

Telangana Mahila Viswavidyalayam
(Women's University), Koti, Hyderabad 500095
Formerly University College for Women, O. U.
Accredited by NAAC with 'A' Grade

DEPARTMENT OF ZOOLOGY

B.Sc. SYLLABUS – CBCS

Semester I and II

Paper I & II

(With effect from 2022-2023)

MINUTES OF THE MEETING



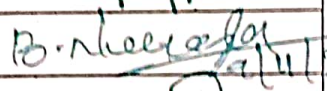
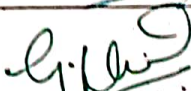
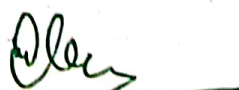
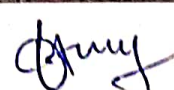
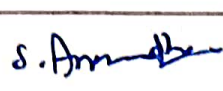
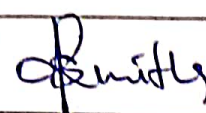
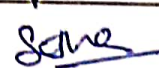
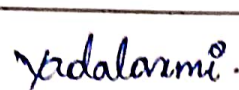
Board of Studies meeting was convened in the Department of Zoology, Telangana Mahila Viswavidyalayam (Women's University), Koti, Hyderabad on 09-11-2022, at 11.00 AM under the Chairmanship of Dr. Y. Sunila Kumari, Head, Department of Zoology, TMV, Koti, Hyderabad, to discuss the following agenda for discussion and ratification.

Agenda 1: Review of B.Sc I year curriculum as per CBCS Telangana State Council of Higher Education.

Agenda 2: Approval of panel of Examiners for the academic year 2022-23.

Agenda 3: Any other Matter with the permission of the chair.

MEMBERS of BOS COMMITTEE:

S.No	Member of BOS and Address	Designation	Signature
1.	Dr. Y. Sunila Kumari, Asst. Prof., Head & Chairperson Board of Studies, Dept of Zoology, TMV, Koti.	Head & CBOS, TMV	
2.	Prof. M. Madhavi, Chairperson Board of Studies, Dept of Zoology, UCS, OU.	Subject Expert CBOS (O.U)	
3.	Prof. B. Neeraja, Dept of Zoology, TMV, Koti.	Senior Faculty Member	
4.	Dr. G. Shamita Assoc. Prof. Dept of Zoology, Kakatiya University.	Subject Expert	
5.	Dr. M. Radha Krishna, Asst. Prof., Dept of Zoology, Nizam College.	Subject Expert	
6.	Dr. K. Ashok Reddy, Managing Director, Synteny Life Science PVT, LTD. Nallakunta, Hyderabad.	Industry Expert	
7.	Dr. S. Anuradha Asst. Prof., (C) Dept of Zoology, TMV, Koti.	Faculty Member	
8.	Ms. P. Sunitha Asst. Prof., (C) Dept of Zoology, TMV, Koti.	Faculty Member	
9.	Miss. A.K. Sunitha, Lecturer, TSMS & Junior College, Nalgonda.	Alumini Member	
10.	Ms. Yada Laxmi, M.Sc. Final Year, UCW.	Student Member	

Keeping in view of the CBCS system, Telangana State Council of Higher Education, B.Sc. Zoology Syllabus was discussed for the approval with the members of BOS. It is resolved to make following changes:

1. The existing pattern of marks distribution of B.Sc. I year Semester - I and Semester - II syllabus has been approved by the members in the BOS.

2. Marks distribution for Semester -I & II is

Theory - Internal Assessment -	20 Marks
External Examination -	80 Marks
Total :	<u>100 Marks</u>

Practical - Internal Assessment -	10 Marks
External Examination -	40 Marks
Total :	<u>50 Marks</u>

3. SEM - I, Title of the PAPER - I is "-ANIMAL DIVERSITY - Invertebrates"

SEM - II, Title of THE PAPER - II is "-ANIMAL DIVERSITY - Vertebrates"

4. Practicals - Semester - I & II, Study of additional slides and specimens are added in each phyla.

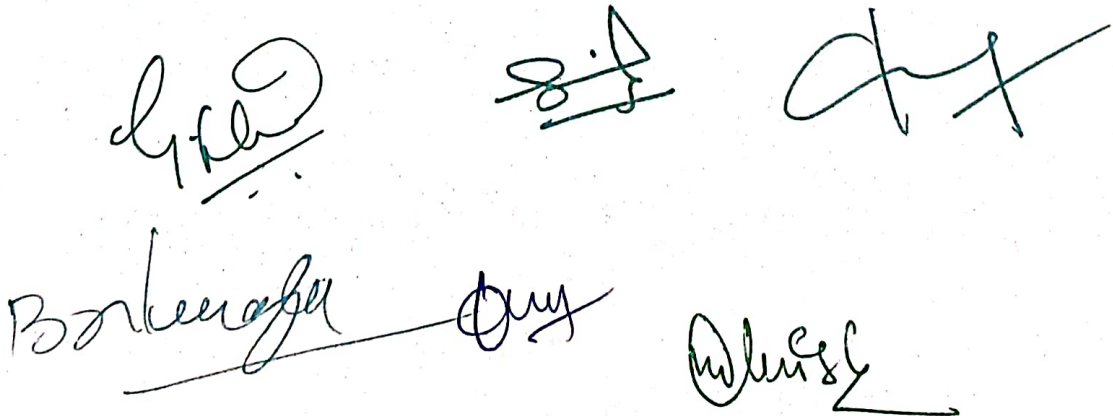
SEM-I Praticals:

Noctiluca, Giardia, Elphidium, Euplectella, Hyalonema, Tubipora, Adamsia, Sporocyst, Metacercaria, Enterobius, Oxyuris, Heteroneries, Nephridium, Lepsima, Mantis, Buthus, Lepas, Julus, Dentalium, Helix, Pecten, Pinctada.

SEM -II Praticals:

Herdmania, Sphyrna, Scoliodon, Ctenoid scales, Fins, Alligator, Gavialis, Indian Roller (Pala pitta), Eudynamus, Types of Beaks, pecten slide, Macropus, Spleen, Cartilage, Blood smear, Testis and Ovary).

5. Approval of Panel of Examiners were discussed for Semester I and Semester II for both Theory and Practical for 2022-23.



DEPARTMENT OF ZOOLOGY

Telangana Mahila Viswavidyalayam (Women's University) Koti, Hyderabad.

Structure of Syllabus- B.Sc. I year U.G with effect from 2022-23 onwards

S. No	Year/ Sem	Code	Title of the paper	No. of Periods		No. of Credits	Marks
				Theory	Practicals		
1.	B.Sc I Yr/ Sem I CORE - I	CC/Z/01/ 101T CC/Z/01/ 101P	I	Animal Diversity - Invertebrates Theory	4hrs/ week	4	100
				Animal Diversity - Invertebrates Practicals		2hrs/ week	1
2.	B.Sc I Yr/ Sem II CORE - II	CC/Z/02/ 102T CC/Z/02/ 102P	II	Animal Diversity - Vertebrates Theory	4hrs/ week	4	100
				Animal Diversity - Vertebrates Practicals		2hrs/ week	1

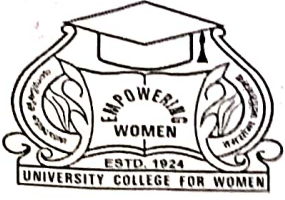
Practical class duration is - 2 hrs

Theory-Internal assessment 20 marks (15 marks Tests (Average of two) & 5marks Assignment)

Theory External Examination - 80 Marks

Practicals Total - 50 Marks - (Internal Assessment-~~10~~ 30 marks, external examination - ~~40~~ 20 marks)

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B.Sc. ZOOLOGY SYLLABUS UNDER CBCS 2022-23
B.Sc. I YEAR ZOOLOGY
SEMESTER-I
CORE PAPER-I
ANIMAL DIVERSITY – INVERTEBRATES (THEORY)

CC/2/01/101T

Instructions: 4 hr per week
No. of period: 60
No. of credits: 4

Max.Marks: 100

UNIT -1:

(15 Periods)

1.1 Protozoa.

- 1.1.1 General characters and classification of Protozoa upto order levels with examples
- 1.1.2 Type study - *Elphidium*
- 1.1.3 Locomotion and Reproduction in Protozoa.
- 1.1.4 Epidemiology of Protozoan diseases - Amoebiasis; Giardiasis; Leishmaniasis and Malaria.

1.2 Porifera

- 1.2.1. General characters and classification of Porifera upto order levels with examples
- 1.2.2 Type study - *Sycon*
- 1.2.3 Canal system in sponges and Spicules.

UNIT - II:

(15 Periods)

2.1. Cnidaria

- 2.1.1 General characters and classification of Cnidaria upto order levels with examples
- 2.1.2 Type study - *Obelia*
- 2.1.3 Polymorphism in *Siphonophora*
- 2.1.4 Corals and coral reef formation

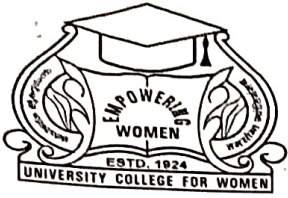
2.2 Platyhelminthes

- 2.2.1 General characters
- 2.2.2 Classification of Platyhelminthes up to classes with examples
- 2.2.3 Type study-*Schistosoma*

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2.3 Nematelminthes

- 2.3.1 General characters
- 2.3.2 Classification of Nematelminthes up to classes with examples
- 2.3.3 Type study - *Dracunculus* / *Filaria (replace *)*.
- 2.3.4 Parasitic Adaptations in Helminthes

UNIT - III:

(15 Periods)

3.1 Annelida

- 3.1.1 General characters
- 3.1.2 Classification of Annelida up to classes with examples
- 3.1.3 Type study - *Hirudinaria granulosa*.
- 3.1.4 Evolutionary significance of Coelome and Coelomoducts and metamerism

3.2 Arthropoda

- 3.2.1 General characters
- 3.2.2 Classification of Arthropoda up to classes with examples
- 3.2.3 Type study - Prawn
- 3.2.4 Crustacean larvae
- 3.2.5 Insect metamorphosis
- 3.2.6 Peripatus - Structure and affinities

UNIT - IV:

(15 Periods)

4.1 Mollusca

- 4.1.1 General characters
- 4.1.2 Classification of Mollusca up to classes with examples
- 4.1.3 Type study - *Pila*
- 4.1.4 Pearl formation
- 4.1.5 Torsion and detorsion in gastropods

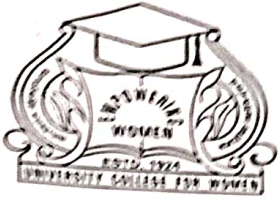
4.2 Echinodermata

- 4.2.1 General characters
- 4.2.2 Classification of Echinodermata up to classes with examples
- 4.2.3 Water vascular system in star fish
- 4.2.4 Echinoderm larvae and their significance

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Suggested Readings:

