

**Krantiguru Shyamji Krishna Verma**

***Kachchh University***

Mundra Road

Bhuj – 370001

**Effective from June 2011**

**SYLLABUS**

**B.Sc Semester I (One)**

**ZOOLOGY**

**One papers per Semester:**

Semester - I
ZO 101: Animal Diversity and Cytogenetics

**KSKV Kachchh University, Bhuj – Kachchh**  
**F.Y. B.Sc. (Zoology) Syllabus as CBCS System**  
**Semester I (w.e.f. June 2011)**

**Name of paper 101: Animal Diversity and Cytogenetics**

Paper No. : Zoology – 101

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**Unit I Animal Diversity – Systematic (Non-chordates):** [15]

1. Introduction to Zoology: Branches and Applications
2. Career prospects in Zoology
3. Introduction to Systematic/Taxonomy and its Applications
4. Salient features and classification up to classes of non-chordates (excluding minor phylum) with suitable example (See list in practical paper).

Phylum

- Protozoa
- Coelenterata
- Porifera
- Platyhelminthes
- Nematelminthes
- Annelida

(General Classification as per Whittaker's Five Kingdom Classification and Phylum Classification as per adapted in invertebrate Series by R. L. Kotpal, , Rastogi Publication Meerut)

**Unit II Type study (Non-chordates):** [15]

General structures and morphology with functional anatomy of following Type animals.

- Phylum : Protozoa: Type – Amoeba (Structure , Locomotion, Nutrition, Excretion, Osmoregulation, Reproduction).
- Phylum : Coelenterata: Type – Hydra (Morphology, Locomotion, Histology, Nutrition, Nervous system, Reproduction
- Phylum : Annelida : Type – Earthworm (Pheretima) (External character, Digestive system, Nervous system, Excretory system and Reproductive system

**Unit III Cytology:** [15]

1. Nucleus:
  - Occurrence and Position,
  - Morphology
  - Ultra structure
2. Endoplasmic Reticulum
  - Occurrence
  - Morphology
  - Ultrastructure

- Types of Endoplasmic reticulum
  - Functions of Endoplasmic reticulum.
3. Eukaryotic Ribosome
    - Occurrence and distribution
    - Types of Ribosome
    - Structure of Ribosome
    - Functions.
  4. Mitochondria.
    - Structure
    - Functions

#### **Unit IV Genetics**

**[ 15]**

1. Introduction to Gene
2. Introduction to Mendelian laws of Heredity.
3. Incomplete dominance
4. Co-dominance
5. Multiple alleles
6. ABO blood groups in humans,
  - Rh Factor-Erythroblastosisfoetalis )

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**F.Y. B.Sc. (Zoology) Practical Syllabus as CBCS System**  
**Semister I (w.e.f. June 2011)**  
**Paper No. : Zoology - 101**

Identification and Classification of Non –chordates (Up to class).

The basic aim to introduce the animal diversity and identification skill of student.

- a. Protozoa: Amoeba, Paramoecium, Polystomella, Euglena, Opalina, Verticella.
- b. Porifera : Leucosolenia, Euspongia, Grantia.
- c. Coelenterata: Hydra, Obelia, Physalia, Aurelia, Gorgonia, Coral and Sea anemone.
- d. Platyhelminthes: Planaria, Liverfluke, Tape worm.
- e. Nematoda : Enterobius, Ascaris.
- f. Annelida: Earthworm, Nereis, Aphrodite, Arenicola, Sabelia, Leech.
- g. Dissection
  - External character of Earthworm and Digestive system
  - Earthworm Nervous system
- h. Study through chart / Model
  - Light microscope (Simple and Compound)
  - Ultra structure of Nucleus, Endoplasmic Reticulum, Ribosomes and Mitochondria.
- i. Study of genetics topic through chart/models (examples as per theory paper )  
Monohybrid cross & Dihybrid cross
- j. Blood Group
- k. Tour Report
- l. Journal / Submission

## The Structure of the Question Paper for the University exam

**Semister I (Zoology) Paper no : 201**

**Total Mark : 60**

**Total Number of Question : 04**

<b>Question No.</b>	<b>Sub Question</b>	<b>Question Type</b>	<b>Mark</b>
Question 1 Unit I	a	Short question (No internal Option	05
	b	Descriptive Questions with Internal Option	10
Question 2 Unit II	a	Short question (No internal Option	05
	b	Descriptive Questions with Internal Option	10
Question 3 Unit III	a	Short question (No internal Option	05
	b	Descriptive Questions with Internal Option	10
Question 4 Unit IV	a	Short question (No internal Option	05
	b	Descriptive Questions with Internal Option	10

- The examination pattern of the university is 60% external and 40% internal
- Types of question for section a may varied like : one line answer/ twoline answer/ definition/ drawing small figures/ filling the blanks/ Multiple choice question/ match the pairs etc.
- Each theory paper will have 4 lecture in a week and a practical will have 6 lecture per batch in a week.
- For the practical the practical bartch must not exceed 20 student
- The Zoological excursion is compulsory to study the Animal behaviour and their life style.
- Excursion report is mandatory for all the students
- Minimum length of the submission is printed five A4 size pages.
- This is compulsory to record laboratory work in the journal. The journal is to be certified by the incharge concerned and the Head of the Department. Certified journal have to produced while appearing at the time of Practical examination.

