



UNIVERSITY OF CALICUT

**Abstract**

General and Academic - Faculty of Science - Syllabus of MSc Applied Zoology Programme under CCSS PG Regulations 2019 (University Teaching Departments) with effect from 2019 Admission onwards-Implemented- Orders-Issued.

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**G & A - IV - J**

U.O.No. 11743/2019/Admn

Dated, Calicut University.P.O, 30.08.2019

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- Read:-*1. U.O No.4487/2019/Admn dated 26.03.2019  
2. Item No. 1 of the minutes of the meeting of the Board of Studies in Zoology PG held on 28.06.2019  
3. Remark from the Dean, Faculty of Science dated 30.07.2019.

ORDER

The Regulations under Choice-based Credit Semester System for Post Graduate Programmes (CCSS-PG-2019) of all Teaching Departments / Schools of the University of Calicut w.e.f. 2019 admissions has been implemented in the University of Calicut vide paper read first above.

The meeting of Board of Studies in Zoology PG held on 28.06.2019 has approved the Syllabus of M.Sc Applied Zoology Programme in tune with the new CCSS PG Regulations with effect from 2019 Admission onwards, vide paper read second above.

The Dean, Faculty of Science has approved the minutes of the meeting of the Board of Studies in Zoology PG held on 28.06.2019 vide paper read third above.

Under these circumstances , considering the urgency, the Vice Chancellor has accorded sanction to implement the Scheme and Syllabus of M.Sc Applied Zoology Programme in accordance with the new CCSS PG Regulations 2019, in the University with effect from 2019 Admission onwards,subject to ratification by the Academic Council.

The Scheme and Syllabus of M.Sc Applied Zoology Programme for Teaching Departments /Schools of the University of Calicut in accordance with CCSS PG Regulations 2019, is therefore implemented with effect from 2019 Admission onwards.

Orders are issued accordingly. (Syllabus appended).

Biju George K

Assistant Registrar

To

The HoD, Department of Zoology

Copy to: PS to VC/PA to PVC/ PA to Registrar/PA to CE/JCE I/JCE V/DoA/EX and EG Sections/GA I F/CHMK Library/Information Centres/SF/DF/FC

Forwarded / By Order

Section Officer

**DEPARTMENT OF ZOOLOGY**  
**UNIVERSITY OF CALICUT**  
CALICUT UNIVERSITY P.O.  
KERALA, 673 635



**RESTRUCTURED CURRICULUM AND SYLLABI FOR**  
**M. Sc. APPLIED ZOOLOGY**  
**(Choice based Credit Semester System – CCSS)**

*(w.e.f. 2019 admission)*

**2019**

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## **REGULATIONS AND SCHEME OF EXAMINATION (w.e.f. 2019 admission)**

1. The syllabi and curriculum of Applied Zoology have been revised and restructured with effect from 2019 admissions.
2. The two-year Post Graduate Programme will be in the semester pattern. There will be four semesters in the entire course, with two semesters in each year. Each semester will have 90 instructional days with 6 hours of instructions each day under the five-day system. End-semester examinations will be held inside the 90 regular instructional days.
3. The programme shall include three types of courses, viz. Core courses, Elective courses and Audit courses. The papers in the first three semesters will constitute the core courses and in the third and fourth semesters there will be elective courses. Entomology is the broad area of elective courses offered in this department for the time being. There shall be a compulsory Project/Dissertation to be undertaken by all students.
4. In addition to the Core courses, Elective courses and compulsory Project/Dissertation, which are the mandatory requirement of the programme, each student should undergo Audit courses - Ability Enhancement Course (AEC) and Professional Competency Course (PCC) – each with 2 credits in the first two semesters of the programme. The student should undergo any one course listed under each category (AEC and PCC) in the respective semesters. Each student will be under the supervision of a faculty who will be responsible for monitoring the course and evaluation. The allotment of the faculty will be decided by the Department Council. The examination and evaluation for Professional competency course should focus on evaluating the skill component involved, and these courses are to be done within the first two semesters. The credits will not be counted for computing the overall SGPA/CGPA of the student. The concerned department shall conduct examination for these courses and shall intimate /upload the results of the same to the University on the stipulated date during the Third Semester. The student has to obtain only minimum pass requirements in these two courses. The broad frameworks of the compulsory audited courses are given hereunder.
5. SCHEME OF EVALUATION:

5.1. Evaluation of all semester theory/ practical papers will be done in two parts namely by continuous internal evaluation and external evaluation. 20% weight shall be given to the internal evaluation. The remaining 80% weight shall be for the end semester external evaluation. The internal evaluation shall be based on a predetermined transparent system involving periodic written tests, viva-voce, seminars and attendance in respect of theory courses and based on written tests, viva-voce and lab skill/records in respect of practical courses as detailed below:

Theory Paper	Marks	Practical Paper	Marks
Attendance*	3	Lab skill/ Quality of Records	5
Seminar	5	Practical Test	10
Test Paper	8	Viva-voce	5
Viva-Voce / Field work	4		
Total marks	20	Total marks	20

\*90% & above: 3 marks, 80 to 89%: 2 marks, 75 to 79%: 1 mark, below 75%: Nil

The details of executing the internal evaluation shall be decided by the concerned Departmental Council. To ensure transparency of the evaluation process, photocopies of the answer scripts of the test papers shall be returned to the students within a week of the conduct of the tests. Any dispute regarding the internal evaluation shall be taken up with the concerned teacher within 48 hours. The internal assessment marks awarded to the students in each course in a semester shall be notified on the notice board at least one week before the commencement of external examination.