1. L.H. Hyman 'The Invertebrates' Vol I, II and V. - M.C. Graw Hill Company Ltd.
2. Kotpal, R.L. 1988 - 1992 Protozoa, Porifera, Coelenterata, Helminthes, Arthropoda, Mollusca, Echinodermata. Rastogi Publications, Meerut.
3. E.L. Jordan and P.S. Verma 'Invertebrate Zoology' S. Chand and Company.
4. R.D. Barnes 'Invertebrate Zoology' by: W.B. Saunders CO., 1986.
5. Barrington. E.J.W., 'Invertebrate structure and Function' by ELBS.
6. P.S. Dhami and J.K. Dhami. Invertebrate Zoology. S. Chand and Co. New Delhi.
7. Parker, T.J. and Haswell 'A text book of Zoology' by, W.A., Mac Millan Co. London.
8. Barnes, R.D. (1982). Invertebrate Zoology, V Edition"

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B.Sc. ZOOLOGY SYLLABUS UNDER CBCS 2022-23

B.Sc. I YEAR ZOOLOGY

PRACTICAL SYLLABUS FOR SEMESTER I

CORE PAPER-1

ANIMAL DIVERSITY - INVERTEBRATES

CC/Z/01/101/P

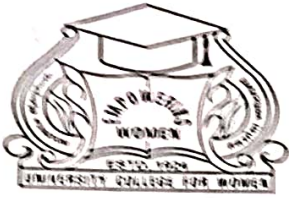
Instructions: 2hr per week
No. of credits: 1

Max.Marks:50

I. Study of museum slides / specimens / models (Classification of animals up to orders)

01. **Protozoa:** *Amoeba, Paramoecium, Paramecium*; Binary fission and Conjugation, *Vorticella, Entamoeba histolytica, Noctiluca, Giardia, Elphidium, Plasmodium vivax*.
02. **Porifera:** *Sycon, Spongilla, Euspongia, Euplectella, Hyalonema, Sycon* - T.S & L.S, Spicules, Gemmule
03. **Coelenterata:** *Obelia* – Colony & Medusa, *Aurelia, Physalia, Velella, Tubipora, Adamsia, Corallium, Gorgonia, Pennatula*
04. **Platyhelminthes:** *Planaria, Fasciola hepatica, Fasciola* larval forms - Miracidium, Sporocyst, Redia, Cercaria, Metacercaria, *Echinococcus granulosus, Taenia solium, Schistosoma haematobium*
05. **Nemathelminthes:** *Ascaris* (Male & Female), *Drancunculus, Enterobius, Oxyuris, Ancylostoma, Wuchereria*.
06. **Annelida:** *Nereis, Heteroneries, Aphrodite, Chaetopteurs, Hirudinaria*, Trochophore larva, Nephridium.
07. **Arthropoda:** *Cancer, Palaemon, Scorpion, Lepsima, Mantis, Buthus, Lepas, Scolopendra, Julus, Sacculina, Limulus, Peripatus*, Larvae - Nauplius, Mysis, Zoea, Mouth parts of male & female Anopheles and Culex, Mouthparts of Housefly and Butterfly.
08. **Mollusca:** *Chiton, Dentalium, Helix, Pila, Unio, Pecten, Pinctada, Pteredo, Murex, Sepia, Loligo, Octopus, Nautilus*, Glochidium larva
09. **Echinodermata:** *Asterias, Ophiothrix, Echinus, Clypeaster, Cucumaria, Antedon, Bipinnaria* larva

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II. Dissections:

Prawn: Appendages, Digestive system, Nervous system, Mounting of Statocyst
Insect Mouth Parts

III. Laboratory Record work shall be submitted at the time of practical examination

IV. An "Animal album" containing photographs, cut outs, with appropriate write up about the above mentioned taxa. Different taxa / topics may be given to different sets of students for this purpose.

V. Computer aided techniques should be adopted - show virtual dissections

Suggested manuals:

1. Practical Zoology-Invertebrates S.S. Lal
2. Practical Zoology - Invertebrates P.S. Verma
3. Practical Zoology - Invertebrates K.P. Kurl

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B.Sc. ZOOLOGY SYLLABUS UNDER CBCS 2022-23

B.Sc. I YEAR ZOOLOGY

SEMESTER-II

CORE PAPER - II

ANIMAL DIVERSITY- VERTEBRATES (THEORY)

CC/Z/02/102T

Instructions: 4 hr per week

Max.Marks:100

No. of period: 60

No. of credits: 4

UNIT-1:

(15 Periods)

1.1 Hemichordata

1.1.1 General characters

1.1.2 Classification of Hemichordata up to classes with examples

1.1.3 *Balanoglossus* - Structure and affinities

1.2: Urochordata, Cephalochordata, Cyclostomata

1.2.1. Salient features of Urochordata

1.2.2. Retrogressive metamorphosis and its significance in Urochordata

1.2.3. Salient features and affinities of Cephalochordata

1.2.4. General characters of Cyclostomata

1.2.5. Comparison of the *Petromyzon* and *Myxine*

1.2.6. General characters and classification of Chordata upto orders with examples.

UNIT - II:

(15 Periods)

2.1. Pisces

2.1.1. General characters of Fishes

2.1.2. Classification of fishes up to order level with examples

2.1.3. *Scoliodon* - Respiratory, Circulatory and Nervous system.

2.1.4. Types of Scales and types of Fins

2.2. Amphibia

2.2.1. General characters of Amphibians

2.2.2. Classification of Amphibians up to orders with examples.

2.2.3. *Rana tigrina* - Respiratory, Circulatory and Nervous system.

2.2.4. Parental care in amphibian; neoteny and paedogenesis.

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C. S.

B. S. S.

A. S.



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UNIT - III :

(15 Periods)

3.1 Reptilia

- 3.1.1. General characters of Reptilia
- 3.1.2. Classification of Reptilia up to orders with examples
- 3.1.3. *Calotes* - Respiratory system, Circulatory and Nervous system.
- 3.1.4. Temporal fosse in reptiles and its evolutionary importance
- 3.1.5. Distinguished characters of Poisonous and Non poisonous snakes.

3.2. Aves

- 3.1.1. General characters of Aves
- 3.1.2. Classification of Aves up to orders with examples.
- 3.1.3. *Columba livia* -, Digestive system, Circulatory systems, Respiratory system and Nervous system.
- 3.1.4. Migration in Birds
- 3.1.5. Flight adaptation in Birds

UNIT-IV:

(15 Periods)

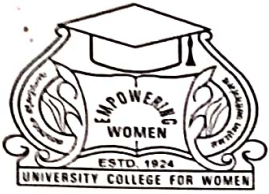
4.1. Mammalia

- 4.1.1. General characters of Mammalia
- 4.1.2. Classification of Mammalia up to orders with examples
- 4.1.3. Rabbit -Digestive, Respiratory, Circulatory and Nervous system.
- 4.1.4. Dentition in mammals.
- 4.1.5. Aquatic adaptations in Mammals.

Suggested Readings:

1. E.L.Jordan and P.S. Verma 'Chordate Zoology'-. S. Chand Publications.
2. Mohan P.Arora. 'Chordata – 1, Himalaya Publishing House Pvt.Ltd.
3. Marshal, Parker and Haswell 'Text book of Vertebrates'. ELBS and McMillan, England.
4. Alfred Sherwood Romer. Thomas S. Pearson 'The Vertebrate Body, Sixth edition, CBS college Publishing, Saunders College Publishing
5. George C. Kent, Robert K. Carr. Comparative Anatomy of the Vertebrates, 9th ed. McGraw Hill.
6. Kenneth Kardong Vertebrates: Comparative Anatomy, Function and Evolution, 4th ed, 'McGraw Hill.
7. J.W. Young, The Life of Vertebrates, 3rd ed, Oxford University press.
8. Harvey Pough F, Christine M. Janis, B. Heiser, Vertebrate Life, Pearson, 6th ed, Pearson Education Inc. 2002.

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B.Sc. ZOOLOGY SYLLABUS UNDER CBCS 2022-23

B.Sc. I YEAR ZOOLOGY

PRACTICAL SYLLABUS FOR SEMESTER II

ZOOLOGY-CORE PAPER - II

ANIMAL DIVERSITY-VERTEBRATES

CC/Z/02/102P

Instructions: 2hr per week

No. of credits: 1

I. Study of museum slides / specimens / models (Classification of animals up to orders)

01. Hemichordata: *Balanoglossus*, *Tornaria* larva
02. Protochordata: *Herdmania*, *Amphioxus*, *Amphioxus* T.S. through pharynx
03. Cyclostomata: *Petromyzon*, *Myxine*, *Ammocoetus* larva
04. Pisces: *Scoliodon*, *Sphyrna Pristis*, *Torpedo*, *Channa*, *Pleuronectes*, *Hippocampus*, *Exocoetus*, *Echieneis*, *Labeo*, *Catla*, *Clarius*, *Anguilla*, *Protopterus*, Scales: Placoid, Cycloid, Ctenoid, Fins
05. Amphibia: *Ichthyophis*, *Amblystoma*, *Siren*, *Hyla*, *Rachophous*, *Bufo*, *Rana*, *Axolotl* larva
06. Reptilia : *Draco*, *Chamaeleon*, *Gecko*, *Uromastix*, *Vipera russelli*, *Naja*, *Bungarus*, *Enhydrina*, *Typhlops*, *Testudo*, *Trionyx*, *Crocodylus*, *Alligator*, *Gavialis*, *Ptyas*.
07. Aves: *Archaeopteryx*, *Passer*, *Psittacula*, *Bubo*, *Alcedo*, *Columba*, *Corvus*, *Pavo*, *Indian Roller* (*Pala pitta*), *Eudynamus*. Collection and study of different types of feathers & Beaks, pecten slide, Quill, Contour, Filoplume, Down
08. Mammalia: *Ornithorhynchus*, *Tachyglossus*, *Macropus*, *Pteropus*, *Funambulus*, *Manis*, *Loris*, *Hedgehog*

II. Histology: T.S. of Liver, Pancreas, Kidney, Stomach, Intestine, Lungs Artery, Vein, Bone, cartilage, Blood Smear, Spinal cord. Spleen, Testis and ovary

Osteology:

1. Rabbit - Axial skeleton system (bones of Skull and Vertebral Column)
2. Varanus, Pigeon and Rabbit - Appendicular skeleton system (bones of limbs and girdles)

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Dissections of Labeo/Tilapia:

1. Digestive system.
2. Brain, Weberian ossicles
3. V, VII, IX, X cranial nerves

Laboratory Record work shall be submitted at the time of practical examination
An "Animal album" containing photographs, cut outs, with appropriate write up about the above mentioned taxa. Different taxa / topics may be given to different sets of students for this purpose.

Computer aided virtual dissections.

