Lesson Plan

Class: B.Sc.I Zoology (2nd.Semester)

Name of the Associate Professor: Dr.S.C.Sharma

Month: January, 2019

Week/Day/Date

Week 1

1.2.1 Elements of **Heredity and variations.**

1.3.2 The varieties of **gene interactions**

1.4.3 The varieties of **gene interactions**

* + 1. General characters and classification of Annelida up to order level

1.6.5 Biodiversity and economic importance of Annelida

Week 2

**2.1.7 Linkage and recombination:** Coupling and repulsion hypothesis

2.2.8 Crossing-over and chiasma formation

2.3.9 Gene mapping

2.4.10 Type study – *Pheretima* (Earthworm)

2.5.11 Type study – *Pheretima* (Earthworm)

2.6.12Type study – *Pheretima* (Earthworm)

Week 3

**3.1.14 Sex determination and its mechanism**

**3.2.15** Male and female heterozygous systems,

3.3.16 Genetic balancesystem; role of Y-chromosome

3.4.17 Type study – *Pheretima* (Earthworm)

3.5.18 Metamerism in Annelida

3.6.19 Trochophore larva

Week 4

4.1.21 Male haploidy

4.2.22 Cytoplasmic and environmental factors

4.3.23 Role of hormones in sex determination.

4.4.24 General characters and classification of Arthropoda up to order level

4.5.25 Biodiversity and economic importance of insects

Week 5

5.1.28 **Sex linked inheritance:** Haemophilia and colour blindness in man

5.2.29 Eye colour in Drosophila, Nondisjunction of sex-chromosome in Drosophila

5.3.30 Sex-linked and sex-influenced inheritance

5.4.31 **Extra chromocomal and cytoplasmic inheritance:** Kappa particles in Paramecium

Lesson Plan

Class: B.Sc.I Zoology (2nd.Semester)

Name of the Associate Professor: Dr.S.C.Sharma

Month: February, 2019

Week/Day/Date

Week 1

**1.5.1 Extra chromocomal and cytoplasmic inheritance:** Shell coiling in snails.

**1.6.2 Extra chromocomal and cytoplasmic inheritance:** Milk factor in mice.

Week 2

**2.1.4 Multiple alleslism :** Eye colour in Drosophila; A, B, O blood group in man.

**2.2.5 Human genetics :** Human karyotype,

2.3.6 Chromosomal abnormalities involving autosomes

* + 1. Type study – *Grasshopper*
    2. Type study – *Grasshopper*
    3. Type study – *Grasshopper*

*Week 3*

3.1.11 Chromosomal abnormalities involving sex chromosomes

3.2.12 Monozygotic and dizygotic twins.

3.3.13 **Inborn errors of metabolism** (Alcaptonuria)

*3.4.14* Type study – *Grasshopper*

*3.5.15* Type study – *Grasshopper*

*3.6.16* Type study – *Grasshopper*

*Week 4*

**4.1.18 Inborn errors of metabolism** (Phenylketonuria)

**4.3.20 Inborn errors of metabolism** ( Albinism, sickle-cell anaemia)

*4.4.21*  General characters and classification of mollusca up to order level

*4.5.22*  General characters and classification of Mollusca up to order level

*4.6.23*  Biodiversity and economic importance of Mollusca

Week 5

5.1.25 Eugenics, euthenics and euphenics

5.2.26 Spontaneous and induced (chemical and radiations) mutations

5.3.27Gene mutations; chemical basis of mutations; transition, transversion

5.4.28 Type study of - *Pila*

Lesson Plan

Class: B.Sc.I Zoology (2nd.Semester)

Name of the Associate Professor: Dr.S.C.Sharma

*Month: March, 2019*

Week/Day/Date

*Week 1*

1.5.1 Structural chromosomal aberrations (deletion, duplication, inversion and translocation)

1.6.2 Numerical aberrations (autoploidy, euploidy and polyploidy in animals)

Week 2

2.2.5 Type study of - *Pila*

*2.3.6* Type study of - *Pila*

*2.4.7* Type study of - *Pila*

*2.5.8* Type study of - *Pila*

*2.6.9 Class Test*

*Week 3*

**3.1.11 Applied genetics:** genetic counseling, pre-natal diagnostics

3.2.12 DNA-finger printing

3.3.13 Transgenic animals

*3.4.14* Torsion and detorsion in gastropoda

*3.5.15* Respiration and foot

3.6.16 General characters and classification of Echinodermata up to order level

Week 5

*5.1.25*  General characters and classification of Echinodermata up to order level

