

Department of Zoology



The zoology Department of Nutan Mahavidyalaya was established in the year 1968 at Nutan Vidyalaya a sister concern of our institute. Department was then shifted to the premises of main college campus building.

Laboratories:-



Department has a spacious building which was constructed under UGC assistance. It consists of two Laboratories No.1 is assigned to junior college and Laboratories No.2 for under graduate students. It also has preserved animal museum, store room, office of head of department and room for staff. Each laboratory is of 22*40 feet in dimensions which is sufficient for 25 students working together in single practical batch. Laboratory is well furnished with the facilities such as continuous

running water, L.P.G. gas line equipment chemicals tools and dissecting animals models etc.

Chemicals & Equipments etc:-

Department has ready stock of chemicals ,glass wares equipments required for U.G. students. Department is very much great full to U.G.C. for providing financial assistance for purchesment of equipments etc.Although department is sufficient to carry out minor research projects due to lack of P.G. course research work cold not beundertaken. Beside equipment department has stock of numerous charts, LCD Projectors ,microscope etc. Department routine purchases to like chemicals glassware materials i.e. recurring and nonrecurring materials.

Staff:-

Zoology department of Nutan Mahavidyalaya started in 1968. Zoology department built up area is 225 sq.m. *Mr.N.G.Karadkhedkar* was the first Head of department. *Dr. P.N.Kulkarni* is lecturer and head department of Zoology up to 2003 The present faculty includes the Dr. R.M.Khadap Head from Jan.2007 in the department with Helminthology specialization & Dr.P.S.Kharat with specialization Animal Physiology . Both faculty member is actually engaged in the academic and research aspect as recognized guide for Ph.D. of S. R. T. M. U., Nanded .

Aims & Objectives :-

As with all branches of modern science Zoology too has witnessed evolutionary changes in last few decades mainly due to advances in the techniques and the knowledge base has increased tremendously.

Presently the subject takes in to account the advances in the field of Zoology, especially in understanding life processes of animals, inter relationship with the species and between larger group, the evolutionary process at work. This will help students to give better understanding of animal structure and function. The subject is framed in such a way which will also help the students to master necessary skills useful for acquiring necessary information, interpretation, the phenomenon at

work, the collection and the analysis to process the data for arriving at a meaningful conclusion.

The subject also proposes to students for teaching jobs and self employment (e-g. Apicultural, Piscicultural, Sericultural, Biofertilizer etc.) the subject also aims at developing identification skills, culturing skills, animals handling skills, communication skills and observation skills etc.

Vision

- Fostering global competencies among the students.
- Provide Global platform to the students in the area of Life Sciences.
- Provide acquaintance about fascinating world of animals and fishes and their applications.

Academic Year-2018-19

NAME OF DEPARTMENT: ZOOLOGY

TOTAL STUDENT STRENGTH OF THE DEPARTMENT OF ZOOLOGY

NO	CLASS	Male	Female	TOTAL	TOTAL
01	BSC FY	15	40	55	
02	BSC SY	20	24	44	
03	BSC TY	10	17	27	126

Academic Year-2018-19

NAME OF DPARTMENT: ZOOLOGY

NO	NAME OF THE STAFF MEMBER	QUALIFICATIONS	DATE OF APPOINTMENT	NATURE OF APPOINTMENT	YEARS OF SERVICE
01	Dr.R.M.Khadap	M.Sc.Ph.D.	11/01/2005	Permanent	2018-19
02	Dr.P.S.Kharat	M.Sc.Ph.D.	14/12/2010	Permanent	2018-19

Academic Year-2018-19

NAME OF DPARTMENT: ZOOLOGY

NO	NAME OF THE STAFF MEMBER	WORK LOAD				SIGNATURE OF THE STAFF MEMBER
		CLASS WISE	THEORY	PRACTICAL	TOTAL	
01	DR.R.M.KHADAP	BSC FY	03	03	06	
		BSC SY	03	03	06	
		BSC TY	03	03	06	
02	DR.P.S.KHARAT	BSC FY	03	03	06	
		BSC SY	03	03	06	
		BSC TY	03	03	06	

Academic Year-2018-19

NAME OF THE DEPARTMENT: ZOOLOGY

NAME OF THE TEACHER	CLASS	THEORY COURSE NAME & NUMBER	AVAILABLE LECTURES	CONDUCTED LECTURES	% CONDUCTED	
DR..R.M.KHADAP	BSC.F.Y.	Sem. I				
		II -Cell Biology	45	40	88.88 %	
		Sem. II				
			III Life and Diversity of Animal – II	45	42	96.33%
			PR-V Practical based on theory papers of Semester-I & Semester-II)	36	30	83.33
	BSC.S.Y.	Sem. III	VII Comparative Anatomy and Physiology	45	40	88.88 %
		SEM-IV				
		IX Endocrinology, Histology and Biochemitry	45	42	96.33%	
		PR-XI Practical based on theorypaper-VII (Semester-III) & theory paper-IX	30	26	86.66%	
	BSC.T.Y.	Sem. V	45	43	95.55%	
		XII Ecology and Zoogeography (Compulsory)				
		SEM-VI	45	42	96.33%	
		XIV Ethology, Biometry and Bioinfotmatics (Compulsory)				
		PR-VI Practical based on theorypaper-XII & XIV	30	26	86.66%	
DR..P.S.KHARAT	BSC.F.Y.	Sem. I				
		I -Life and Diversity of Animal – I	45			
		Sem. II				
		IV Developmental Biology	45			
		PR-V Practical based on theory papers of Semester-I & Semester-II)	36			
	BSC.S.Y.	Sem. III	45			
		VI Genetics				
		SEM-IV				
		VIII Genetic Engineering and volution				
		PR-XI Practical based on theory paper-VI (Semester-III) & theory paper-VIII	45			
			30			
	BSC.T.Y.	Sem. V	45			
		XIII Aquaculture (Optional))				
		SEM-VI				
		XV Pisciculture (Optional)	45			
		PR-XIII Practical based on theory paper-XV				
			30			

OUTCOME OF THE COURSE

SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY, NANDED

Choice Based Credit System (CBCS) Course Structure

Faculty of Science & Technology

B. Sc. First Year Syllabus w.e.f. June, 2019

Zoology

Semester -I

Paper: CCZ-I: Biodiversity of Invertebrates and Chordates

Section –B Title of Paper: Paper-II : Biodiversity of Chordates

Periods : 45 Credits: 02 (Marks: 50)

Objectives:

1. To understand Biodiversity, Habitat, Adaptation organization and taxonomic status of Chordates.
2. Explaining the basic aspects of classification of chordates.
3. Develop the ability to understand structural and functional details of Chordates.
4. Develop a broad and correlated view of all chordate groups: extinct and living.
5. Acquire the skill to correlate anatomical and morphological aspects of different chordate groups.

Outcome of the Course:

1. The student will be able to identify and understand the Biodiversity of Chordates.
2. Ability to understand anatomical relation between different vertebrate classes.
3. The learner will be able to understand the economic importance of Chordates.

SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY, NANDED

Choice Based Credit System (CBCS) Course Structure

Faculty of Science & Technology

B. Sc. First Year Syllabus w.e.f. June, 2019

Zoology

Semester –II

Paper: CCZ-II: Comparative Anatomy and Developmental Biology of Vertebrates

Section –A Title of Paper: Paper-III: Comparative Anatomy of Vertebrates

Periods : 45 Credits: 02 (Marks: 50)

Objectives:

1. To understand Anatomical structure of Vertebrates.
2. Explaining the basic aspects of evolution of various organs of vertebrates.
3. Understand the phylogenetic progression in vertebrate body and its systems.
4. To know about the extreme specialization in different organ systems in vertebrate groups in response to the environment

Outcome of the Course:

1. The student will be able to identify and understand comparative anatomical structure of vertebrate organ systems.
2. The learner will be able to understand the evolution of various organs and systems in the vertebrate body according to its environment.
3. Understand the plasticity of organ systems to adapt to the environment and acquire different novel forms.

SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY, NANDED

Choice Based Credit System (CBCS) Course Structure

Faculty of Science & Technology

B. Sc. Second Year Syllabus w.e.f. June, 2020

Zoology

Semester- III

Paper: CCZ- III: Physiology and Biochemistry

Section- A Title of Paper: Paper- VI: Physiology

Periods: 45 Credits: 02 (Marks: 50)

Objectives:

1. To understand the internal physical and chemical functions of animals and their parts.
2. To study the process of digestion, assimilation and excretion
3. To understand working of blood and circulatory system.
4. To understand the respiration and nervous coordination.
5. To study the endocrine function of Human reproductive organs.
6. To study the nature, function and classification of hormones.
7. To acquire knowledge on the structure of Pituitary, Thyroid, Adrenal, and Islets of Langerhans.

Outcome of the Course:

On successful completion of the course, the students will be able to

1. Monitor their blood pressure and identify blood groups.
2. Understand function and types of heart & circulatory system.
3. Appreciate the basic function of kidney, main function of nerves.
4. Acquire knowledge on the nature and functions of hormones and learn the mechanism of hormone action.
5. Learn the structure and functions of Endocrine glands.
6. Understand the structure, development and function of reproductive organs in human.

SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY, NANDED

Choice Based Credit System (CBCS) Course Structure

Faculty of Science & Technology

B. Sc. Second Year Syllabus w.e.f. June, 2020

Zoology

Semester- III

Paper: CCZP- II Section- A & B

Title of Paper: Practical Paper X: Physiology and Biochemistry (Practical based on P-VI & VII)

Practicals: 32 Credits: 02 (Marks: 50)

Objectives:

1. To improve the skills of students in microscopy, slide preparation, observations, drawings and laboratory techniques.

2. To acquaint the students with operations of the different laboratory equipment.
3. Ability to carry out routine clinical analysis of blood.
4. Understand the working principle and application of Sphygmo-manometer and Haemoglobinometer.
5. Learn clinical procedures for blood & urine analysis.

Outcomes:

1. Students able to improve the skills in microscopy, slide preparation, observations, drawings and laboratory techniques.
2. To acquaint the students with operations of the different laboratory equipment.
3. Ability to understand the detection of blood groups of humans.
4. Ability to Understand the estimation of blood cell counts, Haemoglobin content in humans.
5. To acquaint the students with operation of clinical procedures for blood & urine analysis.

**SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY,
NANDED**

Choice Based Credit System (CBCS) Course Structure

Faculty of Science & Technology

B. Sc. Second Year Syllabus w.e.f. June, 2020

Zoology

Semester- IV

Paper: CCZ-IV: Cell Biology, Genetics, Evolutionary Biology and Genetic Engineering

Section- A Title of Paper: Paper- VIII: Cell Biology and Genetics

Periods: 45 Credits: 02 (Marks: 50)

Objectives:

1. To provide students with relevant knowledge, skills and values in contemporary cell biology.
2. To understand the structure and function of the cell as the fundamentals for understanding the functioning of all living organisms.
3. To acquire knowledge of prokaryotic, eukaryotic cells.
4. To make aware of different cell organelles, their structure and role in living organisms.
5. To acquire knowledge of Mendelian Genetics and its Extension.
6. To emphasize the central role of genes and their inheritance in the life of all organisms

Outcome of the Course:

On successful completion of the course, the students will be able to

1. Understand the structure and function of the cell as the fundamentals for understanding the functioning of all living organisms.
2. Understand structures and various cellular functions associated with the macromolecules

found in cells.

3. Acquire knowledge of Mendelian Genetics and its Extension.

4. Graduates will be able to explain and interpret various processes, phenomena, states and evolutionary tendencies at a biological system level.

SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY, NANDED

Choice Based Credit System (CBCS-R2021) Course Structure

Faculty of Science & Technology

B.Sc. Third Year Syllabus w.e.f. June, 2021

Zoology

Semester -V

Paper: DSEZ-I; Section –A Title of Paper: Paper-XII -Ecology & Zoo-geography

Periods : 45 Credits: 02 (Marks: 50)

Objectives:

1. Understand and appreciate interactions of organisms with environment and the ecosystem dynamics.
2. Awareness of current environmental issues, and understanding of relation between structure and function of ecosystems.
3. Knowledge of local and geographical distribution and abundance of organisms.
4. Develop an appreciation of scope of modern scientific inquiry in the field of Ecology.
5. Study structural and functional adaptations of organisms to their environment.
6. Study conservation of natural resources and management of pollution.

Outcomes:

1. Demonstrate knowledge of biotic and abiotic interactions.
2. Express understanding of environmental issues, and inter-relation between different components of an ecosystems.
3. Ability to elaborate about distribution and abundance of organisms.
4. Apply different experimental techniques to study any ecosystem or its components.
5. Describe the relation between structure and function species in environment.
6. Display knowledge of natural resources and pollution management techniques.

SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY, NANDED

Choice Based Credit System (CBCS-R2021) Course Structure

Faculty of Science & Technology

B.Sc. Third Year Syllabus w.e.f. June, 2021

Zoology

Semester -VI

Paper: DSEZ-II; Section -A Title of Paper: Paper- XIV-Ethology, Biometry and Bioinformatics

Periods : 45 Credits: 02 (Marks: 50)

Objectives:

1. To study the behavior of organism in nature; and generate interest in complexities of ethology.
2. To understand the basic concepts and techniques of Biometry.
3. To get acquainted with and apply the fundamentals of statistical methods.
4. To give students an introduction to the basic practical techniques of bioinformatics.
5. To study the application of biological databases for problem solving in research.

Outcomes:

1. An appreciation of animal behavior and complexities of ethology.
2. Knowledge of basic concepts and techniques of biometry.
3. Knowledge and skill to apply the techniques statistical methods in biology.

4. Knowledge and understanding of practical use of computers in bioinformatics.
5. An understanding of the use of biological databases in research.

SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY, NANDED

Choice Based Credit System (CBCS-R2021) Course Structure

Faculty of Science & Technology

B.Sc. Third Year Syllabus w.e.f. June, 2021

Zoology

Practical Syllabus

Paper: DSEZP-I (Based on DSEZ-I; Section-A& DSEZ-II; Section-A)

Title of Paper: Paper- XVI -Ecology, Zoo-geography, Ethology, Biometry and Bioinformatics

Periods : 15 + 15 Credits: 02 (Marks: 50)

Objectives:

1. Assimilate skills of water testing and analysis.
2. Study adaptations of animals to different ecological and zoo-geographic conditions.
3. Study animal responses to different environmental signals.
4. Learn different techniques to analyze data using a computer.
5. Explore different online biological databases and download biological information.