Suggested manuals:

1. S.S.Lal, Practical Zoology - Vertebrata
2. P.S.Verma, A manual of Practical Zoology - Chordata
3. Freeman & Bracegirdle, An atlas of embryology

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DEPARTMENT OF ZOOLOGY
Telangana Mahila Viswavidyalayam, KOTI, HYDERABAD

CODE NO:

FACULTY OF SCIENCE
B.Sc. YEAR - SEMESTER EXAMINATION, 2022
(QUESTION PAPER PATTERN FOR CBCS)

Time: 3 Hours

(Max. Marks: 80)

Answer any Eight Questions

SECTION - A

(8 X 4 = 32)

(Short notes)

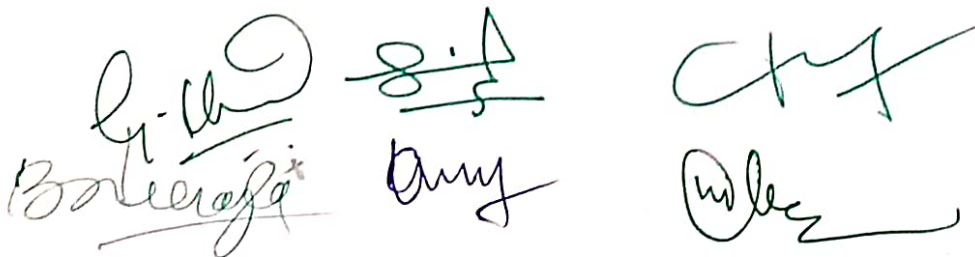
1. Question from Unit-I
2. Question from Unit-I
3. Question from Unit-I
4. Question from Unit-II
5. Question from Unit-II
6. Question from Unit-II
7. Question from Unit-III
8. Question from Unit-III
9. Question from Unit-III
10. Question from Unit-IV
11. Question from Unit-IV
12. Question from Unit-IV

SECTION - B

(4 X 12 = 48)

(Essay type)

13. a) Question from Unit-I
(OR)
b) Question from Unit-I
14. a) Question from Unit-II
(OR)
b) Question from Unit-II
15. a) Question from Unit-III
(OR)
b) Question from Unit-III
16. a) Question from Unit-IV
(OR)
b) Question from Unit-IV


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DEPARTMENT OF ZOOLOGY
Telangana Mahila Viswavidyalayam, KOTI, HYDERABAD

THEORY EXAMINATION

Total Marks for Theory Examination :	100 Marks
External Exam :	80 Marks
Internal Exam :	15 Marks
Assignment/Project Work :	05 Marks

Total Internal Assessment : 20 Marks (Internal Exam + Assignment / Project Work)

Two Internal Assessments of 15 Marks each.

Average of the Two Internal Assessment tests are considered

PRACTICAL EXAMINATION

Total Marks for Practical Examination :	50 Marks	}	50 M
Internal Assessments :	10 Marks		30 M
External Exam :	40 Marks		20 M

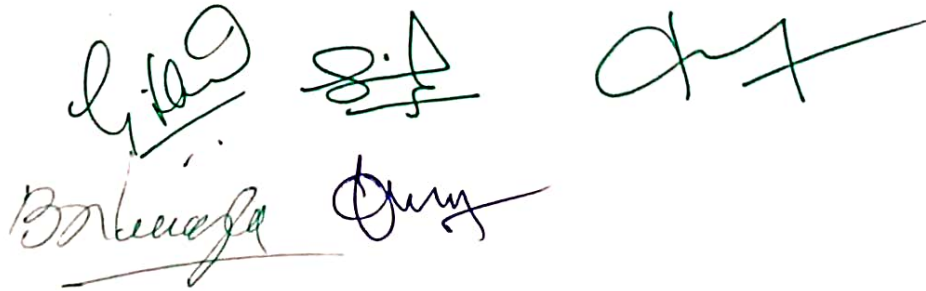
MINIMUM PASS MARKS (40%)

Theory Examination :	32 Marks
Practical Examination :	16 Marks

Reduction of 10% pass marks in each subject is given to the students of Hearing Impaired, Orthopedically Handicapped and visually challenged for all the UG Courses.

Important Notes:

- (i) For both the sections A&B kindly set the questions with strict adherence to Syllabus, Marks and Time allotted.
- (ii) The questions appearing in one section should not be repeated in another section.



**Telangana Mahila Viswavidyalayam
(Women University), Koth, Hyderabad 500095
Formerly University College for Women, O. U.
Accredited by NAAC with 'A' Grade**

DEPARTMENT OF ZOOLOGY

B.Sc. SYLLABUS - CBCS

Semester III and IV

Paper III and IV

(With effect from 2023-2024)



Department of Zoology

Telangana Mahila Viswavidyalayam

(WOMEN'S UNIVERSITY), Koti, Hyderabad 500 095

formerly University College for Women, OSMANIA UNIVERSITY

ACCREDITED BY NAAC WITH 'A' GRADE

No. /Zoology/TMV/2023

Date: 22-06-2023

ORDERS

Sub: Telangana Mahila Viswavidyalayam, Koti, Hyd. Department of Zoology- Constitution of the Board of Studies – Orders- Issued.

Sanction is hereby accorded for the Constitution of the Board of Studies in Zoology (U.G.), at the Telangana Mahila Viswavidyalayam, Koti, Hyderabad as follows.

S.No.	MEMBERS OF BOS	DESIGNATION	ADDRESS
1.	Dr. Y.Sunila Kumari Assistant Professor	Head (CBOS, TMV)	Head & Chairperson Board of Studies, Dept of Zoology, TMV, Koti, Hyderabad.
2.	Prof. G. Shamita Professor	Subject Expert	Dept of Zoology, Kakatiya University.
3.	Dr. M.Radha Krishna, Assistant Professor	Subject Expert	Dept of Zoology, Nizam College
4.	Dr. K. Anand, Assistant Professor	Subject Expert	Govt. City College, Nayapool, Hyderabad.
5.	Dr. K. Ashok Reddy Managing Director	Industry Expert	Synteny Life Science PVT, LTD. Nallakunta, Hyderabad.
6.	Dr. D.Priya Kumari Assistant Professor, (C)	Faculty Member	Dept of Zoology, TMV, Koti.
7.	Dr. G. Shailaja, Assistant Professor, (C)	Faculty Member	Dept of Zoology, TMV, Koti.
8.	Dr. C. Sanat Kumar, Assistant Professor, (C)	Faculty Member	Dept of Zoology, TMV, Koti.
9.	Dr. S. Anuradha Assistant Professor, (C)	Faculty Member	Dept of Zoology, TMV, Koti.
10.	Dr. P. Sunitha Assistant Professor, (C)	Faculty Member	Dept of Zoology, TMV, Koti.
11.	Mrs. A.K. Sunitha	Alumni Member	Lecturer, TSMS & Junior College, Nalgonda
12.	Miss.Yada Laxmi	Student Member	Student UCW, Koti.

The term of Office of the members of the Board of Studies in Zoology U.G. Course shall be for a period of three years with effect from the date of issue of this order. However any member of the board ceases to be a member, when he/she vacates the office, he/she was holding at the time of his/her nomination, unless otherwise permitted. The Members are requested to convey their consent of the Membership of the Board of Studies.

You are requested to attend the first BOS meeting scheduled to be held on 04-07-2023 at 11:00am in the Dept. of Zoology, TMV, Koti, Hyderabad.

P. Vajra Rai
PRINCIPAL

Copy to,

1. All the Members of the Board of Studies.
2. The Controller of Examination, TMV, Koti.
3. The Academic Co-Ordinator, TMV, Koti.

MINUTES OF THE MEETING

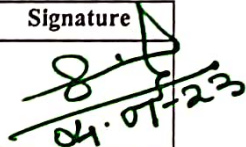
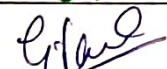
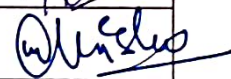
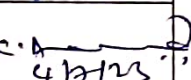
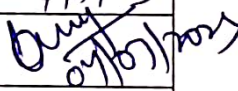
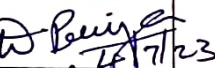
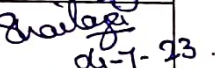
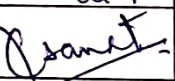
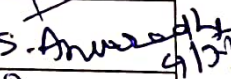
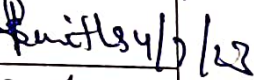
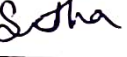
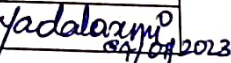
Board of Studies meeting was convened in the Department of Zoology, Telangana Mahila Viswavidyalayam (Women University), Koti, Hyderabad on 04-07-2023, at 11.00 AM under the Chairmanship of Dr. Y. Sunila Kumari, Head, Department of Zoology, TMV, Koti, Hyderabad, to discuss the following agenda-

Agenda 1: Review of B.Sc II year curriculum as per CBCS Telangana State Council of Higher Education.

Agenda 2: Approval of panel of Examiners for the academic year 2023-24.

Agenda 3: Any other Matter with the permission of the chair.

MEMBERS of BOS COMMITTEE:

S.No	Member of BOS and Address	Designation	Signature
1	Dr. Y. Sunila Kumari, Assistant Professor, Head & Chairperson Board of Studies, Dept of Zoology, TMV, Koti, Hyderabad	Head & CBOS, TMV	 04.07.23
2	Dr. G. Shamita, Professor, Dept of Zoology, Kakatiya University, Warangal.	Subject Expert	
3	Dr. M. Radha Krishna, Assistant Professor, Dept of Zoology, Nizam College, O.U.	Subject Expert	
4	Dr. K. Anand, Assistant Professor in Zoology, Govt. City College, Nayapool, Hyderabad.	Subject Expert	 K. Anand 4/7/23
5	Dr. K. Ashok Reddy, Managing Director, Synteny Life Science PVT, LTD. Nallakunta, Hyderabad.	Industry Expert	 04/07/2023
6	Dr. D. Priya Kumari, Assistant Professor (C) Dept of Zoology, TMV, Koti.	Faculty Member	 4/7/23
7	Dr. G. Shailaja, Assistant Professor (C), Dept of Zoology, TMV, Koti.	Faculty Member	 04-7-23
8	Dr. C. Sanat Kumar, Assistant Professor (C) Dept of Zoology, TMV, Koti.	Faculty Member	 Sanat
9	Dr. S. Anuradha, Assistant Professor (C) Dept of Zoology, TMV, Koti.	Faculty Member	 S. Anuradha 4/7/23
10	Dr. P. Sunitha, Assistant Professor (C) Dept of Zoology, TMV, Koti.	Faculty Member	 Sunitha 4/7/23
11	Miss. A.K. Sunitha, Lecturer, TSMS & Junior College, Nalgonda.	Alumni Member	 Soha
12	Ms. Yada Laxmi, M.Sc. Final Year, UCW.	Student Member	 Yadalaxmi 04/07/2023

Keeping in view of the CBCS system, Telangana State Higher Education, Restructuring and rearrangement of the syllabus was discussed for the approval with the members of BOS. It is resolved to make following changes:

1. The existing pattern of marks distribution of B.Sc. II year Semester -III and Semester - IV Zoology syllabus has been approved by the members in the BOS.

