Mangalore University

Department of Applied Zoology

M.Sc. Zoology
Choice Based Credit System
(CBCS)

SYLLABUS

2020

Contents

PREAMBLE

In an attempt to make the post graduate courses competitive and on par with the global standards, University Grants Commission had directed implementation of Choice-Based Credit System. The syllabi of various courses are being updated by Mangalore University. In keeping with the current style and developments in Animal Sciences the course content is being modified and designed to make it skill based so as to provide an opportunity to the student to opt for various courses customised for his/her inclination, choice is provided through soft-core courses and open elective courses. A solid grounding in a subject is provided through hard-core courses which are mandatory. There will thus, be a component of hard-core, soft-core and open-elective courses. Open-elective courses are to be opted during 2nd and 3rd Semester.

The present syllabus designed by the Board of studies spans over IV semesters. It will have a total of 92 credits, of which 46 credits (50%) form the hard-core, 40 credits (44%) form the soft-core and open electives account for 6 credits. The scheme of examinations and internal assessment is also provided. The calculation of credits and CGPA will be as per the guidelines of the University

Chairman
Board of Studies

M.Sc. ZOOLOGY

CHOICEBASED CREDIT SYSTEM (CBCS)
SEMESTER PATTERN

Scheme of Examinations and Evaluation;

The theory and practical component of a course shall be evaluated as below;

Theory	**Marks**
Internal assessment	30
Final examination	70

Practical

Internal assessment	15
Final examination	35
Total	150

Internal assessment shall be as below:

Theory

a. 2 tests for a total of 30 marks.
b. The marks obtained shall be reduced to 30
c. Assignment/Seminar may be given in lieu of an objective test as decided by the departmental council.

Practical/laboratory

a. Continuous assessment or a practical test ordinarily during 14th week for 10 marks.
b. Records to be valued for 5 marks. The total maximum shall be 15 marks.

Project work (field/ laboratory work)

Project work consists of field/laboratory work. Internal assessment shall be based on

	Marks
a) Evaluation of Project report/ dissertation	10
b) One viva voce	20
Total	**30**

Final examination shall carry 70 marks and the dissertation shall be sent for central valuation. A dissertation/project report shall be evaluated by 2 examiners one external and one internal from out of the panel of examiners prepared by the B.O.S. and approved by the University.

Pattern of Question Paper

Theory Examination:

One question (question I) with five subdivisions (a-e) representing all units with each subdivision carrying 2 marks. Five questions (question II to VI) of 12 mark each. One question from each unit of the syllabus. A question may have not more than 3 subdivisions (Example. II a, b, c) all carrying equal marks.

Q I. a-e : Short questions one from each unit. 5 x 2 = 10

QII to QVI : Each question for 12 marks (One question of 12 marks or two questions of 6 marks each or three questions of 4 marks each) representing unit 1 to 5 with internal choice.

Internal assessment:

Q I. a-d : Multiple choice question 4 x 1 = 04

QII a-c : Short questions 3 x 2 = 06

QIII to QIV : Each question for 10 marks or two questions of 5 marks each with internal choice

Practical

The final practical examination (3 Hrs.) is evaluated for 35 marks and may have one or two major (10 to 12 marks) and one or two minor (5 – 8 marks) questions with 5 marks for viva voce. The final pattern can be arrived at by the departmental council.

List of Hard core, Soft-core and Open Elective courses

Semester	Code Number	Hard core courses
I	ZOH 401	Animal Taxonomy and Evolution
I	ZOH 402	Biological Chemistry
II	ZOH 451	Animal Cell Biotechnology
II	ZOH 452	Toxicology and Cancer Biology
III	ZOH 501	Genetics and Quantitative Biology
III	ZOH 502	Nutrition and Metabolism
IV	ZOH 551	Biology of Immune System
		Soft core courses
I	ZOS 403	Comparative Anatomy
I	ZOS 404	Tools and Techniques in Biology
I	ZOS 405	Entomology
II	ZOS 453	Molecular Cell Biology
II	ZOS 454	Comparative Physiology
II	ZOS 455	Adaptation Biology
III	ZOS 503	Fisheries and Aquatic Biology
III	ZOS 504	Animal Breeding
III	ZOS 505	Environmental Biology
IV	ZOS 553	Wildlife Conservation and Management
IV	ZOS 554	Neurobiology and Behaviour
IV	ZOS 555	Statistics and Bioinformatics
		Open Elective courses
II	ZOE 456	Human genetics
II	ZOE 457	Ornamental Fish Production and Management
III	ZOE 506	Infectious Diseases
III	ZOE 507	Vermitechnology