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## **SYLLABUS**

**B.Sc Semester II (Two)**

# **ZOOLOGY**

**One papers per Semester:**

<b>Semester - II</b>
<b>ZO- 202: Anatomy, Histology, Physiology, Ecology &amp; Behavior</b>

**KSKV Kachchh University, Bhuj – Kachchh**  
**F.Y. B.Sc. (Zoology) Syllabus as CBCS System**  
**Semester II (w.e.f. June 2011)**

**Name of paper 202: Anatomy, Histology, Physiology, Ecology & Behavior**

**Paper No. : Zoology – 202**

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**Unit I. Animal Diversity – Systematic**

**[ 15 ]**

1. **Systematics** : Salient features and classification up to class of non chordates(exclude minor phyla) with suitable examples (See list in practical paper)

Phylum :

- Arthropoda
- Mollusca
- Echinodermata
- Hemichordata

(General Classification as per Whittaker's Five Kingdom Classification and Phylum Classification as per adapted in invertebrate Series by R. L. Kotpal, , Rastogi Publication Meerut)

**UNIT II. Anatomy and Histology**

**[ 15 ]**

1. Definition in mammals.
  - Structure of teeth
  - Type of teeth
  - Dental formulae (eg. Man, Rabbit, Cow, Dog, Elephant, Horse)
2. Mammalian Skin and its derivatives:
  - Structure (V.S.) : Epidermis and Dermis
  - Derivatives (eg. Sweat gland, Oil gland, Scent gland, Mammary gland, Claw , Nail, hoof, Horn and Hair,
3. Histology of Mammalian Organs :
  - Types of tissues
  - Mammalian stomach
  - Mammalian Intestine
  - Mammalian Liver
  - Mammalian Pancreas

### **UNIT III. Physiology:**

[ 15 ]

#### 1. Nutrition

- Type of nutrient and their sources
  - Digestion and Absorption of dietary components (to be taught separately)
  - Carbohydrates
  - Proteins
  - Lipids
- Common disorder: Hyperacidity, Ulcer, Amoebic dysentery

#### 2. Reproduction

- Menstrual cycle
- Role of sex hormones in human beings
  - Male : Testosterone
  - Female : Estrogen, Progesterone
- Menopause
- Infertility, Contraception and Methods

### **UNIT IV. Ecology and Animal Behaviours**

[ 15 ]

#### 1. Ecology

- Abiotic and Biotic factor of Ecosystem
- Food Chain
- Food web
- Energy flow

#### 2. Animal Behaviour

- Define Behaviour
- Food and Feeding Behaviour
- Social Behaviour
- Reproductive Behaviour



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**Semister II (w.e.f. June 2011)**  
**Paper No. : Zoology - 202**

Identification and Classification of Non –chordates (Up to class).

The basic aim to introduce the animal diversity and identification skill of student.

- a. Arthropoda : Apus, Cyclops, Balanus, Sacculina, Prawn, Crab, Lobster, Scorpion, Daphnia, Spider, Rat-flea.
- b. Mollusca : Chiton, Dentalium, Pila, Aplysia, Unio, Octopus, epia, Cowry, Oyster
- c. Echinodermata: Brittle star, Sea urchin, Sea cucumber, Feather star, Starfish.
- d. Hemichordata: Balanoglossus
- e. Study of histological permanent slides
  - T.S. mammalian Stomach
  - T.S. mammalian Intestine
  - T.S. mammalian Liver
  - T.S. mammalian Pancreas
- f. Dissection and Temporary mounting
  - a. Earthworm Reproductive system
  - b. Mounting of setae, Septal nephridia, Blood gland and Spermatheca
- g. Study of Anatomy and Physiology (Chart/ Slide/Model)
  - Structure of Human Tooth (V.S. Molar)
  - Type of teeth (Incisor, Canine, Premolar, molar)
  - Dental formulae (eg. Man Rabbit, Dog, Elephant, Horse)
- h. Mammalian Skin and its derivatives
  - Structure (V.S.)
  - Derivatives (eg. Sweat gland, Claw, Nail, Hoof, Horn and Hair)
- i. Tour Report
- j. Journal / Submission

## The Structure of the Question Paper for the University exam

**Semister II (Zoology) Paper no : 202**

**Total Mark : 60**

**Total Number of Question : 04**

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Question 3 Unit III	a	Short question (No internal Option	05
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