2. Marks distribution for Semester -III & IV is

Theory - Internal Assessment	15 Marks	
Assignment	5 Marks	- 20 Marks
External Examination		- <u>80 Marks</u>
Total:		<u>100 Marks</u>

Practical - Internal Assessment		- 10 Marks
External Examination		- <u>40 Marks</u>
Total:		<u>50 Marks</u>

SEC- Internal Assessment		- 10 Marks
External Examination		- <u>40 Marks</u>
Total:		<u>50 Marks</u>

3. Title of the PAPER - III SEMESTER - III is

"ANIMAL PHYSIOLOGY and ANIMAL BEHAVIOUR"

Title of THE PAPER - IV SEMESTER - IV is

"CELL BIOLOGY, GENETICS and DEVELOPMENTAL BIOLOGY"

4. Topics included in Semester III Paper III are

- Thermoregulation- Ectotherms, Endotherms
- Altruism, aggressive and territorial behaviour

* Semester III SEC Papers included are

MEDICAL DIAGNOSTICS

- A visit to Diagnostic centre

SERICULTURE

- A visit to sericulture centre

5. Topic included in Semester IV Paper -IV Syllabus are

- Animal cell- Prokaryotic and Eukaryotic.
- Blotting techniques, Wobble concept
- Extra Chromosomal inheritance
- Pedigree Analysis
- Estimation of DNA by diphenylamine (DPA) method, localization of DNA from Human Buccal Epithelial cells
- Estimation of RNA by Orcinol method
- Gastrula.
- 72 hours, and 96 hours chick embryos

8.4
04/07/23
Dr. Y. S. Maheshwari
Assistant Professor & Head
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Telangana Mahila Viswavidyalaya
(Women University)
Koti, Hyderabad - 500095.

K. S. Maheshwari
Dny
G. K. Maheshwari

Semester IV SEC Papers Included are

REPRODUCTIVE BIOLOGY AND WOMEN WELLNESS

- Choice of introducing the SEC paper Reproductive Biology and Women Wellness is in view of formation of Telangana Mahila Viswavidyalayam, Koti, Hyderabad
- Syllabus was framed keeping in view the importance of Women Health and Well being.
- Students will gain knowledge about Reproductive functions, hygiene, disorders, pregnancy & fertility control.

VECTOR BIOLOGY

- The Title is changed from Vector Biology to Vector Biology & Vector Borne Diseases, in view of importance of vector borne diseases in current context.

8/11
04/07/23

R.A. ...

Dr. Y.

...

Dr. Y. Sunila Kumari
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DEPARTMENT OF ZOOLOGY
TELANGANA MAHILA VISWAVIDYALAYAM, KOTI, HYDERABAD
 Structure of Syllabus-B.Sc.II year U.G with effect from 2023-24

S. No	Year/ Semester	Code	Title of the paper	No. of Periods		No. of Credits	Marks
				Theory	Practicals		
1.	B.Sc. II yr/ Semester III	CC/Z/03/203T <i>CC/Z/03/203P</i>	I Animal Physiology and Animal Behaviour Theory	4		4	100
			Animal Physiology and Animal Behaviour Practicals		2	1	50
		Skill Enhancement Courses	CC/Z/03/SEC/MD SEC-1 Medical Diagnostics SEC-2 Sericulture	2	-	2	50
2.	B.Sc. II yr/ Semester IV	CC/Z/04/204T <i>CC/Z/04/204P</i>	II Cell Biology , Genetics and Developmental Biology Theory	4		4	100
			Cell Biology , Genetics and Developmental Biology Practical		2	1	50
		Skill Enhancement Courses	SEC-3 Reproductive Biology and Women-Wellness SEC-4 Vector Biology & Vector Borne Diseases	2	-	2	50

CC/Z/04/SEC/NB

Practical class duration is - 2 hrs

Theory-Internal assessment 15 marks (Average of Two) + Assignment 5 Marks: 20 Marks

External Examination – 80 Marks

Total: 100 Marks

Practicals –Internal Assessment-10marks, External examination -40 marks

Total: 50 Marks

S.A.
04/07/23

Dr. Y. Sunila Kumari
 Assistant Professor & Head
 Department of Zoology,
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 (Women University)
 Koti, Hyderabad - 500095.

(Signature)

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(Signature)

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DEPARTMENT OF ZOOLOGY,
TELANGANA MAHILA VISWAVIDYALAYAM,
KOTI, HYDERABAD, TELANGANA

B.Sc. II year Syllabus with effect from 2023-2024

Course: B.Sc
Semester: III
Part-III: Core subject (DSC)-Paper-III
Periods: 60

Subject code: CC/Z/03/203T
No. of hrs. allotted 4hrs/week
No of credits: 4
Max.Marks: 100

Title of the Paper: ANIMAL PHYSIOLOGY and ANIMAL BEHAVIOUR

Objectives:

- To study the basic principles of animal physiology, chemical and physical properties of living matter.
- To understand the physiology of various organs and organ systems.
- To know about the importance of digestive enzymes and their role in digestion.
- To study the basic structure and physiological role of excretory, circulatory, respiratory and coordination systems in animals.
- To learn about the hormones and hormonal regulations and their defects in Man.
- To study the inherent morphological and physiological basis of behavioural pattern exhibited by animals.

UNIT – I

(15Hrs)

1.1 Physiology of Digestion

- 1.1.1 Enzymes: Definition, classification, inhibition, regulation, Enzymes in the process of digestion
- 1.1.2 Digestion- Types of Digestion, Digestion of carbohydrates, proteins, lipids and cellulose
- 1.1.3 Absorption, assimilation of digested food
- 1.1.4 Role of gastrointestinal hormones in digestion

1.2 Physiology of Excretion

- 1.2.1 Classification of animals on the basis of excretory products -Ammonotelic, Uricotelic and Ureotelic
- 1.2.2 Structure and function of nephron
- 1.2.3 Urine formation, counter current mechanism

1.3 Physiology of Osmoregulation

- 1.3.1 Water and ionic regulation by Fresh water, Brackish water and Marine water animals

(15Hrs)

UNIT – II

2.1 Homeostasis and Thermoregulation


- 2.1.1 Concept of homeostasis and mechanism of homeostasis
- 2.1.2 Thermoregulation – Ectotherms, Endotherms

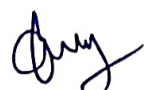
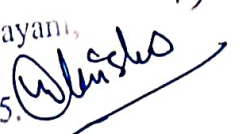
2.2 Physiology of Respiration



- 2.2. Definition of respiration, respiratory mechanism, external, internal and Cellular Respiration
- 2.2.1 Respiratory pigments, transport of oxygen, oxygen dissociation curves, Bohr's effect, transport of carbondioxide, chloride shift
- 2.2.2 Regulation of respiration: nervous and chemical mechanism

2.3 Physiology of Circulation

- 2.3.1 Types of circulation: open and closed: Structure of mammalian heart
- 2.3.2 Types of hearts: neurogenic and myogenic
- 2.3.3 Heart functions, conduction and regulation of heartbeat, regulation of heart rate
- 2.3.4 Tachycardia, bradycardia: blood clotting mechanism


Dr. Sunila Kumari
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DEPARTMENT OF ZOOLOGY,
TELANGANA MAHILA VISWAVIDYALAYAM,
KOTI, HYDERABAD, TELANGANA

B.Sc. II year Syllabus with effect from 2023-2024

(15Hrs)

UNIT –III

3.1 Muscle Physiology

- 3.1.1 Types of muscles
- 3.1.2 Ultrastructure of skeletal muscle fibre
- 3.1.3 Sliding filament theory of muscle contraction mechanism and energetics
- 3.1.4 Twitch, Tetanus, Summation, Treppe, Fatigue

3.2 Nerve Physiology

- 3.2.1 Structure of neuron
- 3.2.2 Resting potential, Threshold potential, Action potential, Conduction of nerve impulse
- 3.2.3 Transmission of nerve impulse
- 3.2.4 Synapse, Synaptic transmission, (Electrical and Chemical Transmission), Neurotransmitters

3.3 Endocrine systems

- 3.3.1 Endocrine glands- structure, secretion, function and malfunction of Pituitary, Thyroid, Parathyroid, Adrenal gland and Pancreas, relationship between hypothalamus and pituitary.
- 3.3.2 Hormone action and concept of secondary messengers
- 3.3.3 Male and female hormones, hormonal control of menstrual cycle in human beings

(15Hrs)

UNIT – IV

4.1 Animal behaviour

- 4.1.1 Types of behaviour : innate, acquired, instinctive and motivated behavior. Altruism, aggressive and territorial behaviour
- 4.1.2 Taxes, reflexes, tropisms

4.2 Learning and memory

- 4.2.1 Types of learning : Trial and error learning, imprinting, habituation
- 4.2.2 Conditioning: Classical conditioning, instrumental conditioning, examples of conditioning, Pavlov's experiment

4.3 Social behaviour and communication

- 4.3.1 Pheromones and Game theory, Colonial existence of bees and termites

4.4 Biological rhythms

- 4.4.1 Biological clocks, circadian rhythms, circumlunar rhythms, circannual rhythms,

Outcome of the paper:

Students acquire the knowledge about various organs and organ systems in man and they can get the knowledge about modifications of a particular physiological system to function under diverse conditions and also acquainted with different types of behavioural patterns with relation to external environment.

8.4
04/07/23
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DEPARTMENT OF ZOOLOGY,
TELANGANA MAHILA VISWAVIDYALAYAM,
KOTI, HYDERABAD, TELANGANA

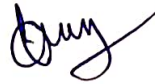
B.Sc. II year Syllabus with effect from 2023-2024

Suggested Readings:

1. Generad J. Tortora and Sandra Reynolds Garbowski Principles of Anatomy and Physiology, Tenth Ed., John Wiley & Sons.
2. Arthur C. Guyton MD, A Text Book of Medical Physiology, Eleventh ed., John E. Hall, Harcourt Asia Ltd.
3. William F. Ganong, A Review of Medical Physiology, 22ed, McGraw Hill, 2005.
4. Sherwood, Klandrof, Yanc, Animal Physiology, Thompson Brooks/Coole, 2005.
5. Sherwood, Klandrof, Yanc, Human Physiology, Thompson Brooks/Coole, 2005.
6. Knut Schmidt-Nielson, Animal Physiology, 5th ed, Cambridge Low price Edition.
7. Roger Eckert and Randal, Animal Physiology, 4th ed, Freeman Co, New York.
8. Singh. H.R., Text Book of Animal Physiology and Biochemistry
9. Nagabhushanam, Comparative Animal physiology
10. Veer Bal Rastogi, Text Book of Animal Physiology.
11. Reena Mathur – Animal behaviour
12. V.K. Agarwal – Animal behaviour
13. Chris Barnard – Animal behaviour


04/07/23

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DEPARTMENT OF ZOOLOGY,
TELANGANA MAHILA VISWAVIDYALAYAM,
KOTI, HYDERABAD, TELANGANA

B.Sc. II year Syllabus with effect from 2023-2024

B.SC -SEM-III PAPER-III PRACTICALS

Title of the Paper: ANIMAL PHYSIOLOGY and ANIMAL BEHAVIOUR

Case : CC/Z/03/203P
Max.Marks:50

No. of hours allotted: 2 hrs. /week

No. of Credits: 1

1. Qualitative test for identification of carbohydrates, proteins and lipids.
2. Qualitative test for identification of ammonia, urea, uric acid (nitrogenous excretory products).
3. Effect of pH on zonation of gut in cockroaches.
4. Effect of pH and temperature on salivary amylase activity.
5. Study of permanent histological sections of Mammalian Endocrine glands Thyroid, Pancreas, Adrenal gland and Pituitary gland.
6. Estimation of haemoglobin by Sahli's method.
7. Estimation of blood clotting time.
8. Estimation of total protein by Biuret's method.
9. Estimation of Unit oxygen consumption of Fish / Crab.
10. Loss and Gain of salts in Fish/ Crab in hetero- osmotic media.
11. Geo taxis observation in earth worm and cockroaches.
12. Observe the response of invertebrates to the Light.