*5.2.26* General characters and classification of Echinodermata up to order level

*5.3.27* Biodiversity and economic importance of Echinodermata

*5.4.28* Type study – *Asteries* (Sea Star)

*5.5.29* Type study – *Asteries* (Sea Star)

*5.6.30* Type study – *Asteries* (Sea Star)

Lesson Plan

Class: B.Sc.I Zoology (2nd.Semester)

Name of the Associate Professor: Dr.S.C.Sharma

Month: April, 2019

Week/Day/Date

Week 1

* + 1. Echinoderm larvae

*1.2.2* Echinoderm larvae

*1.3.3* Echinoderm larvae

1.4.4 Aristotle’s Lantern

1.5.5 General Character of Hemichordata

1.6.6 Excursion Tour

Week 2

2.1.8 Type Study of Balanglosus

2.2.9 Type Study of Balanglosus

2.3.10 Type Study of Balanglosus

2.4.11 Type Study of Balanglosus

2.5.12 Type Study of Balanglosus

Week 3

3.1.15 Type Study of Balanglosus

3.2.16 Type Study of Balanglosus

3.4.18 Revision of Pheretima

3.5.19 Revision of Pheretima

3.6.20 Revision of Pheretima

Week 4

4.1.22 Revision of Grasshopper

4.2.23 Revision of Grasshopper

4.3.24Revision of Grasshopper

4.4.25 Revision of Pila

4.5.26 Revision of Pila

4.6.27 Revision of Pila

Week 5

5.1.29 Revision of Pila

5.2.30 Revision of Pila

Lesson Plan

Class: B.Sc.II Zoology (4th.Semester)

Name of the Associate Professor: Dr.S.C.Sharma

Month: January, 2019

Week/Day/Date

Week 1

1.2.1 Origin, Evolutionary tree of Amphibia

1.3.2 Origin, Evolutionary tree of Amphibia

1.4.3 Type study of frog (*Rana tigrina)*

1.5.4 Type study of frog (*Rana tigrina)*

1.6.5 Type study of frog (*Rana tigrina)*

Week 2

2.1.7 Type study of frog (*Rana tigrina)*

2.2.8 *Parental* Care in Amphibia

2.3.9 Type study of Lizard (Hemidactylus).

2.4.10Type study of Lizard (Hemidactylus).

2.5.11Type study of Lizard (Hemidactylus).

2.6.12Type study of Lizard (Hemidactylus).

Week 3

3.1.14 Origin, Evolutionary tree of Reptiles.

3.2.15 Origin, Evolutionary tree of reptiles.

3.3.16 Type study of Lizard (Hemidactylus).

3.4.17 Type study of Lizard (Hemidactylus).

3.5.18 Type study of Lizard (Hemidactylus).

3.6.19 Extinct reptiles.

Week 4

4.1.21 Extinct reptiles.

4.2.22 Poisonous and non-poisonous snakes

4.3.23 Poison apparatus in snakes.

4.4.24 Type Study of Pigeon (*Columba livia)*.

4.5.25 Type Study of Pigeon (*Columba livia)*.

Week 5

5.1.28 Type study of Pigeon (*Columba livia)*.

5.2. 29 Type Study of Pigeon (*Columba livia)*.

5.3.30 Type Study of Pigeon (*Columba livia)*.

5.4.31 Type Study of Pigeon (*Columba livia)*.

Lesson Plan

Class: B.Sc.II Zoology (4th.Semester)

Name of the Associate Professor: Dr.S.C.Sharma

Month: February, 2019

Week/Day/Date

Week 1

1.5.1 Flight adaptation.

1.6.2 Principles of aerodynamics in Bird flight.

Week 2

2.1.4 Migration in birds.

2.2.5 Classification of mammals.

2.3.6 Type study of Rat.

*2.4.7* Type study of Rat.

*2.5.8* Type study of Rat.

2.6.9 Type study of Rat.

Week 3

*3.1.11* Type study of Rat.