Outcomes:

1. Skill of handling, testing and analysis of water samples.
2. Recognition and description of animal adaptations under different ecological and zoo-geographic conditions.
3. Describe animal responses to different environmental signals.
4. Apply different techniques to gather analyze analyze data using a computer.
5. Browse, search and download information from online biological databases

Swami Ramanand Teerth Marathwada University, Nanded

CHOICE BASED CREDIT SYSTEM (CBCS-R2021)

SEMESTER PATTERN

Faculty of Science And Technology

B.Sc. THIRD Year, Semester – V

Skill Enhancement Course

SECZ- III (F): VERMICULTURE AND VERMICOMPOSTING

Periods: 45 Credits: 02 (Marks: 50)

Objectives:

1. Study the morphology and biology of different species of earthworms used in vermiculture.
2. Acquire knowledge and skill of rearing earthworms and using them in vermicomposting at different scales and under different culture conditions.
3. Train in the operation and use of implements and equipment used in vermicomposting.

Outcomes:

1. Knowledge of morphology and biology of earthworms used in vermiculture.
2. Ability and skill of rearing earthworms and using them in vermicomposting.
3. Proper operating of implements and equipment used in vermicomposting.

Academic Year-2018-19

Name of the department : ZOOLOGY

Class	Practical course	Available	Conducted	% conducted
BSC FY	01	Paper VI- 11	10	90.90
BSC SY	02	Paper X-13	11	84.61
		Paper XI-16	15	93.75
BSC TY	02	PaperXVI- 17	14	82.35
		Paper XVII (A)-14	11	78.57
	Total courses: practical:- 05	Total:- 71	Total:- 61	Total:- 86.03%

Academic Year-2018-19

No.	Name of the Teacher	Leave taken				Teachers Signature
		C.L.	D.L	M.L	Any other	
01	DR.R.M.KHADAP					
02	DR.P.S.KHARAT					

Academic Year-2018-19

Student Strenght of Department : ZOOLOGY F.Y. 55 S.Y. 44 T.Y. 27 Total = 126

F.Y. B.Sc = Practical Batches = 02

S.Y. B.SC = Practical Batches = 02

T.Y. B.SC = Practical Batches = 02

Total Departmental workload = 36

Name of the Teacher : DR .R.M.KHADAP

Sr.No	Class	Lectures	Practicals	Total workload	Extra workload
1	F.Y. B.Sc	03	03	06	
2	S.Y. B.Sc	03	03	06	18
3	T.Y. Bsc	03	03	06	

Academic Year-2018-19

Facult :- SCIENCE

Department :- ZOOLOGY

Name of the Teacher :- DR.R.M.KHADAP

Total Workload 18 Lectures 09 Practical :- 09

Sr. No	Class	Lectures	Practical's	Total workload	Extra workload
1	BSC FY	03	03	06	
2	BSC SY	03	03	06	
3	BSC TY	03	03	06	
	Total	09	09	18	

Facult :- SCIENCE

Department :- ZOOLOGY

Name of the Teacher :- DR.P.S.KHARAT

Total Workload 18 Lectures 09 Practical :- 09

Sr. No	Class	Lectures	Practical's	Total workload	Extra workload
1	BSC FY	03	03	06	
2	BSC SY	03	03	06	
3	BSC TY	03	03	06	
	Total	09	09	18	

Academic Year-2019-20
NAME OF DEPARTMENT: ZOOLOGY

• **TOTAL STUDENT STRENGTH OF THE DEPARTMENT**

NO	CLASS	STUDENT STRENGTH			TOTAL
		MALE	FEMALE	TOTAL	
01	BSC FY	10	32	42	
02	BSC SY	15	25	40	
03	BSC TY	14	27	41	123

Academic Year-2019-20

NAME OF DEPARTMENT FACULTY

NO	NAME OF THE STAFF MEMBER	QUALIFICATIONS	DATE OF APPOINTMENT	NATURE OF APPOINTMENT	YEARS OF SERVICE
01	Dr.R.M.Khadap	M.Sc.Ph.D.	11/01/2005	Permanent	2019-20
02	Dr.P.S.Kharat	M.Sc.Ph.D.	14/12/2010	Permanent	2019-20

Academic Year-2019-20

DPARTMENT ZOOLOGY WORKLOAD

NO	NAME OF THE STAFF MEMBER	WORK LOAD				SIGNATURE OF THE STAFF MEMBER
		CLASS WISE	THEORY	PRACTICAL	TOTAL	
01	DR.R.M.KHADAP	BSC FY	03	03	06	
		BSC SY	03	03	06	
		BSC TY	03	03	06	
02	DR.P.S.KHARAT	BSC FY	03	03	06	
		BSC SY	03	03	06	
		BSC TY	03	03	06	

Academic Year-2019-20

DPARTMENT OF ZOOLOGY SYLLABUS

NAME OF THE TEACHER	CLASS	THEORY COURSE NAME & NUMBER	AVAILABLE LECTURES	CONDUCTED LECTURES	% CONDUCTED
DR..R.M.KHADAP	BSC.F.Y.	Sem. I II -Biodiversity chordates Sem. II III-Comparative Anatomy of Vertebrate	45 45 45		
	BSC.S.Y.	Sem. III VII Comparative Anatomy andPhysiology Sem. II SEM-IV IX Endocrinology, Histology andBiochemitry PR-XI Practical based on theorypaper-VII (Semester-III) & theory paper-IX	45 45 30		
	BSC.T.Y.	Sem. V XII Ecology and Zoogeography(Compulsory) SEM-VI XIV Ethology, Biometry and Bioinfotmatics (Compulsory) PR-VI Practical based on theorypaper-XII & XIV	45 45 30		
DR..P.S.KHARAT	BSC.F.Y.	Sem. I I Biodiversity of Invertebrate Sem. II IV Developmental Biology of Vertebrate PR-V Practical based on theory papers of Semester-I & Semester-II)	45 45 30		
	BSC.S.Y.	Sem. III VI Genetics SEM-IV VIII Genetic Engineering and Evolution PR-XI Practical based on theory paper-VI (Semester-III) & theory paper-VIII	45 45 30		
	BSC.T.Y.	Sem. V XIII Aquaculture (Optional)) SEM-VI XV Pisciculture (Optional) PR-XIII Practical based on theory paper-XV	45 45 30		

**Academic Year
2019-20**

Name of the department : ZOOLOGY

Class	Practical course	Available	Conducted	% conducted
BSC FY	01	Paper VI- 11	10	90.90
BSC SY	02	Paper X-13	11	84.61
		Paper XI-16	15	93.75
BSC TY	02	PaperXVI- 17	14	82.35
		Paper XVII (A)14	11	78.57
	Total courses: practical:- 05	Total:- 71	Total:- 61	Total:- 86.03%

**Academic Year
2019-20**

No.	Name of the Teacher	Leave taken				Teachers Signature
		C.L.	D.L	M.L	Any other	
01	DR.R.M.KHADAP					
02	DR.P.S.KHARAT					

**Academic Year
2019-20**

Student Strenth of Department : ZOOLOGY F.Y. **42** S.Y. **40** T.Y. **41** Total = **123**

F.Y. B.Sc = Practical Batches = 02

S.Y. B.SC = Practical Batches = 02

T.Y. B.SC = Practical Batches = 02

Total Departmental workload = 36

Name of the Teacher : DR .R.M.KHADAP

Sr.No	Class	Lectures	Practicals	Total workload	Extra workload
1	F.Y. B.Sc	03	03	06	18
2	S.Y. B.Sc	03	03	06	
3	T.Y. Bsc	03	03	06	