- Laboratory Record work shall be submitted at the time of practical examination
- Computer aided techniques should be adopted as per UGC guide lines.

8.1
04/07/23

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R. A. ...

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DEPARTMENT OF ZOOLOGY,
TELANGANA MAHILA VISWAVIDYALAYAM,
KOTI, HYDERABAD, TELANGANA

B.Sc. II year Syllabus with effect from 2023-2024

Subject code: **CC/Z/03/SEC/MD**
100/SEC/II/MD/1
No. of hrs. allotted 2hrs/week
No of credits: 2
Max. Marks: 50

Course: B.Sc.
Semester: III
SEC- 2:
Periods: 30

Title of the Paper: MEDICAL DIAGNOSTICS

(15Hrs)

UNIT – I

- 1.1 Introduction to medical diagnostic and its importance
- 1.2 Diagnostic methods used for analysis of Blood composition smear preparation . Differential leucocytes count (DLC). Cell counting –RBC, WBC platelet, ESR (Erythrocyte sedimentation Rate), PVC (Packed cell volume) Haemoglobin estimation, Bleeding clotting time. Blood grouping and Rh typing.
- 1.3 Bone marrow study, Haemopoiesis, Blood coagulation and anticoagulants, Blood banking blood transfusion.
- 1.4 Clinical biochemistry – blood glucose, serum protein, LFT (Liver Function Test) Lipid profile LDL, VDL, HDL, cholesterol, creatine kinase, LDH, SGPT, SGOT, Amylase, Bile pigments.
- 1.5 Histopathological techniques, Autopsy and Biopsy (FNAC technique).

UNIT – II

(15Hrs)

- 2.1 Urine analysis Physical chemical, Microscopic dialysis analysis of body fluids (CSF Synovial fluid, pleural, pericardial, peritoneal Fluids). Sputum and faecal matter for infection.
- 2.2 Clinical diagnosis of diseases – bacterial (Tuberculosis and Typhoid) antibiotic sensitivity tes;, viral –hepatitis, AIDS, Polio.; Protozoan- malaria, Amoebiasis.; Helminthes – Ascariasis, Taeniasis and Filariasis.
- 2.3 Clinical diagnosis of non infection diseases – Diabetes, Hypertension, Asthama, Stroke, Arthritis, Heart attack, Cancer –benign, malignant metastasis.
- 2.4 Concept of Edema, Hyperaemia, Haemorrhage, Hemostasis, Thrombosis, Cellular responses-Hyperplasia, Hypertropy, Metaplasia, Atropy Necrosis, Apoptosis.
- 2.5 Medical Imaging – X-ray, PET (Positron emission tomography), MRI (Magnetic Resonance Imaging), CT Scan, ECG, EEG, Echo tests.

* A visit to Diagnostic centre

Outcome of the paper:

*Students will gain knowledge about understanding the Medical Diagnosis reports of patients suffering from various diseases

Suggested Readings :

1. Cheese brough M.A. Laboratory Manual for Rural Tropical Hospitals, A basis for trainilng course.
2. Kania Mukherjee, Medical Laboratory Techniques Vol-I,II,III, - Tata MC Graw Hill Publishing company.
3. Dr. K.N. Sachdev, Jaypee Brothers, (1988) Clinical Pthology and bacterial and medical publisher.
4. Ramnik Sood, Medical laboratory Technieques – Jaypee Brothers.
5. Prakash, G.Lab Manual on Blood Analysis and Medical Diagnostics, S.Chand and Co. Ltd.
6. Robbions and Cortra, Pathology –I Basis of Disease, VIII Edition, Saunders.
7. Guton A.C and Hall J.E textbook of Medical Physiology, saunders.
8. Park, K. Preventive and social medicine, B.B. Publishers.

Dr. S. Sunila Kumari
Assistant Professor
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Koti, Hyderabad - 500095.



DEPARTMENT OF ZOOLOGY,
TELANGANA MAHILA VISWAVIDYALAYAM,
KOTI, HYDERABAD, TELANGANA

B.Sc. II year Syllabus with effect from 2023-2024

Course: B.Sc

Semester: IV

Part-IV: Core subject (DSC)-Paper-IV

Periods: 60

Subject code: CC/Z/04/204

No. Of hrs allotted 4hrs/week

No. of credits: 4

Max.Marks:100

Title of the Paper: CELL BIOLOGY, GENETICS and DEVELOPMENTAL BIOLOGY

Objectives:

To analyse the ultra-structure of Prokaryotic and Eukaryotic cell

To understand the nature of replication, gene expression and regulation

To acquire the knowledge of scope and importance of Genetics and Developmental Biology

UNIT-I:

(15Hrs)

1. Cell Biology

- 1.1 Ultra structure of animal cell (Prokaryotic and Eukaryotic)
- 1.2 Structure and function of plasma membrane proteins.
- 1.3 Structure and Function of cell organelles-Endoplasmic reticulum, Golgi body, Ribosomes, Lysosomes, Centrosomes, Mitochondria and Nucleus
- 1.4 Chromosome-Structure, types, giant chromosomes
- 1.5 Cell division (Mitosis and Meiosis)- Cell cycle and regulation

UNIT-II:

(15Hrs)

2. Molecular Biology

- 2.1 DNA (Deoxyribo Nucleic Acid) - Structure and RNA (Ribo Nucleic Acid)-Structure, types
- 2.2 DNA Replication in Prokaryotes and Eukaryotes
- 2.3 Protein Synthesis – Transcription and Translation
- 2.4 Gene Expression – Genetic Code; Operon concept, Wobble concept
- 2.5 Molecular Biology Techniques- Polymerase chain reaction , Electrophoresis, Blotting techniques

UNIT-III:

(15Hrs)

3. Genetics

- 3.1 Mendel's laws of inheritance and Non-Mendelian inheritance, Extra chromosomal inheritance
- 3.2 Linkage and Crossing over
- 3.3 Sex determination and Sex-linked inheritance
- 3.4 Chromosomal Mutations-Deletion, Duplication, Inversion, Translocation, Aneuploidy and Polyploidy; Gene mutations-Induced versus Spontaneous mutations
- 3.5 Inborn errors of metabolism

8.4
04/07/23
Dr. Y. Sunila Kumari
Assistant Professor & Head
Department of Zoology,
Telangana Mahila Viswavidyalaya
(Women University)
Koti, Hyderabad - 500095.

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DEPARTMENT OF ZOOLOGY,
TELANGANA MAHILA VISWAVIDYALAYAM,
KOTI, HYDERABAD, TELANGANA

B.Sc. II year Syllabus with effect from 2023-2024

(15Hrs)

UNIT-IV:

4. Developmental Biology and Embryology

- 4.1 Gametogenesis (Spermatogenesis and Oogenesis) Fertilization, types of eggs, type of cleavages
- 4.2 Development of Frog upto formation of primary germ layers
- 4.3 Formation of Foetal membranes in chick embryo and their functions
- 4.4 Types and functions of Placenta in mammals
- 4.5 Regeneration in Turbellaria and Lizards

Outcome of the paper:

Students acquire the knowledge about basic concepts of Cell biology, Genetics, Molecular biology and Developmental biology in detail.

Suggested reading:

1. Lodish, Berk, Zipursky, Matsudaria, Baltimore, Darnell 'Molecular Cell Biology' W.H. Free man and company New York.
2. Gardner, E.J. Simmons, M.J., Snustad, D.P. (2008) Principles of Genetics, VIII Edition. Wiley India.
3. Snustad, D.P. Simmons, D.P. (2008) Principles of Genetics, V Edition. John Wiley and Sons Inc.
4. Klug, W.S., Cummings, M.R., Spencer, C.A. (2012) Concepts of Genetics. X Edition. Benjamin Cummings.
5. Russell, P.J. (2009). Genetics – A Molecular Approach. III Edition. Benjamin Cummings.
6. Griffiths, A.J.F., Wessler, S.R. Lewontin, R.C. and Carroll, S.B. Introduction to Genetic Analysis IX Edition. W.H. Freeman and Co.
7. Gupta P.K. 'Genetics'
8. Developmental Biology by Beryll
9. Developmental Biology S. Gilbert
10. Developmental Biology – patterns, problems and principles by W. Saunders Jr.

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04/07/23

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DEPARTMENT OF ZOOLOGY,
TELANGANA MAHILA VISWAVIDYALAYAM,
KOTI, HYDERABAD, TELANGANA

B.Sc. II year Syllabus with effect from 2023-2024

B.SC-SEM-IV PAPER-IV PRACTICALS

Title of the Paper: CELL BIOLOGY, GENETICS and DEVELOPMENTAL BIOLOGY

Max.Marks:50

No. of hours allotted: 2 hrs /week

No. of Credits: 1

I. Cytology

1. Preparation and identification of slides of Mitotic divisions with onion root tips
2. Preparation and identification of different stages of Meiosis in Grasshopper Testes
3. Identification and study of the following slides
 - i) Different stages of Mitosis and Meiosis
 - ii) Lamp brush and Polytene chromosomes

II. Genetics

1. Problems on Genetics- Mendelian inheritance, Linkage and crossing over, Sex-linked inheritance, Pedigree analysis
2. Estimation of DNA by diphenylamine (DPA) method, localization of DNA from Human Buccal Epithelial cells
3. Estimation of RNA by orcinol method.

III. Embryology

1. Study of T.S. of Testis and Ovary of a mammal
2. Study of different stages of cleavages (2, 4, 8, 16 cell stages); Morula, Blastula, Gastrula
3. Study of chick embryos 18 hours, 24 hours, 36 hours, 48 hours, 72 hours, and 96 hours of incubation.

An "Album" containing photographs, cut outs, with appropriate write-up

- Laboratory Record work shall be submitted at the time of practical examination
- Computer aided techniques should be adopted as per UGC guide lines.

Suggested Manuals

1. Manual of Laboratory experiments in cell biology Edward, G.
2. Freeman & Bracegirdle, An atlas of embryology

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DEPARTMENT OF ZOOLOGY,
TELANGANA MAHILA VISWAVIDYALAYAM,
KOTI, HYDERABAD, TELANGANA

B.Sc. II year Syllabus with effect from 2023-2024

CC/Z/04/SEC/RB
700/SEC/RB/T

Course: B.Sc
Semester: IV
SEC - 3:
Periods: 30

Subject code:
No. of hrs. allotted 2hrs/week
No of credits: 2
Max.Marks: 50

Title of the Paper: REPRODUCTIVE BIOLOGY AND WOMEN WELLNESS

UNIT – I: Structure and Function of Female Reproductive System (15Hrs)

- 1.1 Structure of Female reproductive system menstrual cycle.
- 1.2 Functions of ovarian hormones.
- 1.3 Reproductive hygiene practices.
- 1.4 Fertilization, Pregnancy, Gestation, Placentation, Parturition and Lactation.
- 1.5 Anemia, Arthritis, PCOD and thyroid in women.