3.2.12 Type study of Rat.

3.3.13 Adaptive radiations of mammals.

3.4.14 Dentition in Mammals.

3.5.15 Adaptive radiations of mammals.

3.6.16 Adaptive radiations of mammals.

*Week 4*

*4.1.18* Origin, conduction and regulation of heart beat.

*4.3.20* Cardiac cycle.

*4.4.21* Electrocardiogram, cardiac output.

4.5.22 Fluid pressure and flow pressure in closed and open circulatory system.

4.6.23 Composition and functions of blood & lymph.

Week 5

5.1.25 Composition and functions of blood & lymph

5.2.26 Mechanism of coagulation of blood.

5.3.27 Coagulation factors; anticoagulants, haempoiesis.

5.4.28 Coagulation factors; anticoagulants, haempoiesis.

Lesson Plan

Class: B.Sc.II Zoology (4th.Semester)

Name of the Associate Professor: Dr.S.C.Sharma

*Month: March, 2019*

Week/Day/Date

Week 1

1.5.1 Haburger’s phenomenon (Chloride shift).

1.6.2 Haburger’s phenomenon (Chloride shift).

*Week 2*

2.2.5 Haempoiesis.

2.3.6 Exchange of respiratory gases and transport of gases.

2.4.7 lung air volumes.

2.5.8 Oxygen dissociation curve of hemoglobin.

*2.6.9* Bohr’s effect.

Week 3

*3.1.11* Control / regulation of respiration.

*3.2.12* Patterns of excretory products viz. Amonotelic, ureotlic uricotelic.

*3.3.13* Ornithine cycle (Kreb’s – Henseleit cycle) for urea formation in liver.

*3.4.14 Class Test*

*3.5.15* Urine formation.

*3.6.16* Counter-current mechanism of urine concentration.

Week 5

*5.1.25* Osmoregulation, micturition.

5.2.26 Nature, origin and propagation of nerve impulse alongwith non-medullated

nerve fibre.

5.3.27 Nature, origin and propagation of nerve impulse alongwith meddullated

nerve fibre.

5.4.28 Conduction of nerve impulse across synapse.

*5.5.29* Conduction of nerve impulse across synapse.

*5.6.30* Structure and mechanism of hormone action.

Lesson Plan

Class: B.Sc.II Zoology (4th.Semester)

Name of the Associate Professor: Dr.S.C.Sharma

Month: April, 2019

Week/Day/Date

Week 1

*1.1.1* Structure and mechanism of hormone action.

1.2.2 Physiology of hypothalamus.

1.3.3 Physiology of hypothalamus

1.4.4 Physiology of pituitary.

1.5.5 Physiology of pituitary.

1.6.6 Physiology of pituitary.

Week 2

2.1.8 Physiology of thyroid.

*2.2.9*  Physiology of parathyroid.

*2.3.10* Physiology of adrenal.

*2.4.11* Physiology of pancreas.

2.5.12 Physiology of gonads.

Week 3

3.1.15 Spermatogenesis, Capacitation of spermatozoa.

3.2.16 Ovulation, formation of corpus luteum.

3.4.18 Excursion Tour

3.5.19 Oestrous-anoestrous cycle.

3.6.20 Menstrual cycle in human.

Week 4

4.1.22 Fertilization

4.2.23 Implantation and gestation

4.3.24 Revision and group discussion of Rana

4.4.25Revision and group discussion of Hemidactylus

4.5.26 Revision and group discussion of Hemidactylus

4.6.27 Revision and group discussion of Hemidactylus

Week 5

5.1.29 Revision and group discussion of Columba livia

5.2.30 Revision and group discussion of Rat

Lesson Plan

Class: B.Sc.III Zoology (6th.Semester)

Name of the Associate Professor: Dr.S.C.Sharma

Month: January, 2019

Week/Day/Date

Week 1

1.2.1 Introduction to world fisheries.

1.3.2FishProduction, utilization and its demand.

1.4.3River system Fishes.

1.5.4 **Seed production**: Natural seed resources – its assessment, collection,

Hatchery production

1.6.5 **Seed production**: Natural seed resources – its assessment, collection,

Hatchery production

Week 2

2.1.7 Reservoir fisheries.

2.2.8 Pond, tank fisheries.

2.3.9 Captive and culture fisheries, cold water fisheries.

2.4.10 **Nutrition**: Sources of food (Natural, Artificial) and feed composition

(Calorie and Chemical ingredients).