5.2. The external examination in theory courses is to be conducted with question papers set by external examiners. The evaluation of the answer scripts shall be done by the teacher offering the course and an external expert based on a well-defined scheme of valuation framed by them.

5.3. The external examination in practical courses shall be conducted and evaluated by two examiners - one internal and an external.

5.4. The valuation scheme for Project/Dissertation shall be jointly done by the supervisor of the project in the department and an External Expert from the approved panel, based on a well-defined scheme of valuation framed by them. The following break-up is suggested for the

valuation. The concerned Department Council / BoS may decide on alternative break-up, if required, specific to the discipline of study.

Sl. No.	Particulars	Weightage (%)
1	Review of Literature and Formulation of the Research Problem/Objective	20
2	Methods and Description of the techniques used	15
3	Analysis and Discussion of results	30
4	Presentation of the report, organization, linguistics style, references etc.	15
5	Viva Voce examination based on the Project work/Dissertation	20
Total		100

6. Attendance: The minimum requirement of attendance during a semester shall be 75% for each course. Attendance shall be maintained by the course teacher. 10% condonation can be granted on the attendance requirements by the Chairman of the Academic Committee on genuine grounds, provided it is also recommended by the Department Council. A fee for this purpose may be collected as prescribed by the Academic Committee and approved by the Syndicate. Candidates who do not satisfy the required minimum attendance in a course shall be awarded zero grade point in that course
7. GRADING SYSTEM: The indirect absolute grading system where the marks are compounded to grades based on pre-determined class intervals and letter grades based on 10-point grading system as recommended by UGC shall be followed. Based on the % marks scored (internal and external marks put together), the students are graded in each course applying the following grading system:

Range of Marks (%)	Grade Point	Letter Grade
85-100	8.5 - 10.0	<b>O</b> (Outstanding)
75 – 84.99	7.5 - 8.49	<b>A+</b> (Excellent)
65 – 74.99	6.5 - 7.49	<b>A</b> (Very Good)
55 – 64.99	5.5 - 6.49	<b>B+</b> (Good)
50 – 54.99	5.0 - 5.49	<b>B</b> (Above Average)
45 – 49.99	4.5 - 4.99	<b>C</b> (Average)
40 – 44.99	4.0 – 4.49	<b>P</b> (Pass)
0 - 39	0 – 3.99	<b>F</b> (Failed)/ RA(Reappear)

-	0	<b>I</b> (Incomplete)
-	0	<b>Ab</b> (Absent)

**SCHEME OF EXAMINATION**  
**M.Sc. APPLIED ZOOLOGY (2019 admission onwards)**

**SUMMARY OF COURSES**

Semester	Course Type	Course Mode	No. of Course	Credits/ course	Marks/ course	Total Credits	Total Marks
<b>FIRST</b>	Core	Theory	4	4	100	16	600
	Core	Practical	2	2	100	4	
<b>SECOND</b>	Core	Theory	4	4	100	16	600
	Core	Practical	2	2	100	4	
<b>THIRD</b>	Core	Theory	2	4	100	8	600
	Core	Practical	1	2	100	2	
	Elect	Theory	2	4	100	8	
	Elect	Practical	1	2	100	2	
<b>FOURTH</b>	Core	Project	1	8	200	8	600
	Elect	Theory	2	4	100	8	
	Elect	Practical	2	2	100	4	
<b>Grand Total</b>						<b>80</b>	<b>2400</b>

**Total credits:** Core course : Theory - 40; Practical - 10; Total - 50  
 Elective course : Theory - 16; Practical - 06; Total - 22  
 Project : 08  
**Grand total : 80**

**SEMESTER-WISE DETAILS****FIRST SEMESTER**

<b>Code No. &amp; Course</b>	<b>Teaching Hours</b>	<b>Credits</b>	<b>Ext. Marks</b>	<b>Int. Marks</b>	<b>Total Marks</b>
ZOO 1C 01- BIOCHEMISTRY	80 hrs	4	80	20	100
ZOO 1C 02 – BIOPHYSICS & BIOSTATISTICS	80 hrs	4	80	20	100
ZOO 1C 03 – BIOSPHERE ECOLOGY	80 hrs	4	80	20	100
ZOO 1C 04- SYSTEMATICS & ANIMAL BEHAVIOUR	80 hrs	4	80	20	100
ZOO 1C 05 – BIOCHEMISTRY, BIOPHYSICS & BIOSTATISTICS PRACTICAL	60 hrs	2	80	20	100
ZOO 1C 06 – SYSTEMATICS, BEHAVIOUR & BIOSPHERE ECOLOGY PRACTICAL	60 hrs	2	80	20	100
<b>Total for First Semester</b>		<b>20</b>	<b>480</b>	<b>120</b>	<b>600</b>