Name of the Teacher : DR .P.S.KHARAT

Sr.No	Class	Lectures	Practicals	Total workload	Extra workload
1	F.Y. B.Sc	03	03	06	18
2	S.Y. B.Sc	03	03	06	
3	T.Y. Bsc	03	03	06	

**Academic Year
2019-20**

Faculty :- SCIENCE

Department :- ZOOLOGY

Name of the Teacher :- DR.R.M.KHADAP

Total Workload 18 Lectures 09 Practical :- 09

Sr. No	Class	Lectures	Practical's	Total workload	Extra workload
1	BSC FY	03	03	06	
2	BSC SY	03	03	06	
3	BSC TY	03	03	06	
	Total	09	09	18	

Faculty :- SCIENCE

Department :- ZOOLOGY

Name of the Teacher :- DR.P.S.KHARAT

Total Workload 18 Lectures 09 Practical :- 09

Sr. No	Class	Lectures	Practical's	Total workload	Extra workload
1	BSC FY	03	03	06	
2	BSC SY	03	03	06	
3	BSC TY	03	03	06	
	Total	09	09	18	

NUTAN MAHAVIDYALAYA, SAILU. DIST. PARBHANI.

TIME TABLE 2019-20

FACULTY OF SCIENCE

CLASS : B.Sc. I, II,&III YEAR (DEPTT.OF ZOOLOGY)

Day/Time	9.20	10.10	11.00	11.50	12.40		2.00	2.50	3.40	4.30	5.20
Monday	----- --	----- --	TY RMK	FY PSK	SY RMK	I N T E R V A L	FY PRACTICAL RMK				
Tuesday	----- --	----- --	TY RMK	FY PSK	SY RMK		FY PRACTICAL PSK				
Wednesday	----- --	----- --	TY RMK	FY PSK	SY RMK		-----		SY PRACTICAL PSK		
Thursday	----- --	----- --	TY PSK	FY RMK	SY PSK		-----		SY PRACTICAL RMK		
Friday	----- --	----- --	TY PSK	FY RMK	SY PSK		TY PRACTICAL PSK				
Saturday	----- --	----- --	TY PSK	FY RMK	SY PSK		TY PRACTICAL RMK				

NOTE:-1)Theory : Per paper per week three periods

2) Practical : Per batch per week one practical (Three Periods)

Date: 20/07/2019

Head Deptt.of Zoology

Principal

**Academic Year
2020-21**

TOTAL STUDENT STRENGTH OF THE DEPARTMENT OF ZOOLOGY

NO	CLASS	STUDENT STRENGTH			TOTAL
		MALE	FEMALE	TOTAL	
01	BSC FY	08	36	44	
02	BSC SY	13	15	28	
03	BSC TY	15	21	36	108

**Academic Year
2020-21**

DEPARTMENT OF ZOOLOGY: FACULTY

NO	NAME OF THE STAFF MEMBER	QUALIFICATIONS	DATE OF APPOINTMENT	NATURE OF APPOINTMENT	YEARS OF SERVICE
01	Dr.R.M.Khadap	M.Sc.Ph.D.	11/01/2005	Permanent	2020-21
02	Dr.P.S.Kharat	M.Sc.Ph.D.	14/12/2010	Permanent	2020-21

**Academic Year
2020-21**

DEPARTMENT OF ZOOLOGY: WORKLOAD

NO	NAME OF THE STAFF MEMBER	WORK LOAD				SIGNATURE OF THE STAFF MEMBER
		CLASS WISE	THEORY	PRACTICAL	TOTAL	
01	DR.R.M.KHADAP	BSC FY	03	03	06	
		BSC SY	03	03	06	
		BSC TY	03	03	06	
02	DR.P.S.KHARAT	BSC FY	03	03	06	
		BSC SY	03	03	06	
		BSC TY	03	03	06	

**Academic Year
2020-21**

DEPARTMENT OF ZOOLOGY: SYLLABUS

NAME OF THE TEACHER	CLASS	THEORY COURSE NAME & NUMBER	AVAILABLE LECTURES	CONDUCTED LECTURES	% CONDUCTED
DR..R.M.KHADAP	BSC.F.Y.	Sem. I III -Biodiversity chordates	45		
		Sem. II III-Comparative Anatomy of Vertebrate	45		
	BSC.S.Y.	Sem. III VI -Physiology	45		
		SEM-IV VIII- Cell Biology and Genetics	45		
		PR-X Practical based on theory paper-vi &vii (Semester-III &IV)	30		
	BSC.T.Y.	Sem. V XII Ecology and Zoogeography (Compulsory)	45		
		SEM-VI XIV Ethology, Biometry and Bioinformatics (Compulsory)	45		
		PR-VI Practical based on theory paper-XII & XIV	48		
DR..P.S.KHARAT	BSC.F.Y.	Sem. I I -Biodiversity of Invertebrate	45		
		Sem. II IV Developmental Biology	45		
		PR-V Practical based on theory papers of Semester-I & Semester-II)	45		
	BSC.S.Y.	Sem. III VII-Biochemistry	45		
		SEM-IV XI- Evolutionary Biology &Genetic engineering			
		PR-Practical based on theory paper-xi (Semester-III&IV)	45		
	BSC.T.Y.	Sem. V XIII Aquaculture (Optional))	45		
		SEM-VI XV Pisciculture (Optional)	45		
		PR-XIII Practical based on theory paper-XV	30		

**Academic Year
2020-21**

DEPARTMENT OF ZOOLOGY: LEAVE RECORD

No.	Name of the Teacher	Leave taken				Teachers Signature
		C.L.	D.L	M.L	Any other	
01	DR.R.M.KHADAP					
02	DR.P.S.KHARAT					

**Academic Year
2020-21**

DEPARTMENT OF ZOOLOGY: PRACTICAL WORKLOAD

Class	Practical course	Available	Conducted	% conducted
BSC FY	01	Paper VI- 11	10	90.90
BSC SY	02	Paper X-13	11	84.61
		Paper XI-16	15	93.75
BSC TY	02	Paper XVI- 17 Paper	14	82.35
		XVII (A)14	11	78.57
	Total courses: practical:- 05	Total:- 71	Total:- 61	Total:- 86.03%

Academic Year

S.Y. B.SC = Practical Batches = 02

T.Y. B.SC = Practical Batches = 02

Total Departmental workload = 36

Name of the Teacher : DR .R.M.KHADAP

Sr.No	Class	Lectures	Practicals	Total workload	Extra workload
1	F.Y. B.Sc	03	03	06	18
2	S.Y. B.Sc	03	03	06	
3	T.Y. Bsc	03	03	06	

Name of the Teacher : DR .P.S.KHARAT

Sr.No	Class	Lectures	Practicals	Total workload	Extra workload
1	F.Y. B.Sc	03	03	06	18
2	S.Y. B.Sc	03	03	06	
3	T.Y. Bsc	03	03	06	

**Academic Year
2020-21**

Facult :- SCIENCE

Department :- ZOOLOGY

Name of the Teacher :- DR.R.M.KHADAP

Total Workload 18 Lectures 09 Practical :- 09

Sr. No	Class	Lectures	Practical's	Total workload	Extra workload
1	BSC FY	03	03	06	
2	BSC SY	03	03	06	
3	BSC TY	03	03	06	
	Total	09	09	18	