2.5.11 **Nutrition**: Sources of food (Natural, Artificial) and feed composition

(Calorie and Chemical ingredients).

2.6.12 **Nutrition**: Sources of food (Natural, Artificial) and feed composition

(Calorie and Chemical ingredients).

Week 3

3.1.14 Fishing crafts and gears.

3.2.15 Fishing crafts and gears.

3.3.16 Fin fishes and their culture.

3.4.17 **Field Culture:** Ponds-running water, recycled water, cage, culture; poly culture.

3.5.18 **Field Culture:** Ponds-running water, recycled water, cage, culture; poly culture.

3.6.19  **Field Culture:** Ponds-running water, recycled water, cage, culture; poly culture.

Week 4

4.1.21 Crustaceans and their culture.

4.2.22 **Culture technology:** Biotechnology, gene manipulation and

cryopreservation of gametes.

4.3.23 **Culture technology:** Biotechnology, gene manipulation and

cryopreservation of gametes.

4.4.24 **Culture technology:** Biotechnology, gene manipulation and

cryopreservation of gametes.

4.5.25 **Culture technology:** Biotechnology, gene manipulation and

cryopreservation of gametes.

Week 5

5.1.28 Molluscs and their culture.

5.2.29 Molluscs and their culture

5.3.30  **Stored grains:**

(a) Pulse beetle *(Callosobruchus maculatus)*

(b) Rice weevil *(Sitophilus oryzae)*

(c) Wheat weevil *(Trogoderma granarium)*

Their systematic position, habits and nature of damage caused.

5.4.31 **Stored grains:**

(a) Rust Red Flour beetles *(Tribolium castaneum)*

(b) Lesser grain borer *(Rhizopertha dominica)*

(c) Grain & Flour moth *(Sitotroga cerealella)*

Their systematic position, habits and nature of damage caused.

Lesson Plan

Class: B.Sc.III Zoology (6th.Semester)

Name of the Associate Professor: Dr.S.C.Sharma

Month: February, 2019

Week/Day/Date

Week 1

*1.5.1* Study ofSugercane leaf-hopper *(Pyrilla perpusilla),* Sugercane Whitefly

*(Aleurolobus barodensis)* with their systematic position, habits and nature of

damage cause.

1.6.2Study ofSugercane top borer *(Sciropophaga nivella),* Sugercane root borer

*(Emmalocera depresella),* Gurdaspur borer *(Bissetia steniellus)*

With their systematic position, habits and nature of damage cause.

*Week 2*

2.1.4Life cycle and control of *Pyrilla perpusilla* only.

*2.2.5* Study of Pink bollworm (*Pestinophora gossypfolla),* Red cotton bug *(Dysdercus*

*Cingulatus),* Cotton grey weevil (*Myllocerus undecimpustulatus),* Cotton Jassid

(*Amrasca devastans)*with their systematic position, habits and nature of damage

caused

*2.3.6* Life cycle and control of *Pectinophore gossypiella.*

*2.4.7*Life cycle and control of *Trogoderma**granarium*.

*2.5.8* **Insect control:** Biological control, its history, requirement and precautions and

feasibility of biological agents for control.

*2.6.9* **Insect control:** Biological control, its history, requirement and precautions and

feasibility of biological agents for control.

*Week 3*

*3.1.11* Wheat stem borer (*Sesamia inferens)* with its systematics position, habits, nature

Of damage caused.

*3.2.12* Life cycle and control of*Leptocorisa acuta.*

*3.3.13* Study of Gundhi bug (*Leptocorisa acuta),*Rice grasshopper *(Hieroglyphus*

*banian)*with their systematic position, habits and nature of damage caused.

3.4.14 **Insect control:** Biological control, its history, requirement and precautions and

feasibility of biological agents for control.

3.5.15 **Chemical control:** History, Categories of pesticides. Important pesticides from each

category to pests against which they can be used. Insect repellants and attractants.

3.6.16 **Chemical control:** History, Categories of pesticides. Important pesticides from each

category to pests against which they can be used. Insect repellants and attractants.

Week 4

*4.1.18* Study of Rice stem borer *(Scirpophaga incertullus),* Rice Hispa *(Diceladispa*

*armigera)*with their systematic position, habits and nature of damage caused.