UNIT – II: Fertility Control and Sexually Transmitted infectious diseases (15Hrs)

- 2.1 Fertility control – Artificial, chemical and hormonal methods.
- 2.2 Surgical contraception; Oophorectomy and Hysterectomy.
- 2.3 Latest techniques for infertility treatment in women, Artificial insemination and IVF.
- 2.4 Umbilical Cord cells and Banks.
- 2.5 AIDS, Syphilis, Gonorrhoea, Herpes, Trichomonal Vaginitis, Candidiasis, HPV and Breast cancer awareness.

Outcome of the paper:

- Students will gain knowledge about Reproductive functions, hygiene, disorders, pregnancy & fertility control.

Suggested Readings :

1. Reproductive Health & Human Rights the Way forward by Laura Reichenbach and Mindy Jane Roseman.
2. Textbook of Assisted Reproductive Techniques by David k Gardner, Ariel Weissman, Colin M.Howles and Zeev Shoham.
3. Endocrine and Reproductive Physiology Bruce A White, John R Harrison and Lisa M. Mehlmann.
4. Reproductive and Child Health Education A Module for Trainers and Counselors by Dr. Sneha Sangwan.
5. Textbook of Medical Physiology by Guyton & Hall.

Dr. Y. Sunila Kumari
04/07/23

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DEPARTMENT OF ZOOLOGY,
TELANGANA MAHILA VISWAVIDYALAYAM,
KOTI, HYDERABAD, TELANGANA

B.Sc. II year Syllabus with effect from 2023-2024

Course: B.Sc
Semester: IV
SEC- 4:
Periods: 30

Subject code: CC/Z/04/SEC/VB
No. of hrs. allotted 2hrs/week
No of credits: 2
Max.Marks: 50

Title of the Paper: VECTOR BIOLOGY & VECTOR BORNE DISEASES

UNIT – I: Vector Biology

(15Hrs)

- 1.1 Introduction to vectors in disease transmission. Basic sanitation–Hygiene and personal protection from vectors.
- 1.2 Salient features and Life cycle of important Mosquito vector species – Anopheles, Aedes, Culex and Mansonia.
- 1.3 Salient features and life cycle of important Dipteran vectors of public health importance: Sandflies, Black flies, Houseflies and Myiasis causing flies.
- 1.4 Mechanical & Biological carriers /vectors, their control measures and source reduction.
- 1.5 Host vector relationships, host specificity and adaptations of vectors

UNIT – II : Vector borne Disease

(15Hrs)

- 2.1 Distinguishing characters of different species of human malarial parasites Life cycle and host Parasite interactions.
- 2.2 Distinguishing characters of different species of human Filarial parasites Life cycle and host Parasite interactions
- 2.3 Life cycle and public health importance of –Fleas, Lice, Ticks and Mites
- 2.4 Life cycle and public health importance of – Snails (Schistosomiasis & Fasciolopsiasis).
- 2.5 Distinguishing characters of different arboviral diseases and their mode of transmission.

References:

1. The Biology of Disease Vectors - Barry J. Beaty and William C. Marquardt.
2. Parasitology and Vector Biology – Cheriln Jose.
3. Vector –Borne Diseases : Epidemiology and Control – Dr. B.K. Tyagi
4. Vector Biology, Ecology and Control –Peter W. Atkinson
5. Vectors and Vector-Borne Diseases- AP Dash- Jayalakshmi Krishnan , Sigomani Panner, Esaki m Shankar, Indrani Chattopadhyay

8.4
04/07/23

Dr. Y. Sunila Kumari
Assistant Professor & Head
Department of Zoology,
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(Women University)
Koti, Hyderabad - 500095.

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DEPARTMENT OF ZOOLOGY,
TELANGANA MAHILA VISWAVIDYALAYAM,
KOTI, HYDERABAD, TELANGANA

B.Sc. II year Syllabus with effect from 2023-2024

CC/Z/04/SEC/RB
700/SEC/RB/T

Course: B.Sc
Semester: IV
SEC - 3:
Periods: 30

Subject code: 700/SEC/RB/T
No. of hrs. allotted 2hrs/week
No of credits: 2
Max.Marks: 50

Title of the Paper: REPRODUCTIVE BIOLOGY AND WOMEN WELLNESS

UNIT – I: Structure and Function of Female Reproductive System

(15Hrs)

- 1.1 Structure of Female reproductive system menstrual cycle.
- 1.2 Functions of ovarian hormones.
- 1.3 Reproductive hygiene practices.
- 1.4 Fertilization, Pregnancy, Gestation, Placentation, Parturition and Lactation.
- 1.5 Anemia, Arthritis, PCOD and thyroid in women.

UNIT – II: Fertility Control and Sexually Transmitted infectious diseases

(15Hrs)

- 2.1 Fertility control – Artificial, chemical and hormonal methods.
- 2.2 Surgical contraception; Oophorectomy and Hysterectomy.
- 2.3 Latest techniques for infertility treatment in women, Artificial insemination and IVF.
- 2.4 Umbilical Cord cells and Banks.
- 2.5 AIDS, Syphilis, Gonorrhoea, Herpes, Trichomonal Vaginitis, Candidiasis, HPV and Breast cancer awareness.

Outcome of the paper:

- Students will gain knowledge about Reproductive functions, hygiene, disorders, pregnancy & fertility control.

Suggested Readings :

1. Reproductive Health & Human Rights the Way forward by Laura Reichenbach and Mindy Jane Roseman.
2. Textbook of Assisted Reproductive Techniques by David k Gardner, Ariel Weissman, Colin M.Howles and Zeev Shoham.
3. Endocrine and Reproductive Physiology Bruce A White, John R Harrison and Lisa M. Mehlmann.
4. Reproductive and Child Health Education A Module for Trainers and Counselors by Dr. Sneha Sangwan.
5. Textbook of Medical Physiology by Guyton & Hall.

8/1
04/07/23

Dr. Y. Sunila Kumari
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D. S. S. S.
G. S. S. S.

K. A. S. S.



DEPARTMENT OF ZOOLOGY,
TELANGANA MAHILA VISWAVIDYALAYAM,
KOTI, HYDERABAD, TELANGANA

B.Sc. II year Syllabus with effect from 2023-2024

CC/Z/02/SEC/RB
ZOO/SEC/II/2023

Course: B.Sc
Semester: IV
SEC - 3:
Periods: 30

Subject code: ZOO/SEC/II/2023
No. of hrs. allotted 2hrs/week
No of credits: 2
Max.Marks: 50

Title of the Paper: REPRODUCTIVE BIOLOGY AND WOMEN WELLNESS

UNIT – I: Structure and Function of Female Reproductive System

(15Hrs)

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UNIT – II: Fertility Control and Sexually Transmitted infectious diseases

(15Hrs)

- 2.1 Fertility control – Artificial, chemical and hormonal methods.
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3. Endocrine and Reproductive Physiology Bruce A White, John R Harrison and Lisa M. Mehlmann.
4. Reproductive and Child Health Education A Module for Trainers and Counselors by Dr. Sneha Sangwan.
5. Textbook of Medical Physiology by Guyton & Hall.

Dr. Y. Sunila Kumari
04/07/23

Dr. Y. Sunila Kumari
Assistant Professor, J. Head
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UNIVERSITY COLLEGE FOR WOMEN,
(O.U), KOTI, HYDERABAD.

DEPARTMENT OF ZOOLOGY,

B.Sc. SYLLABUS – CBCS

Semester- V & VI, Paper- V & VI
(With effect from 2021-2022 onwards)

Date:19-07-2021



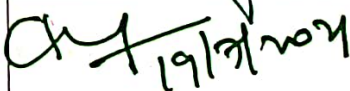



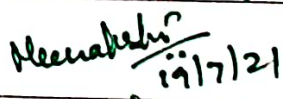
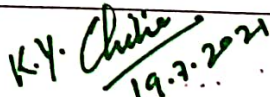
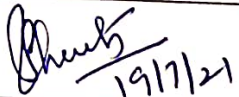
Minutes of Meeting

The Board of Studies meeting was convened in the Department of Zoology, University College for Women, Koti, Hyderabad at 11:00 am on 19-07-2021 under the chairmanship of Dr. Y.Sunila Kumari , I/C, Head, Department of Zoology, UCW, Koti for approval of following

Agenda: 1. B.Sc. III (Final Year) Syllabus as per CBCS

Agenda: 2. Approval of panel of Examiners for the Academic Year 2021 onwards.

Members of BOS Committee:

S.No.	MEMBERS OF BOS	DESIGNATION & ADDRESS	Signature
1	Dr. Y. Sunila Kumari	Chairperson, Asst. Professor, I/C Head, Dept. of Zoology, UCW, Koti.	 19/07/21
2	Prof. S. Jithender Kumar Naik	Ex-Officio Member (External) Principal, UCS,O.U. & Head, Dept. of Zoology, UCS, O.U.	
3	Prof. M. Madhavi	Ex-Officio Member (External) Chairman BOS, Dept of Zoology, UCS, O.U.	 19/7/2021
4	Dr.Babu Rao	Member (External) Principal, Head, Dept. Of Zoology, N.B. Science College & P.G.Centre.	 19/7/21
5	Dr.G.S. Jyothrimai	Member, (External), Asst.Prof.in Zoology, Govt. Degree College for Women, Begumpet	 19/07/21
6	Dr. B.Neeraja	Member, Asst. Prof. Dept of Zoology, UCW, Koti.	 19/7/21
7	Mrs. Meenakshi	Member, Asst. Prof. Dept of Zoology, UCW, Koti.	 19/7/21
8	Dr.K.Y.Chitra	Member , Asst. Prof. Dept of Zoology, UCW, Koti.	 19.7.2021
9	Ms.Shruti Kabra	Alumni Member Asst. Prof (C) Dept of Nut & Diets, UCW, Koti.	 19/7/21
10	Ms. Saleem unissa	Student Member, Student, UCW, Koti.	—

MINUTES OF THE MEETING

Board of Studies meeting was convened in the Department of Zoology, University College for Women, Koti, Hyderabad at 11.00 AM on 19.07.2021 under the chairmanship of Dr. Y.Sunila Kumari , I/c, Head, Department of Zoology, UCW (O.U), Koti, to discuss the following agenda .

Agenda 1: Review of B.Sc. III year curriculum as per CBCS, adhering to the common core syllabus, deviating with 20% as per autonomy guidelines.

Agenda 2: Approval of panel of Examiners for the academic Year 2021-22 onwards.