Facult :- SCIENCE

Department :- ZOOLOGY

Name of the Teacher :- DR.P.S.KHARAT

Total Workload 18 Lectures 09 Practical :- 09

Sr. No	Class	Lectures	Practical's	Total workload	Extra workload
1	BSC FY	03	03	06	
2	BSC SY	03	03	06	
3	BSC TY	03	03	06	
	Total	09	09	18	

**Academic Year
2021-22**

TOTAL STUDENT STRENGTH OF THE DEPARTMENT OF ZOOLOGY

NO	CLASS	STUDENT STRENGTH			TOTAL
		MALE	FEMALE	TOTAL	
01	BSC FY	12	22	34	
02	BSC SY	19	23	42	
03	BSC TY	11	22	33	109

**Academic Year
2021-22**

NAME OF DEPARTMENT: ZOOLOGY

NO	NAME OF THE STAFF MEMBER	QUALIFICATIONS	DATE OF APPOINTMENT	NATURE OF APPOINTMENT	YEARS OF SERVICE
01	Dr.R.M.Khadap	M.Sc.Ph.D.	11/01/2005	PARMANENT	2021-22
02	Dr.P.S.Kharat	M.Sc.Ph.D.	14/12/2010	PARMANENT	2021-22

**Academic Year
2021-22**

NAME OF DPARTMENT: ZOOLOGY

NO	NAME OF THE STAFF MEMBER	WORK LOAD				SIGNATURE OF THE STAFF MEMBER
		CLASS WISE	THEORY	PRACTICAL	TOTAL	
01	DR.R.M.KHADAP	BSC FY	03	03	06	
		BSC SY	03	03	06	
		BSC TY	03	03	06	
02	DR.P.S.KHARAT	BSC FY	03	03	06	
		BSC SY	03	03	06	
		BSC TY	03	03	06	

**Academic Year
2020-21**

DEPARTMENT OF ZOOLOGY: SYLLABUS

NAME OF THE TEACHER	CLASS	THEORY COURSE NAME & NUMBER	AVAILABLE LECTURES	CONDUCTED LECTURES	% CONDUCTED
DR..R.M.KHADAP	BSC.F.Y.	Sem. I IV -Biodiversity chordates	45 45		
		Sem. II III-Comparative Anatomy of Vertebrate	45		
	BSC.S.Y.	Sem. III PAPER VI: Physiology PAPER VIII: Cell Biology and Genetics Practical Paper- X: Physiology and Biochemistry (Practical based on P-VI & VIII)	45 30		
	BSC.T.Y.	Sem. V XII - PAPER-XII- ECOLOGY AND ZOOGEOGRAPHY	45		
		SEM-VI PAPER-XIV- ETHOLOGY, BIOMETRY AND BIOINFORMATICS	45		
		Practical Paper- XVI-ECOLOGY,ZOOGEOGRAPHY ETHOLOGY, BIOMETRY AND BIOINFORMATICS (Practical based on P-XII & XIV)	48		
DR..P.S.KHARAT	BSC.F.Y.	Sem. I I - Biodiversity of Invertebrate	45		
		Sem. II IV Developmental Biology PR-V Practical based on theory papers of Semester-I & Semester-II)	45 45		
		Sem. III PAPER VII: Biochemistry	45		
	BSC.S.Y.	SEM-IV PAPER IX: Evolutionary Biology & Genetic Engineering Practical Paper- XI: Cell Biology, Genetics, Evolutionary Biology and	30		
	BSC.T.Y.	Sem. V PAPER-XIII (A)- PISCICULTURE SEM-VI Practical Paper- XVII (A)- PISCICULTURE & AQUACULTURE (Practical based on P-XIII(A)& XV (A))	45 30		

**Academic Year
2021-22**

Name of the department : ZOOLOGY

Class	Practical course	Available	Conducted	% conducted
BSC FY	01	Paper VI- 11	10	90.90
BSC SY	02	Paper X-13	11	84.61
		Paper XI-16	15	93.75
BSC TY	02	PaperXVI- 17	14	82.35
		Paper XVII (A)-14	11	78.57
	Total courses: practical:	Total:- 71	Total:- 61	Total:- 86.03%

**Academic Year
2021-22**

No.	Name of the Teacher	Leave taken				Teachers Signature
		C.L.	D.L	M.L	Any other	
01	DR.R.M.KHADAP	08	15	-		
02	DR.P.S.KHARAT	06	30	-		

**Academic Year
2021-22**

Student Strenght of Department : ZOOLOGY F.Y. **34** S.Y. **42** T.Y. **33** Total = **109**

F.Y. B.Sc = Practical Batches = 02

S.Y. B.SC = Practical Batches = 02

T.Y. B.SC = Practical Batches = 02

Total Departmental workload = 36

Name of the Teacher : DR .R.M.KHADAP

Sr.No	Class	Lectures	Practicals	Total workload	Extra workload
1	F.Y. B.Sc	03	03	06	18
2	S.Y. B.Sc	03	03	06	
3	T.Y. Bsc	03	03	06	

Name of the Teacher : DR .P.S.KHARAT

Sr.No	Class	Lectures	Practicals	Total workload	Extra workload
1	F.Y. B.Sc	03	03	06	18
2	S.Y. B.Sc	03	03	06	
3	T.Y. Bsc	03	03	06	

Academic Year
2021-22

Facult :- SCIENCE

Department :- ZOOLOGY

Name of the Teacher :- DR.R.M.KHADAP

Total Workload 18 Lectures 09 Practical :- 09

Sr. No	Class	Lectures	Practical's	Total workload	Extra workload
1	BSC FY	03	03	06	
2	BSC SY	03	03	06	
3	BSC TY	03	03	06	
	Total	09	09	18	

Facult :- SCIENCE

Department :- ZOOLOGY

Name of the Teacher :- DR.P.S.KHARAT

Total Workload 18 Lectures 09 Practical :- 09

Sr. No	Class	Lectures	Practical's	Total workload	Extra workload
1	BSC FY	03	03	06	
2	BSC SY	03	03	06	
3	BSC TY	03	03	06	
	Total	09	09	18	

**Academic Year
2022-23**

TOTAL STUDENT STRENGTH OF THE DEPARTMENT OF ZOOLOGY

NO	CLASS	STUDENT STRENGTH			TOTAL
		MALE	FEMALE	TOTAL	
01	BSC FY	10	14	24	
02	BSC SY	13	16	29	
03	BSC TY	15	20	35	88

**Academic Year
2022-23**

NAME OF DEPARTMENT: ZOOLOGY

NO	NAME OF THE STAFF MEMBER	QUALIFICATIONS	DATE OF APPOINTMENT	NATURE OF APPOINTMENT	YEARS OF SERVICE
01	Dr.R.M.Khadap	M.Sc.Ph.D.	11/01/2005		2022-23
02	Dr.P.S.Kharat	M.Sc.Ph.D.	14/12/2010		2022-23

**Academic Year
2022-23**

NAME OF DEPARTMENT: ZOOLOGY

NO	NAME OF THE STAFF MEMBER	WORK LOAD				SIGNATURE OF THE STAFF MEMBER
		CLASS WISE	THEORY	PRACTICAL	TOTAL	
01	DR.R.M.KHADAP	BSC FY	03	03	06	
		BSC SY	03	03	06	
		BSC TY	03	03	06	
02	DR.P.S.KHARAT	BSC FY	03	03	06	
		BSC SY	03	03	06	
		BSC TY	03	03	06	

