

CURRICULUM TRANSACTIONAL STRATEGY

Course Title: Animal Diversity (Chordates)

Course Code : ZOO-CC-201

Unit	Topic	Method	Activity	No. of classes needed
I	General characters and classification up to subclass level with distinctive and Adaptive features of Protochordates (Urochordates and Cephalochordates	Lecture, PPT, Discussion	Library / Lab consultation/ assignment & presentation	03
	Pisces	do	do	02
	Amphibia	do	do	04
	Reptilia	do	do	02
	Aves.	do	do	02
	Mammalia.	do	do	02

Learning Outcomes

After going through this unit you should be able to:

- Understand the characteristic features of pisces, amphibians, reptiles, aves and mammals.
- Identify different fauna falling under different categories

Points for discussion

Discussion related to formation of different taxonomic keys for the identification of local fauna .

References:

- Dorit, Walker & Barnes: Zoology. Brooks Cole; 1 edition (February 15, 1991)
- Cambell and Reece: Biology (7th ed. 2005, Pearson)

Units	Topic	Method	Activity	No. of Classes Needed
II	Anatomy and mode of life of Protochordates:	Lecture, PPT, Discussion	Library/Lab consultation/presentation & assignment	04
	Pisces:- Chondrichthyes and Osteichthyes- General account,	do	do	04
	Migration and Osmoregulation in fishes.	do	do	02
	Amphibia:- Type study of frog	do	do	02
	Metamorphosis in frog;	do	do	01
	General organization and development in Salamander	do	do	04

Learning Outcomes

After going through this unit, you will be able to:

- Understand retrogressive metamorphosis in Herdmania
- Differentiate between Chondrichthyes and Osteichthyes
- Understand migration and osmoregulation in fishes.
- Understand metamorphosis in frog..

Points for the discussion:

Discussions were held about type study of Herdmania and Amphioxus. Students were informed about different types of migrations shown by fishes. General organization and development in salamanders was also discussed.

References

- Barnes, R.D. (1982). Invertebrate Zoology, V Ed. Holt Saunders International Edition.
- Boolotian & Stiles. 1981. College Zoology (10th Ed.)
- Dorit, Walker & Barnes. 1991. Zoology (Saunders) Harper
- Nigam: Biology of Chordates (1997, S.Chand)
- . Kotpal Series of Chordates (Rastogi Publications)
- Parker & Haswell. 2005. Text book of Zoology Vol. II (Macmillan)

Unit	Topic	Method	Activity	No. of classes needed
III	Reptilia	Lecture, PPT, Discussion	Library / Lab consultation/ assignment & presentation	15
	Origin of Amniotes	do	do	01
	General Organization and Affinities of Sphenodon	do	do	02
	General Organization of Tortoises	do	do	03
	Venomous and Non-Venomous snakes of India.	do	do	03
	Biting Mechanism in Snakes	do	do	01
	General Organization and Classification of Crocodilia	do	do	03
	Extinct Reptiles (Dinosaurs)	do	do	02

Learning Outcomes

After going through this unit the students should be able to:

- Differentiate between amniotic and anamniotic egg.
- Understand the distribution of Sphenodon, general characters, and affinities.
- Differentiate the venomous and non-venomous snakes in India.
- Understand the biting mechanism of snakes.
- Differentiate between crocodiles and alligators. General characters of Crocodiles.
- Define what is Extinct Reptiles.

Points for discussion

- We discussed the transformation from aquatic to terrestrial life in vertebrates, affinities of sphenodon, general organization of crocodilian and tortoises. We also discussed the poisonous and non-poisonous snakes in India and their biting mechanisms. Finally we had interaction on Extinct Reptiles.

References:

1. Dorit, Walker & Barnes: Zoology. Brooks Cole; 1 edition (February 15, 1991)
2. Cambell and Reece: Biology (7th ed. 2005, Pearson)
3. Nigam: Biology of Chordates (1997, S.Chand)
4. Kotpal Series of Chordates (Rastogi Publications)
5. Parker & Haswell. 2005. Text book of Zoology Vol. II (Macmillan)
6. Tortora and Anagnostakos, 1986. Principles of Anatomy and Physiology (6th Ed.)
7. Schmidt, N. 2005. Animal Physiology (5th Ed.)
8. Hoar, 2005. General and comparative Physiology (7th Ed.) Indian prin

Unit	Topic	Method	Activity	No. of classes needed
iv	General characters of Archaeopteryx and its evolutionary significance	Lecture, PPT, Discussion/models	Library / Lab consultation/ assignment & presentation	03
	General organization of birds	do	do	02
	Flight Adaptation in birds	do	do	02
	Flightless birds and their distribution	do	do	02
	Mammalia: Prototheria; General organization	do	do	02
	Eutheria; General porganisation of ungulates with special reference to the structure of stomach.	do	do	02
	Classification and characteristic features of Primates	do	do	02

Learning Outcomes

After going through this unit Students should be able to:

- Define a bird, a mammal.
- Know its evolutionary significance
- Discuss and understand how various organ systems are specialized in birds and their organization.
- Define flightless birds and what the reasons for their evolution and extinction were.
- Debate upon Birds as special creatures of nature.
- Discuss various types of mammals as prototheria ; metatheria and their distribution in nature.

Points for discussion

- Evolution a natural tool to fashion the organisms for the coming challenges:
- Origion of birds from dinosaurs a myth or scientific reality.
- Reasons behind some birds for having lost the ability to fly.
- Speciality in birds as the flying creatures.
- Extinction of various Species.

References:

1. Dorit, Walker & Barnes: Zoology. Brooks Cole; 1 edition (February 15, 1991)
2. Cambell and Reece: Biology (7th ed. 2005, Pearson)
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