Overview and Schematic Syllabus

I Semester

Course Code	Hard/Soft core courses	Teaching Hrs/Week	Exam Hrs.	Credit	Marks		Max. Marks
					IA*	Exam	
ZOH401	Animal Taxonomy and Evolution	4	3	4	30	70	100
ZOH402	Biological Chemistry	4	3	4	30	70	100
ZOS403	Comparative Anatomy	3	3	3	30	70	100
ZOS404	Tools and Techniques in Biology	3	3	3	30	70	100
ZOS405	Entomology	3	3	3	30	70	100
ZOP 406	Animal Taxonomy and Evolution	4	3	2	15	35	50
ZOP 407	Biological Chemistry	4	3	2	15	35	50
ZOP 408	Comparative Anatomy	4	3	2	15	35	50
ZOP 409	Tools & Techniques in Biology	4	3	2	15	35	50
ZOP 410	Entomology	4	3	2	15	35	50
				22			600

Any one of the soft core courses to be opted/offered.

II Semester

Course Code	Hard/Soft/Open elective courses	Teaching Hrs/Week	Exam Hrs.	Credit	Marks		Max Marks
					IA*	Exam	
ZOH451	Animal Cell Biotechnology	4	3	4	30	70	100
ZOH452	Toxicology and Cancer Biology	4	3	4	30	70	100
ZOS453	Molecular Cell Biology	3	3	3	30	70	100
ZOS454	Comparative Physiology	3	3	3	30	70	100
ZOS455	Adaptation Biology	3	3	3	30	70	100
ZOE456	Human Genetics	3	3	3	30	70	100
ZOE457	Ornamental Fish Production and Management	3	3	3	30	70	100
ZOP459	Animal Cell Biotechnology	4	3	2	15	35	50
ZOP460	Toxicology and Cancer Biology	4	3	2	15	35	50
ZOP461	Molecular Cell Biology	4	3	2	15	35	50
ZOP462	Comparative Physiology	4	3	2	15	35	50
ZOP463	Adaptation Biology	4	3	2	15	35	50
				25			700

Any two of the soft core courses to be opted/offered. Any one of the open elective will be offered.

III Semester

Course Code	Hard/Soft/Open elective courses	Teaching Hrs/Week	Exam Hrs.	Credit	Marks		Max Marks
					IA*	Mark	
ZOH501	Genetics and Quantitative Biology	4	3	4	30	70	100
ZOH502	Nutrition and Metabolism	4	3	4	30	70	100
ZOS503	Fisheries and Aquatic Biology	3	3	3	30	70	100
ZOS504	Animal Breeding	3	3	3	30	70	100
ZOS505	Environmental Biology	3	3	3	30	70	100
ZOS506	Infectious diseases	3	3	3	30	70	100
ZOE507	Vermitechnology	3	3	3	30	70	100
ZOP 508	Genetics and Quantitative Biology	4	3	2	15	35	50
ZOP 509	Nutrition and Metabolism	4	3	2	15	35	50
ZOP 510	Fisheries & Aquatic Biology	4	3	2	15	35	50
ZOP 511	Animal Breeding	4	3	2	15	35	50
ZOP 512	Environmental Biology	4	3	2	15	35	50
				25			700

Any two of the soft core courses to be opted/offered. Any one of the open elective will be offered.

IV Semester

Course Code	Hard/Soft/Open elective courses	Teaching Hrs/Week	Exam Hrs.	Credit	Marks		Max Marks
					IA*	Mark	
ZOH551	Biology of Immune System	4	3	4	30	70	100
ZOP552	Project work (Field\ lab work)			4	30	70	100
ZOS553	Wildlife Conservation and Management	3	3	3	30	70	100
ZOS554	Neurobiology and behavior	3	3	3	30	70	100
ZOS555	Statistics and Bioinformatics	3	3	3	30	70	100
ZOP 556	Biology of Immune System	4	3	2	15	35	50
ZOP 557	Wildlife Conservation and Management	4	3	2	15	35	50
ZOP 558	Neurobiology and behavior	4	3	2	15	35	50
ZOP 559	Statistics & Bioinformatics	4	3	2	15	35	50
				20			550

Any two of the soft core courses to be opted/offered.

Grand Total of Maximum Marks 2550

Credits distribution

	Credits	Percentage (%)
Total	92	-
Hard core	46	50
Soft core	40	44
Open elective	06	06