2.40
	9 50433B	2.00	1.80	2.00
	10 50434	2.20	1.80	2.20
	11 50435A	2.80	3.00	2.00
	12 50436	2.20	2.20	2.40
	13 50437	1.00	1.00	1.00

Course	PSO1	PSO2	PSO3
50121	1.68	1.512	2.016
50122	1.490667	0.917333	1.146667
50123	1.848	1.344	2.184
50125	2.016	2.016	2.016
50126	1	1	1
50127	2.2	2	1.8
50221	1.72	1.376	1.376
50222	1.32	1.613333	1.32
50223	0.586667	0.733333	0.733333
50224	1.173333	0	1.466667
50226	3	0.2	3
50227	1.6	1.4	2
50331B	1.466667	0.88	1.613333
50332	1.173333	1.026667	1.32
50333	1.4	1.4	1.4
50334A	1.613333	1.466667	1.613333
50335	2.4	2.2	2.4
50336	2.2	1.4	1.8
50431B	1.76	0.733333	1.76
50432	2.144	1.965333	2.144
50433B	1.466667	1.32	1.466667
50434	1.965333	1.608	1.965333
50435A	2.501333	2.68	1.786667
50436	2.2	2.2	2.4
50437	1	1	1

Course	PSO1	PSO2	PSO3
50121	84	84	84
50122	57.33333	57.33333	57.33333
50123	84	84	84
50125	84	84	84
50126	100	100	100
50127	100	100	100
50221	57.33333	57.33333	57.33333
50222	73.33333	73.33333	73.33333
50223	73.33333	73.33333	73.33333
50224	73.33333	#DIV/0!	73.33333
50226	100	100	100
50227	100	100	100
50331B	73.33333	73.33333	73.33333
50332	73.33333	73.33333	73.33333
50333	100	100	100
50334A	73.33333	73.33333	73.33333
50335	100	100	100
50336	100	100	100
50431B	73.33333	73.33333	73.33333
50432	89.33333	89.33333	89.33333
50433B	73.33333	73.33333	73.33333
50434	89.33333	89.33333	89.33333
50435A	89.33333	89.33333	89.33333
50436	100	100	100
50437	100	100	100