**Academic Year
2020-21**

DEPARTMENT OF ZOOLOGY: SYLLABUS

NAME OF THE TEACHER	CLASS	THEORY COURSE NAME & NUMBER	AVAILABLE LECTURES	CONDUCTED LECTURES	% CONDUCTED
DR..R.M.KHADAP	BSC.F.Y.	Sem. I V -Biodiversity chordates Sem. II III-Comparative Anatomy of Vertebrate	45 45 45		
	BSC.S.Y.	Sem. III PAPER VI: Physiology PAPER VIII: Cell Biology and Genetics Practical Paper- X: Physiology and Biochemistry (Practical based on P-VI & VIII)	45 30		
	BSC.T.Y.	Sem. V XII - PAPER-XII- ECOLOGY AND ZOOGEOGRAPHY SEM-VI PAPER-XIV- ETHOLOGY, BIOMETRY AND BIOINFORMATICS	45 45		
		Practical Paper- XVI-ECOLOGY,ZOOGEOGRAPHY ETHOLOGY, BIOMETRY AND BIOINFORMATICS (Practical based on P-XII & XIV)	48		
DR..P.S.KHARAT	BSC.F.Y.	Sem. I I - Biodiversity of Invertebrate Sem. II IV Developmental Biology PR-V Practical based on theory papers of Semester-I & Semester-II)	45 45 45		
	BSC.S.Y.	Sem. III PAPER VII: Biochemistry SEM-IV PAPER IX: Evolutionary Biology & Genetic Engineering Practical Paper- XI: Cell Biology, Genetics, Evolutionary Biology and	45 30		
	BSC.T.Y.	Sem. V PAPER-XIII (A)- PISCICULTURE SEM-VI Practical Paper- XVII (A)- PISCICULTURE & AQUACULTURE (Practical based on P-XIII(A)& XV (A))	45 30		

**Academic Year
2022-23**

Name of the department : ZOOLOGY

Class	Practical course	Available	Conducted	% conducted
BSC FY	01	Paper VI- 11	10	90.90
BSC SY	02	Paper X-13	11	84.61
		Paper XI-16	15	93.75
BSC TY	02	PaperXVI- 17	14	82.35
		Paper XVII (A)-14	11	78.57
	Total courses: practical:	Total:- 71	Total:- 61	Total:- 86.03%

**Academic Year
2022-23**

No.	Name of the Teacher	Leave taken				Teachers Signature
		C.L.	D.L	M.L	Any other	
01	DR.R.M.KHADAP					
02	DR.P.S.KHARAT					

**Academic Year
2022-23**

Student Strenght of Department : ZOOLOGY F.Y. **24** S.Y. **29**T.Y. **35** Total = **88**

F.Y. B.Sc = Practical Batches = 02

S.Y. B.SC = Practical Batches = 02

T.Y. B.SC = Practical Batches = 02

Total Departmental workload = 36

Name of the Teacher : DR .R.M.KHADAP

Sr.No	Class	Lectures	Practicals	Total workload	Extra workload
1	F.Y. B.Sc	03	03	06	18
2	S.Y. B.Sc	03	03	06	
3	T.Y. Bsc	03	03	06	

Name of the Teacher : DR .P.S.KHARAT

Sr.No	Class	Lectures	Practicals	Total workload	Extra workload
1	F.Y. B.Sc	03	03	06	18
2	S.Y. B.Sc	03	03	06	
3	T.Y. Bsc	03	03	06	

**Academic Year
2022-23**

Faculty :- SCIENCE

Department :- ZOOLOGY

Name of the Teacher :- DR.R.M.KHADAP

Total Workload 18 Lectures 09 Practical :- 09

Sr. No	Class	Lectures	Practical's	Total workload	Extra workload
1	BSC FY	03	03	06	
2	BSC SY	03	03	06	
3	BSC TY	03	03	06	
	Total	09	09	18	

Faculty :- SCIENCE

Department :- ZOOLOGY

Name of the Teacher :- DR.P.S.KHARAT

Total Workload 18 Lectures 09 Practical :- 09

Sr. No	Class	Lectures	Practical's	Total workload	Extra workload
1	BSC FY	03	03	06	
2	BSC SY	03	03	06	
3	BSC TY	03	03	06	
	Total	09	09	18	

**Academic Year
2023-24**

TOTAL STUDENT STRENGTH OF THE DEPARTMENT OF ZOOLOGY

NO	CLASS	STUDENT STRENGTH			TOTAL
		MALE	FEMALE	TOTAL	
01	BSC FY	08	10	18	
02	BSC SY	05	07	12	
03	BSC TY	12	13	25	55

**Academic Year
2023-24**

NAME OF DEPARTMENT: ZOOLOGY

NO	NAME OF THE STAFF MEMBER	QUALIFICATIONS	DATE OF APPOINTMENT	NATURE OF APPOINTMENT	YEARS OF SERVICE
01	Dr.R.M.Khadap	M.Sc.Ph.D.	11/01/2005	PERMANENT	2023-24
02	Dr.P.S.Kharat	M.Sc.Ph.D.	14/12/2010	PERMANENT	2023-24

**Academic Year
2023-24**

NAME OF DEPARTMENT: ZOOLOGY

NO	NAME OF THE STAFF MEMBER	WORK LOAD				SIGNATURE OF THE STAFF MEMBER
		CLASS WISE	THEORY	PRACTICAL	TOTAL	
01	DR.R.M.KHADAP	BSC FY	03	03	06	
		BSC SY	03	03	06	
		BSC TY	03	03	06	
02	DR.P.S.KHARAT	BSC FY	03	03	06	
		BSC SY	03	03	06	
		BSC TY	03	03	06	

**Academic Year
2023-24**

DEPARTMENT OF ZOOLOGY: SYLLABUS

NAME OF THE TEACHER	CLASS	THEORY COURSE NAME & NUMBER	AVAILABLE LECTURES	CONDUCTED LECTURES	% CONDUCTED
DR..R.M.KHADAP	BSC.F.Y.	Sem. I VI -Biodiversity chordates Sem. II III-Comparative Anatomy of Vertebrate	45 45 45		
	BSC.S.Y.	Sem. III PAPER VI: Physiology PAPER VIII: Cell Biology and Genetics Practical Paper- X: Physiology and Biochemistry (Practical based on P-VI & VIII)	45 30		
	BSC.T.Y.	Sem. V XII - PAPER-XII- ECOLOGY AND ZOOGEOGRAPHY SEM-VI PAPER-XIV- ETHOLOGY, BIOMETRY AND BIOINFORMATICS	45 45		
		Practical Paper- XVI-ECOLOGY,ZOOGEOGRAPHY ETHOLOGY, BIOMETRY AND BIOINFORMATICS (Practical based on P-XII & XIV)	48		
DR..P.S.KHARAT	BSC.F.Y.	Sem. I I - Biodiversity of Invertebrate Sem. II IV Developmental Biology PR-V Practical based on theory papers of Semester-I & Semester-II)	45 45 45		
	BSC.S.Y.	Sem. III PAPER VII: Biochemistry SEM-IV PAPER IX: Evolutionary Biology & Genetic Engineering Practical Paper- XI: Cell Biology, Genetics, Evolutionary Biology and	45 30		
	BSC.T.Y.	Sem. V PAPER-XIII (A)- PISCICULTURE SEM-VI Practical Paper- XVII (A)- PISCICULTURE & AQUACULTURE (Practical based on P-XIII(A)& XV (A))	45 30		

OUTCOME OF THE COURSE

SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY, NANDED

Choice Based Credit System (CBCS) Course Structure

Faculty of Science & Technology

B. Sc. First Year Syllabus w.e.f. June, 2019

Zoology

Semester -I

Paper: CCZ-I: Biodiversity of Invertebrates and Chordates

Section –B Title of Paper: Paper-II : Biodiversity of Chordates

Periods : 45 Credits: 02 (Marks: 50)

Objectives:

1. To understand Biodiversity, Habitat, Adaptation organization and taxonomic status of Chordates.
2. Explaining the basic aspects of classification of chordates.
3. Develop the ability to understand structural and functional details of Chordates.
4. Develop a broad and correlated view of all chordate groups: extinct and living.
5. Acquire the skill to correlate anatomical and morphological aspects of different chordate groups.