MEMBERS of BOS COMMITTEE:

S. No.	MEMBERS OF BOS	DESIGNATION	ADDRESS
1	Dr. Y. Sunila Kumari	Chairperson	I/C Head, Dept. of Zoology, UCW (O.U), Koti.
2	Prof. S. Jithender Kumar Naik	Ex-Officio Member (External)	Principal, UCS,O.U. & Head, Dept. of Zoology, UCS, O.U.
3	Prof.M.Madhavi	Ex-Officio Member (External)	Chairperson BOS, Dept of Zoology, UCS, O.U.
4	Dr.Babu Rao	Member (External)	Principal & Head, Dept. of Zoology N.B.Science College&P.G.Centre
5	Dr.G. S. Jyothirmai	Member (External)	Asst.Prof. in Zoology, Govt. Degree College for Women, Begumpet.
6	Dr. B.Neeraja	Member	Asst.Prof. Dept of Zoology, UCW.
7	Mrs. Meenakshi	Member	Asst.Prof. Dept of Zoology, UCW.
8	Dr.K.Y.Chitra	Member	Asst.Prof. Dept of Zoology, UCW.
9	Ms.Shruti Kabra	Alumni Member	Asst.Prof (C) Dept of Nut& Diets, UCW, Koti.
10	Ms. Saleem Unissa	Student Member	Student, UCW, Koti.

Meenakshi
19/7/21

[Signature]

[Signature]

CHAIR PERSON
Board of Studies in Zoology
Osmania University HYD-7

PROFESSOR & HEAD
Department of Zoology, UCS,
Osmania University, Hyd-07.

K.Y. Chitra
19/7/2021
University College for Women,
Koti, Hyderabad-500095

[Signature]
19/7/21

Jyothirmai
Department of Zoology
Govt. College of Women
Begumpet, Hyderabad

[Signature]

Keeping in view of the CBCS Pattern , rearrangement of B.Sc. III yr syllabus was discussed at length for the approval with the members of BOS Committee. It is resolved to make following changes:

1. The ratification of the existing pattern of marks distribution of B.Sc. III year Semester – V & VI, Paper – V & VI Zoology syllabus has been approved by the members in the BOS committee.

Marks distribution for Semester –V & VI is

Theory - Internal Assessment - 20 Marks
(2 Internals -15M+15M , Average of the two internals will be taken)+5M Assignment-writeup of 4-5 pages)

External Examination - 80 Marks
Total: 100 Marks

Practical - Internal Assessment - 10 Marks (Practical Internal Exam-minor expt.)
External Examination - 40 Marks (20M Major Expt. +10M Minor Expt. + 10M record & Viva)
Total: 50 Marks

Project – 100 Marks *80 M External 20 M Internal*

2. SEMESTER –V , Title of the PAPER – V (DSE-I) is
“IMMUNOLOGY AND ANIMAL BIOTECHNOLOGY” (Theory & Practical)

PEPAR V,(GE-I)-PREVENTIVE MEDICINE (Theory)/
REPRODUCTIVE BIOLOGY AND WOMEN WELLNESS

SEMESTER –VI ,Title of THE PAPER – VI (DSE-II) is
“ECOLOGY, ZOOGEOGRAPHY AND EVOLUTION” (Theory & Practical)

PROJECT

3. Topics included in paper -V (DSE-I)(THEORY) are

a. In Unit – I

1. Granulocytes, Dendritic cells, Nk- Cells, APC's, Phagocytes
2. “Complement system: An Elementary Approach”

b. In Unit – II “ Hypersentivity reactions- Type-I, Type-II, Type-III and Type-IV”.
Unit-IV: Animal cell culture-Equipments and materials and Applications.

4. Topics included in paper -V (DSE-I) (PRACTICAL) are:

- a. ELISA/Virtual Lab
- b. Electrophoresis
- c. Visit to CCMB & IICT / Industrial Trip.

[Signature]

I/C, Head
Department of Zoology,
University College for Women, O.U.,
Koti, Hyderabad-500095.

K.Y. Chittoor
19/12/21

Professor, Zoology,
University College for Women,
Koti, Hyderabad, Telangana

Munalesh
19/12/21

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CHAIR PERSON
Board of Studies in Zoology
Osmania University, HYD-7

[Signature]
19/12/21

[Signature]
CHAIR PERSON
Board of Studies in Zoology
Osmania University, HYD-7

Gen. Member of Zoology
Gout. College of Women
Begumpet, Hyderabad.

5. Topics included in paper VI (DSE-II) (THEORY) are

a. Unit- I: Symbiosis.

b. Unit- II:

1. Natality, mortality, biotic potential, carrying capacity,
2. Ecotone and edge effect
3. Acid rains, Green house effect and Ozone depletion .
4. Eutrophication in lakes, Biological Indicators.

c. Unit- III: RED data book, Principles of Conservation -*In situ and Extisitu*.

d. UNIT-IV: 1. Theories of origin of life

2. Patterns of Evolution

3. In Modes of Speciation Parapatric and Peripartic types were added.


6. Topics included in Paper-V, GE-I-PREVENTIVE MEDICINE (Theory) are:

a. Unit-II-Study of viral epidemiology in context of pandemics.


b. Unit-III- Herd Immunity-Zero diseases concept by chemoprophylaxis .


c. Unit-IV-Types of Vaccines and Immunization

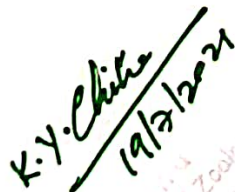
7. As project made compulsory by UGC-MHRD it was decided to introduce project instead of theory paper and 40 pages Hard Bound Thesis to be submitted by the students.


Dr. G. BABU RAO
M.Sc., B.Ed., M.Phil., Ph.D
PRINCIPAL
N.B. Science College
Post Graduation Centre
Charkaman, Hyderabad-500 002, T.S.



Nenukech
19/7/21


PROFESSOR & HEAD
Department of Zoology, UCS,
Osmania University, Hyd-07.
CHAIR PERSON
Board of Studies in Zoology
Osmania University HYD-7

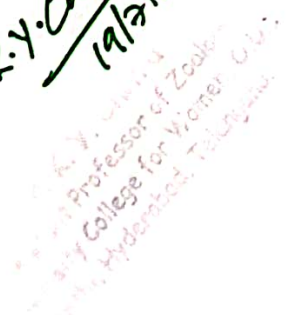

IIC, Head
Department of Zoology,
University College for Women, O.U.,
Koti, Hyderabad-500095.


K.Y. Chitra
19/7/2021


19/7/21


Department of Zoology
Govt. College of Women
Begumpet, Hyderabad.




Professor of Zoology
University College for Women, O.U.,
Koti, Hyderabad, Telangana.

DEPARTMENT OF ZOOLOGY
UNIVERSITY COLLEGE FOR WOMEN, KOTI, HYDERABAD
 Structure of Syllabus-B.Sc.III year U.G with effect from 2021-22 onwards

S. No	Year/ Sem	Code	Title of the paper	No. of Periods		No. of Credits	Marks	
1.	B.Sc III yr/ Sem V	CC/Z/05/ 309 ST CC/Z/05/305P	I	<u>IMMUNOLOGY AND ANIMAL BIOTECHNOLOGY</u> Theory	4	Practicals	4	100
				<u>IMMUNOLOGY AND ANIMAL BIOTECHNOLOGY</u> Practicals		2	1	50
		General Elective - I	CC/Z/05/GE/RBW Preventive Medicine	4				100
2.	B.Sc III yr/ Sem VI	CC/Z/05/ 309 BT CC/Z/06/306P	II	<u>ECOLOGY, ZOOGEOGRAPHY AND EVOLUTION</u> Theory	4		4	100
				<u>ECOLOGY, ZOOGEOGRAPHY AND EVOLUTION</u> Practicals		2	1	50
		PROJECT	PROJECT Zoo/06/PROJ	4				100

Practical class duration is - 3 hrs

Theory-Internal assessment 20 marks (Average of Two)


External Examination - 80 Marks


Practicals -Internal Assessment-10marks, External examination -40 marks , Total -50 Marks.


Project: 40 pages Hard Bound Thesis to be submitted during the practical examination


Dr. G. BABU RAO
 M.Sc., B.Ed., M.Phil., Ph.D
PRINCIPAL
 N.B. Science College
 Post Graduation Centre
 Charlaman, Hyderabad-500 002, T.S.


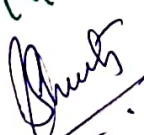

 Meenakshi
 19/7/21


CHAIR PERSON
 Board of Studies in Zoology
 Department of Zoology, UCS,
 Osmania University, Hyd-07.


 I/C, Head
 Department of Zoology,
 University College for Women, O.U.,
 Koti, Hyderabad-500035.


 Department of Zoology
 Govt. College of Women
 Begumpet, Hyderabad.


 K.Y. Chikha
 19/7/2021


 Professor
 19/7/21


Assistant Professor of Zoology
 University College for Women, O.U.
 Koti, Hyderabad-500035, T.S.

**B.Sc. ZOOLOGY-III YEAR-SEMESTER-V
PAPER-V (DSE-1): IMMUNOLOGY AND ANIMAL BIOTECHNOLOGY**

Instructions: 4hr per week
No. of period: 60
No. of credits: 4

UNIT-I: Basics of Immune system: (15 Periods)

- 1.1 Cells of the immune system- Granulocytes, Dendritic cells, Nk- Cells, APC's, Phagocytes, and the lymphoid organs (Primary and secondary).
- 1.2 First line of defenses-Physical and chemical barriers; second line of defenses-Inflammation and Phagocytosis.
- 1.3 Types of immunity- Inherent(Active and passive) and Acquired immunity(Active and passive), Humoral and Cell-mediated immunity.
- 1.4 Major histocompatibility complex-(MHC)-structure and function of class-I and class-II Proteins, Significance of MHC in organ transplantation, MHC restriction.
- 1.5 Complement System: An Elementary approach

UNIT-II: Antibodies and Antigens and Immune system diseases: (15 Periods)

- 2.1 Antibodies/Immunoglobulins-structure, functions and classification, antibody diversity, Monoclonal antibodies and applications.
- 2.2 Antigens structure, antigenic determinants/epitopes, haptens, adjuvants and antigenicity.
- 2.3 Antigen-antibody reactions-agglutination, precipitation, opsonization, cytotoxicity.
- 2.4 Hypersensitivity reactions-Type-I, Type-II, Type-III and Type-IV.
- 2.5 Auto immunity and Immuno deficiency diseases.

UNIT-III: Animal Biotechnology and Genetically modified organisms: (15Periods)

- 3.1 Concept and Scope of Animal Biotechnology.
- 3.2 Cloning vectors-Plasmids, Cosmids and shuttle vectors; Recombinant DNA technology and its applications. Cloning methods (Cell, Animal and Gene cloning).
- 3.3 *In vitro* fertilization and embryo transfer
- 3.4 Transgenesis- Methods of Transgenesis
- 3.5 Production of Transgenic animals- sheep and fish.