4.3.20Life cycle and control of *Aulacophora**faveicollis.*

*4.4.21* **Chemical control:** History, Categories of pesticides. Important pesticides from each

category to pests against which they can be used. Insect repellants and attractants.

*4.5.22* **Chemical control:** History, Categories of pesticides. Important pesticides from each

category to pests against which they can be used. Insect repellants and attractants.

*4.6.23* **Chemical control:** History, Categories of pesticides. Important pesticides from each

category to pests against which they can be used. Insect repellants and attractants.

*Week 5*

*5.1.25* Integrated pest management.

*5.2.26* Integrated pest management.

*5.3.27* Integrated pest management.

*5.4.28* Integrated pest management.

Lesson Plan

Class: B.Sc.III Zoology (6th.Semester)

Name of the Associate Professor: Dr.S.C.Sharma

*Month: March, 2019*

Week/Day/Date

*Week 1*

*1.5.1* Study of*Raphidopalpa faveicollis* – The Red pumpkin beetle,*Dacus cucurbitas* –

The pumpkin fruit fly.Their systematics position, habits and nature of damage

caused.

*1.6.2* Study of *Tetranychus tecarius* – The vegetable mite, *Epilachna –* The Hadda

beetleTheir systematics position, habits and nature of damage caused.

*Week 2*

*2.2.5* *Class Test*

*2.3.6* Reservoir fisheries.

*2.4.7* Pond, tank fisheries.

2.5.8 Integrated pest management.

2.6.9 Integrated pest management.

*Week 3*

*3.1.11* Pond, tank fisheries.

*3.2.12* River system Fishes.

*3.3.13* River system Fishes.

3.4.14 Integrated pest management.

3.5.15 Integrated pest management.

3.6.16 Integrated pest management.

*Week 5*

*5.1.2*5Captive and culture fisheries, cold water fisheries.

*5.2* .26 Captive and culture fisheries, cold water fisheries.

*5.3* .27 Captive and culture fisheries, cold water fisheries.

5.4.28 Integrated pest management.

5.5.29 Integrated pest management.

5.6.30 Integrated pest management.

Lesson Plan

Class: B.Sc.III Zoology (6th.Semester)

Name of the Associate Professor: Dr.S.C.Sharma

Month: April, 2019

Week/Day/Date

Week 1

1.1.1 Life cycle and control of *Pyrilla perpusilla* only.

1.2.2 Life cycle and control of *Pyrilla perpusilla* only.

1.3.3 Excursion Tour

1.4.4 Important bird and rodent pests of agriculture & their management

1.5.5 Important bird and rodent pests of agriculture & their management

1.6.6 Important bird and rodent pests of agriculture & their management

Week 2

2.1.8 Life cycle and control of *Pectinophore gossypiella*

2.2.9 Life cycle and control of *Pectinophore gossypiella*

2.3.10 Life cycle and control of*Leptocorisa acuta.*

*2.4.11* Biotechnology, gene manipulation and cryopreservation of gametes.

*2.5.12* Biotechnology, gene manipulation and cryopreservation of gametes.

Week 3

3.1.15 Life cycle and control of*Leptocorisa acuta.*

3.2.16 Life cycle and control of *Aulacophora**faveicollis*

*3.4.18* Biotechnology, gene manipulation and cryopreservation of gametes.

*3.5.19* Biotechnology, gene manipulation and cryopreservation of gametes.

*3.6.20* Ponds-running water, recycled water, cage, culture; poly culture.

Week 4

4.1.22 Life cycle and control of *Aulacophora**faveicollis*

4.2.23 Study of Gundhi bug (*Leptocorisa acuta),*Rice grasshopper *(Hieroglyphus*

*banian)*with their systematic position, habits and nature of damage caused.

4.3.24 Study of Gundhi bug (*Leptocorisa acuta),*Rice grasshopper *(Hieroglyphus*

*banian)*with their systematic position, habits and nature of damage caused.

4.4.25 Ponds-running water, recycled water, cage, culture; poly culture.

4.5.26 Ponds-running water, recycled water, cage, culture; poly culture.

4.6.27 Ponds-running water, recycled water, cage, culture; poly culture.

Week 5

5.1.29 Fin fishes, Crustaceans, Molluscs and their culture.

5.2.30 Fin fishes, Crustaceans, Molluscs and their culture.