Outcome of the Course:

1. The student will be able to identify and understand the Biodiversity of Chordates.
2. Ability to understand anatomical relation between different vertebrate classes.
3. The learner will be able to understand the economic importance of Chordates.

SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY, NANDED

Choice Based Credit System (CBCS) Course Structure

Faculty of Science & Technology

B. Sc. First Year Syllabus w.e.f. June, 2019

Zoology

Semester –II

Paper: CCZ-II: Comparative Anatomy and Developmental Biology of Vertebrates

Section –A Title of Paper: Paper-III: Comparative Anatomy of Vertebrates

Periods : 45 Credits: 02 (Marks: 50)

Objectives:

1. To understand Anatomical structure of Vertebrates.
2. Explaining the basic aspects of evolution of various organs of vertebrates.
3. Understand the phylogenetic progression in vertebrate body and its systems.
4. To know about the extreme specialization in different organ systems in vertebrate groups in response to the environment

Outcome of the Course:

1. The student will be able to identify and understand comparative anatomical structure of vertebrate organ systems.
2. The learner will be able to understand the evolution of various organs and systems in the vertebrate body according to its environment.
3. Understand the plasticity of organ systems to adapt to the environment and acquire different novel forms.

SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY, NANDED

Choice Based Credit System (CBCS) Course Structure

Faculty of Science & Technology

B. Sc. Second Year Syllabus w.e.f. June, 2020

Zoology

Semester- III

Paper: CCZ- III: Physiology and Biochemistry

Section- A Title of Paper: Paper- VI: Physiology

Periods: 45 Credits: 02 (Marks: 50)

Objectives:

1. To understand the internal physical and chemical functions of animals and their parts.
2. To study the process of digestion, assimilation and excretion
3. To understand working of blood and circulatory system.
4. To understand the respiration and nervous coordination.
5. To study the endocrine function of Human reproductive organs.
6. To study the nature, function and classification of hormones.
7. To acquire knowledge on the structure of Pituitary, Thyroid, Adrenal, and Islets of Langerhans.

Outcome of the Course:

On successful completion of the course, the students will be able to

1. Monitor their blood pressure and identify blood groups.
2. Understand function and types of heart & circulatory system.
3. Appreciate the basic function of kidney, main function of nerves.
4. Acquire knowledge on the nature and functions of hormones and learn the mechanism of hormone action.
5. Learn the structure and functions of Endocrine glands.
6. Understand the structure, development and function of reproductive organs in human.

SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY, NANDED

Choice Based Credit System (CBCS) Course Structure

Faculty of Science & Technology

B. Sc. Second Year Syllabus w.e.f. June, 2020

Zoology

Semester- III

Paper: CCZP- II Section- A & B

Title of Paper: Practical Paper X: Physiology and Biochemistry (Practical based on P-VI & VII)

Practicals: 32 Credits: 02 (Marks: 50)

Objectives:

1. To improve the skills of students in microscopy, slide preparation, observations, drawings and laboratory techniques.

2. To acquaint the students with operations of the different laboratory equipment.
3. Ability to carry out routine clinical analysis of blood.
4. Understand the working principle and application of Sphygmo-manometer and Haemoglobinometer.
5. Learn clinical procedures for blood & urine analysis.

Outcomes:

1. Students able to improve the skills in microscopy, slide preparation, observations, drawings and laboratory techniques.
2. To acquaint the students with operations of the different laboratory equipment.
3. Ability to understand the detection of blood groups of humans.
4. Ability to Understand the estimation of blood cell counts, Haemoglobin content in humans.
5. To acquaint the students with operation of clinical procedures for blood & urine analysis.

**SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY,
NANDED**

Choice Based Credit System (CBCS) Course Structure

Faculty of Science & Technology

B. Sc. Second Year Syllabus w.e.f. June, 2020

Zoology

Semester- IV

Paper: CCZ-IV: Cell Biology, Genetics, Evolutionary Biology and Genetic Engineering

Section- A Title of Paper: Paper- VIII: Cell Biology and Genetics

Periods: 45 Credits: 02 (Marks: 50)

Objectives:

1. To provide students with relevant knowledge, skills and values in contemporary cell biology.
2. To understand the structure and function of the cell as the fundamentals for understanding the functioning of all living organisms.
3. To acquire knowledge of prokaryotic, eukaryotic cells.
4. To make aware of different cell organelles, their structure and role in living organisms.
5. To acquire knowledge of Mendelian Genetics and its Extension.
6. To emphasize the central role of genes and their inheritance in the life of all organisms

Outcome of the Course:

On successful completion of the course, the students will be able to

1. Understand the structure and function of the cell as the fundamentals for understanding the functioning of all living organisms.
2. Understand structures and various cellular functions associated with the macromolecules found in cells.
3. Acquire knowledge of Mendelian Genetics and its Extension.
4. Graduates will be able to explain and interpret various processes, phenomena, states and

evolutionary tendencies at a biological system level.

SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY, NANDED

Choice Based Credit System (CBCS-R2021) Course Structure

Faculty of Science & Technology

B.Sc. Third Year Syllabus w.e.f. June, 2021

Zoology

Semester -V

Paper: DSEZ-I; Section –A Title of Paper: Paper-XII -Ecology & Zoo-geography

Periods : 45 Credits: 02 (Marks: 50)

Objectives:

1. Understand and appreciate interactions of organisms with environment and the ecosystem dynamics.
2. Awareness of current environmental issues, and understanding of relation between structure and function of ecosystems.
3. Knowledge of local and geographical distribution and abundance of organisms.
4. Develop an appreciation of scope of modern scientific inquiry in the field of Ecology.
5. Study structural and functional adaptations of organisms to their environment.
6. Study conservation of natural resources and management of pollution.

Outcomes:

1. Demonstrate knowledge of biotic and abiotic interactions.
2. Express understanding of environmental issues, and inter-relation between different components of an ecosystems.
3. Ability to elaborate about distribution and abundance of organisms.
4. Apply different experimental techniques to study any ecosystem or its components.
5. Describe the relation between structure and function species in environment.
6. Display knowledge of natural resources and pollution management techniques.

SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY, NANDED

Choice Based Credit System (CBCS-R2021) Course Structure

Faculty of Science & Technology

B.Sc. Third Year Syllabus w.e.f. June, 2021

Zoology

Semester -VI

Paper: DSEZ-II; Section -A Title of Paper: Paper- XIV-Ethology, Biometry and Bioinformatics

Periods : 45 Credits: 02 (Marks: 50)

Objectives:

1. To study the behavior of organism in nature; and generate interest in complexities of ethology.
2. To understand the basic concepts and techniques of Biometry.
3. To get acquainted with and apply the fundamentals of statistical methods.
4. To give students an introduction to the basic practical techniques of bioinformatics.
5. To study the application of biological databases for problem solving in research.