UNIT-IV: Applications of Biotechnology: (15 Periods)

- 4.1 Hybridoma technology- concepts and applications.
- 4.2 Stem cells- Types and their applications.
- 4.3 Animal cell culture-Equipments and materials and Applications
- 4.4 Biopesticides: *Bacillus thuringensis*- Mode of action of toxin.
- 4.5 Animal Bioreactors-concepts and applications.

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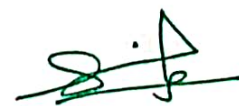
Shruti


Reference Books:


1. Text book of immunology- Ivan Riott
2. Text book of immunology- CV.Rao
3. Text book of immunology- Nandini shetty
4. Text book of immunology- Kubey
5. Culture of Animal cells-R.IanFreshney, WileyLiss.
6. Biotechnology- S.Mitra.
7. Animal Cell culture- Practical Approach- Ed.John RW Masters, Oxford.
8. Biotechnology-B.D.Singh


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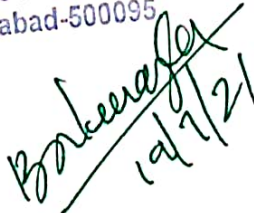

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Shub

B.Sc. ZOOLOGY III YEAR PRACTICALS SYLLABUS

SEMESTER-V

PAPER-V (DSE-1): IMMUNOLOGY AND ANIMAL BIOTECHNOLOGY

Instructions: 3hr per week

No. of credits: 1

I. Immunology:

1. Demonstration of agglutination (ABO-blood grouping/Widal test) using kit.
2. Demonstration of precipitation (VDRL/RPR test) using kit.
3. Radial immuno diffusion using kit.
4. Histology of lymphoid organs-Spleen, Thymus, Lymph node, Bone marrow.
5. ELISA/Virtual Lab

II. Animal Biotechnology:

1. Study the following techniques through photographs/virtual lab

- a. Identification of Vectors
- b. Identification of Transgenic animals
- c. DNA sequencing (Sanger's method)
- d. DNA finger printing
- e. Southern blotting
- f. Western blotting

2. PCR demonstration/virtual lab


3. Electrophoresis

4. Visit to CCMB & IICT / Industrial Trip.


- Laboratory Record work shall be submitted at the time of practical examination
- Computer aided techniques should be adopted as per UGC guidelines.


Reference Books:

1. A hand book of practical immunology-Ivan Riott
2. Animal Biotechnology-PK Gupta



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DEPARTMENT OF ZOOLOGY 2023 - 2024
TMV, KOTI, HYDERABAD
(WITH EFFECT FROM 2023 - 2024 ACADEMIC YEAR)

Subject Code: CC/Z/GE/RBWW

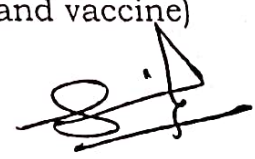
Paper - V G E

B.Sc. III Year Semester - V
Periods : 60 Hrs

No. of Hrs. 4 Hrs / Week
No. of Credits : 4
Max. Marks : 80

REPRODUCTIVE BIOLOGY AND WOMEN WELLNESS

- I. Introduction and Structure of Female reproductive system : **15 Hrs.**
- 1.1 Structure and Physiology of Female reproductive system.
 - 1.2 Reproductive rights & Need of sex education.
 - 1.3 Nutrition, Anaemia, Arthritis in women.
 - 1.4 PCOD and Thyroid in Women.
- II. Reproductive cycles, Hormones and Pregnancy: **15 Hrs.**
- 2.1 Menstrual cycle.
 - 2.2 Functions of ovarian hormones.
 - 2.3 Fertilization.
 - 2.4 Pregnancy, Gestation.
 - 2.5 Parturition and lactation
- III. Fertility Control : **15 Hrs.**
- 3.1 Natural methods, Artificial methods
 - 3.2 Chemical methods, hormonal methods
 - 3.3 Surgical contraception, removal of gonads and uterus.
 - 3.4 Latest techniques for infertility treatment in women (IVF)
 - 3.5 Umbilical cord cells and cell banks.
- IV. Sexually transmitted infectious diseases : **15 Hrs.**
- 4.1 AIDS, Syphilis,
 - 4.2 Gonorrhoea, Herpes (genital)
 - 4.3 Human papilloma virus and genital warts
 - 4.4 Trichomonal Vaginitis, Candidiasis
 - 4.5 Breast and cervical Cancer awareness (Pap Smear and vaccine)



Head

B.Sc. ZOOLOGY III YEAR
SEMESTER-VI
PAPER-VI (DSE-II): ECOLOGY, ZOOGEOGRAPHY AND
EVOLUTION

Instructions: 4hr per week

No. of period: 60

No. of credits: 4

UNIT - I: Ecology-1

(15 Periods)

- 1.1 Ecosystem structure and functions. Types of Ecosystems - Aquatic and Terrestrial.
- 1.2 Biogeochemical cycles - Nitrogen, Carbon, Phosphorus and Water.
- 1.3 Energy flow in ecosystem, Food chain, food web and ecological pyramids.
- 1.4 Ecological Adaptations.
- 1.5 Animal Associations - Mutualism, commensalism, parasitism, competition, predation, Symbiosis.

UNIT- II: Ecology-2

(15 Periods)

- 2.1 Concept of Species, Population dynamics-Natality, mortality, biotic potential, carrying capacity and Growth curves.
- 2.2 Community Structure and dynamics, Ecotone and edge effect and Ecological Succession.
- 2.3 Environmental Pollution — Sources, Effect and Control measures of Air, Water, Soil and Noise Pollution.
- 2.4 Acid rains, Green house effect and Ozone depletion.
- 2.5 Eutrophication in lakes, Biological Indicators.

UNIT - III: Zoogeography

(15 Periods)

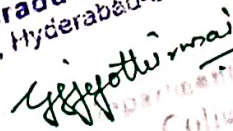
- 3.1 Zoogeographical regions - Palaearctic, Nearctic, Neotropical, Oriental, Australian and Ethiopian regions - their Climatic and faunal peculiarities.
- 3.2 Wallace line, Discontinuous distribution
- 3.3 Continental Drift.
- 3.4 Biodiversity and hotspots of Biodiversity in India.
- 3.5 Wildlife conservation - National parks and Sanctuaries of India, Endangered species. RED data book, Principles of Conservation - *In situ and Ex situ*

UNIT — IV: Evolution

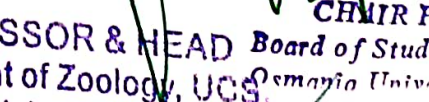
(15 Periods)

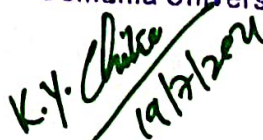
- 4.1 Theories of origin of life, Theories of evolution - Lamarckism and Neo-Lamarckism, Darwinism and Neo-Darwinism, Modern synthetic theory.
- 4.2 Patterns of Evolution, Evidences of Evolution. Causes and Role of Extinction in Evolution.
- 4.3 Forces of Evolution - mutation, gene flow, genetic drift, and natural selection. Hardy Weinberg Law.
- 4.4 Isolation – and isolating mechanisms
- 4.5 Speciation: Modes of speciation – Allopatric, Sympatric, Parapatric and Peripatric.

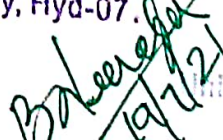

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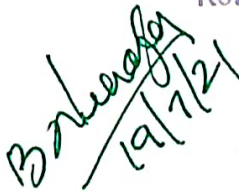
Suggested Readings:


1. M.P.Arora, 'Ecology' Himalaya Publishing company.
2. P.D.Sharma, 'Environmental Biology'.
3. P.R.Trivedi and Gurdeep Raj, 'Environmental Ecology'
4. BuddhadevSarma and Tej Kumar, 'Indian Wildlife Threats and Preservation'
5. Chapman J.L. and Reiss M.J, 'Ecology Principles and Applications, Second Ed., Cambridge University Press, London.
6. Benny Joseph, 'Environmental Studies, TATA McGraw Hill Company, New Delhi.
7. Eugene P. Odum, 'Fundamentals of Ecology Third Ed., Nataraj Publishers, Dehradun.
8. Veer BalaRastogi, "Ecology and Animal Distribution"
9. P.X. Gupta, "Text Book of Ecology and Environment"
10. Bhatnagar and Bansal, "Ecology and Wildlife biology"
11. Ridley, M. (2004). 'Evolution. III Edition. Blackwell Publishing'
12. Douglas, J. Futuyma (1997). 'Evolutionary Biology. Sinauer Associates.
13. Minkoff, E. (1983). 'Evolutionary Biology. Addison-Wesley.
14. Jan M. Savage. 'Evolution, 2nd ed, Oxford and IBH Publishing Co., New Delhi.


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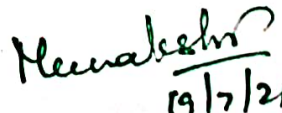

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B.Sc. ZOOLOGY SYLLABUS UNDER CBCS-2021-22

B.Sc. ZOOLOGY-III YEAR PRACTICAL SYLLABUS SEMESTER- VI
PAPER-VI (DSE-II): ECOLOGY, ZOOGEOGRAPHY AND EVOLUTION

Instructions: 9 hr per week No. of credits: 1

1. Determination of pH of Soil and Water
2. Estimation of salinity (chlorides) of water in given samples.
3. Estimation of Carbonates and bicarbonates in the given water samples.
4. Estimation of dissolved oxygen of pond water, sewage water and effluents.
5. Identification of Zooplankton from a nearby water body.
6. Study of Pond Ecosystem / local polluted site - Report submission
7. Study of atleast 3 endangered or threatened wild animals of India through photographs / specimens / models
8. Field visit to Zoo Park to study the management, behavior and enumeration of wild animals.
9. Identification of Zoogeographical realms from the Map and identify specific fauna of respective regions.
10. Museum Study of Fossil animals: Peripatus, Coelacanth Fish, Dipnoi fishes, Sphenodon, Archeopteryx.
11. Study of homology and analogy from suitable specimens and pictures
12. Problems on Hardy-Weinberg Law
13. Macroevolution using Darwin finches (pictures)

Laboratory record work shall be submitted at the time of practical examination, Computer aided techniques should be adopted as per UGC guide lines.

Suggested manuals:


1. Robert Desharnais, Jeffrey Bell, 'Ecology Student Lab Manual, Biology Labs'
2. Darrell S Vodopich, 'Ecology Lab Manual'



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PROJECT

B.Sc. III yr Semester –VI

- Minimum 40 pages of Hard bound thesis to be submitted
- 80 Marks- External Examination of Thesis
- 20 Marks- Internal Assessment of Thesis

Marks Break-up

15 Marks – Internal Exam

- 05Marks – Relevant Topic Selection / Title
- 05 Marks – Introduction
- 05 Marks – Literature Collection

Presentation of the above during internal Assessment –II

05 Marks – Assignment related to Research Methodology (10 pages)

20 Marks

80 Marks: - External Exam

- 10 Marks - Objectives
- 10 Marks - Results
- 10 Marks – Discussion
- 10Marks – Conclusion & References
- 20 Marks – Thesis write –up
- 20 Marks – Viva –Voce

80 Marks