**SECOND SEMESTER**

<b>Code No. &amp; Course</b>	<b>Teaching Hours</b>	<b>Credits</b>	<b>Ext. Marks</b>	<b>Int. Marks</b>	<b>Total Marks</b>
ZOO 2C 07- CYTOGENETICS & EVOLUTION	80 hrs	4	80	20	100
ZOO 2C 08 – MOLECULAR BIOLOGY	80 hrs	4	80	20	100
ZOO 2C 09 – BIOTECHNOLOGY	80 hrs	4	80	20	100
ZOO 2C 10- ANIMAL PHYSIOLOGY & ENDOCRINOLOGY	80 hrs	4	80	20	100
ZOO 2C 11 - CYTOGENETICS & ANIMAL PHYSIOLOGY PRACTICAL	60 hrs	2	80	20	100
ZOO 2C 12 - MOLECULAR BIOLOGY & BIOTECHNOLOGY PRACTICAL	60 hrs	2	80	20	100
<b>Total for Second Semester</b>		<b>20</b>	<b>480</b>	<b>120</b>	<b>600</b>



### THIRD SEMESTER

Code No. & Course	Teaching Hours	Credits	Ext. Marks	Int. Marks	Total Marks
ZOO 3C 13- DEVELOPMENTAL BIOLOGY & ANIMAL ETHICS	80 hrs	4	80	20	100
ZOO 3C 14 – MICROBIOLOGY & IMMUNOLOGY	80 hrs	4	80	20	100
ZOO 3E 15 – GENERAL ENTOMOLOGY	80 hrs	4	80	20	100
ZOO 3E 16- INSECT PHYSIOLOGY & BIOCHEMISTRY	80 hrs	4	80	20	100
ZOO 3C 17 - DEVELOPMENTAL BIOLOGY, MICROBIOLOGY & IMMUNOLOGY PRACTICAL	60 hrs	2	80	20	100
ZOO 3E 18 - GENERAL ENTOMOLOGY & INSECT PHYSIOLOGY BIOCHEMISTRY PRACTICAL	60 hrs	2	80	20	100
<b>Total for Third Semester</b>		<b>20</b>	<b>480</b>	<b>120</b>	<b>600</b>

### FOURTH SEMESTER

Code No. & Course	Allotted Hours	Credits	Ext. Marks	Int. Marks	Total Marks
ZOO 4C 19- PROJECT	160 hrs	8	160	40	200
ZOO 4E 20 – AGRICULTURAL ENTOMOLOGY & ACAROLOGY*	80 hrs	4	80	20	100
ZOO 4E 21 – INSECT PESTS – CONTROL AND MANAGEMENT*	80 hrs	4	80	20	100
ZOO 4E 22 – ECOLOGY & ETHOLOGY OF INSECTS*	80 hrs	4	80	20	100
ZOO 4E 23 – MEDICAL, VETERINARY & FORENSIC ENTOMOLOGY*	80 hrs	4	80	20	100
ZOO 4E 24 – PRACTICAL ON 4E 20*	30 hrs	2	80	20	100
ZOO 4E 25 – PRACTICAL ON 4E 21*	30 hrs	2	80	20	100
ZOO 4E 26 – PRACTICAL ON 4E 22*	30 hrs	2	80	20	100
ZOO 4E 27 – PRACTICAL ON 4E 23*	30 hrs	2	80	20	100
<b>Total for Fourth Semester</b>		<b>20</b>	<b>480</b>	<b>120</b>	<b>600</b>

C - Core course; E - Elective course

\* Elective Courses (Any Two Theory course and its Practical is to be opted by the student)

### Allotment of Teaching hours per Week in Each Semester

Course/ Activity	Hours allotted per Week				
	First Semester	Second Semester	Third Semester	Fourth Semester	Total
<b>Core Theory</b>	4 hrs X 4 courses = 16 hrs	4 hrs X 4 courses = 16 hrs	4 hrs X 4 courses = 16 hrs	--	48 hrs
<b>Core Practical</b>	2 Practical X 2 courses = 12 hrs	2 Practical X 2 courses = 12 hrs	2 Practical X 2 courses = 12 hrs	--	36 hrs
<b>Elective Theory</b>	--	--		4 hrs X 2 courses = 8 hrs	12 hrs
<b>Elective Practical</b>	--	--		2 Practical X 1 course = 6 hrs	6 hrs
<b>Seminar/ Assignment</b>	2 hrs	2 hrs	2 hrs	2 hrs	8 hrs
<b>Project/ Dissertation</b>	--	--	--	14 hrs	14 hrs
<b>Total hrs per week</b>	<b>30 hrs</b>	<b>30 hrs</b>	<b>30 hrs</b>	<b>30 hrs</b>	