Outcomes:

1. An appreciation of animal behavior and complexities of ethology.
2. Knowledge of basic concepts and techniques of biometry.
3. Knowledge and skill to apply the techniques statistical methods in biology.
4. Knowledge and understanding of practical use of computers in bioinformatics.
5. An understanding of the use of biological databases in research.

SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY, NANDED

Choice Based Credit System (CBCS-R2021) Course Structure

Faculty of Science & Technology

B.Sc. Third Year Syllabus w.e.f. June, 2021

Zoology

Practical Syllabus

Paper: DSEZP-I (Based on DSEZ-I; Section-A& DSEZ-II; Section-A)

Title of Paper: Paper- XVI -Ecology, Zoo-geography, Ethology, Biometry and Bioinformatics

Periods : 15 + 15 Credits: 02 (Marks: 50)

Objectives:

1. Assimilate skills of water testing and analysis.
2. Study adaptations of animals to different ecological and zoo-geographic conditions.
3. Study animal responses to different environmental signals.
4. Learn different techniques to analyze data using a computer.
5. Explore different online biological databases and download biological information.

Outcomes:

1. Skill of handling, testing and analysis of water samples.
2. Recognition and description of animal adaptations under different ecological and zoo-geographic conditions.
3. Describe animal responses to different environmental signals.
4. Apply different techniques to gather analyze analyze data using a computer.
5. Browse, search and download information from online biological databases

Swami Ramanand Teerth Marathwada University, Nanded

CHOICE BASED CREDIT SYSTEM (CBCS-R2021)

SEMESTER PATTERN

Faculty of Science And Technology

B.Sc. THIRD Year, Semester – V

Skill Enhancement Course

SECZ- III (F): VERMICULTURE AND VERMICOMPOSTING

Periods: 45 Credits: 02 (Marks: 50)

Objectives:

1. Study the morphology and biology of different species of earthworms used in vermiculture.
2. Acquire knowledge and skill of rearing earthworms and using them in vermicomposting at different scales and under different culture conditions.
3. Train in the operation and use of implements and equipment used in vermicomposting.

Outcomes:

1. Knowledge of morphology and biology of earthworms used in vermiculture.
2. Ability and skill of rearing earthworms and using them in vermicomposting.
3. Proper operating of implements and equipment used in vermicomposting.

**Academic Year
2023-24**

Name of the department : ZOOLOGY

Class	Practical course	Available	Conducted	% conducted
BSC FY	01	Paper VI- 11	10	90.90
BSC SY	02	Paper X-13	11	84.61
		Paper XI-16	15	93.75
BSC TY	02	PaperXVI- 17	14	82.35
		Paper XVII (A)-14	11	78.57
	Total courses: practical:	Total:- 71	Total:- 61	Total:- 86.03%

**Academic Year
2023-24**

No.	Name of the Teacher	Leave taken				Teachers Signature
		C.L.	D.L	M.L	Any other	
01	DR.R.M.KHADAP			-		
02	DR.P.S.KHARAT			-	----	

**Academic Year
2023-24**

Student Strenght of Department : ZOOLOGY F.Y. **18** S.Y. **12** T.Y. **25** Total = **55**

F.Y. B.Sc = Practical Batches = 02

S.Y. B.SC = Practical Batches = 02

T.Y. B.SC = Practical Batches = 02

Total Departmental workload = 36

Name of the Teacher : DR .R.M.KHADAP

Sr.No	Class	Lectures	Practicals	Total workload	Extra workload
1	F.Y. B.Sc	03	03	06	18
2	S.Y. B.Sc	03	03	06	
3	T.Y. Bsc	03	03	06	

Name of the Teacher : DR .P.S.KHARAT

Sr.No	Class	Lectures	Practicals	Total workload	Extra workload
1	F.Y. B.Sc	03	03	06	18
2	S.Y. B.Sc	03	03	06	
3	T.Y. Bsc	03	03	06	

**Academic Year
2023-24**

Faculty :- SCIENCE

Department :- ZOOLOGY

Name of the Teacher :- DR.R.M.KHADAP

Total Workload 18 Lectures 09 Practical :- 09

Sr. No	Class	Lectures	Practical's	Total workload	Extra workload
1	BSC FY	03	03	06	
2	BSC SY	03	03	06	
3	BSC TY	03	03	06	
	Total	09	09	18	

Faculty :- SCIENCE

Department :- ZOOLOGY

Name of the Teacher :- DR.P.S.KHARAT

Total Workload 18 Lectures 09 Practical :- 09

Sr. No	Class	Lectures	Practical's	Total workload	Extra workload
1	BSC FY	03	03	06	
2	BSC SY	03	03	06	
3	BSC TY	03	03	06	
	Total	09	09	18	

**Academic Calendar 2023-2024
Department of Zoology**

Sr. No.	Month	Activities
01	July	<ul style="list-style-type: none">- Opening of the college-departmental meeting of faculty members for distribution of work load and timetable-departmental meeting of non teaching members for distribution of work.-Preparation of time table for theory and practicals-Result analysis-Admission process-Preparation of Annual planning

02	August	<ul style="list-style-type: none"> -- To be organization of Guest lecture -Commencement of practical's for UG class. -Unit test-I and tutorial(University internal assessment) - Lectures for FY, SY and TY. -15th August Independence day celebration -Departmental review meeting
03	September	<ul style="list-style-type: none"> -Commencement Of Class Work 01 September -Ozone Day Celebration September 16 -World Alzheimer's Day September 21 -World Rivers Day September 27 -World Rabies Day September 28 -Study tour of B.Sc. students to nearby places around Sailu -5th September celebration of teachers day -Departmental review meeting
04	October	<ul style="list-style-type: none"> - World Animal Welfare Day 4 October - World Mental Health Day 10 October -Poster presentation competition -Organizes of extra classes for slow learners -Preparation of question bank -Departmental review meeting -Unit test –II and tutorials(University internal assessment) -Completion of syllabi and academic work -Departmental review meeting
05	November	Diwali vacation
06	December	<ul style="list-style-type: none"> -World AIDS Day 1 December - "Butterflies: The Winged Jewels" 14 December - Guest lecture - Lectures for FY, SY and TY. - Review of results of slow learners -Departmental review meeting
07	January	<ul style="list-style-type: none"> - organizes seminars and tutorials for slow learners -Quiz Competition -1 Biodiversity 2- Wild life 3- Forest conservation National Youth Day- 12 January -Departmental review meeting
08	February	<ul style="list-style-type: none"> -Celebration of National Science Day - Long tour -World Cancer Day 4 February - Biological Model Preparation Competition -Unit test –I and tutorials(University internal assessment) -Departmental review meeting
09	March	<ul style="list-style-type: none"> - World Wildlife Day 3 March - World Sparrow Day 20 March -Preparation of question bank -Unit test –II and tutorials(University internal assessment) -Completion of syllabi and academic work. -Farewell function of B.Sc. Third year students -feedback forms from TY students. -Departmental review meeting
10	April and May	<ul style="list-style-type: none"> -Departmental review meeting - World Health Day 7 April - World Earth Day 22 April -summer 2023 Practical, theory examination and paper assessment
11	May and June	summer vacation

Note: Internal Assessment Tests and Exams as per College Academic Calendar and External Exams as per University Calendar.