

B.Sc., Honors in Dairy Science - MAJOR

w.e.f AY 2025-26 onwards

COURSE STRUCTURE FOR I and II YEAR

Year	Semester	Course	Title	No. Hrs./ Week	No. of Credits
I	I	1	Introduction to Classical Biology	5	4
	I	2	Introduction to Applied Biology	5	4
	II	3	Breeds and breeding of dairy cattle and buffaloes - (T)	3	3
			Breeds and breeding of dairy cattle and buffaloes - (P)	2	1
	II	4	Dairy Cattle Nutrition- (T)	3	3
			Dairy Cattle Nutrition- (P)	2	1
II	III	5	Dairy Chemistry (Chemistry of fluid milk) - (T)	3	3
			Dairy Chemistry (Chemistry of fluid milk) - (P)	2	1
	III	6	Dairy Microbiology- (T)	3	3
			Dairy Microbiology- (P)	2	1
	III	7	Dairy farm management- (T)	3	3
			Dairy farm management- (P)	2	1
	III	8	Management of Sheep and Goats- (T)	3	3
			Management of Sheep and Goats- (P)	2	1
	IV	9	Processing of milk- (T)	3	3
			Processing of milk- (P)	2	1
	IV	10	Technology of Dairy products- (T)	3	3
			Technology of Dairy products- (P)	2	1
	IV	11	Technology of fat- rich dairy products- (T)	3	3
			Technology of fat- rich dairy products- (P)	2	1

for the

Semester – 1

Course: 1

INTRODUCTION TO CLASSICAL BIOLOGY

Hours/Week: 5

Credits: 4

Unit 1: Introduction to systematics, taxonomy and ecology.

- 1.1. Systematics – Definition and concept, Taxonomy – Definition and hierarchy.
- 1.2. Nomenclature – ICBN and ICZN, Binomial and trinomial nomenclature.
- 1.3. Ecology – Concept of ecosystem, Biodiversity and conservation.
- 1.4. Pollution and climate change.

Unit 2: Essentials of Botany.

- 2.1. The classification of plant kingdom.
- 2.2. Plant physiological processes (Photosynthesis, Respiration, Transpiration, phytohormones).
- 2.3. Structure of flower – Micro and macro sporogenesis, pollination, fertilization and structure of mono and dicot embryos.
- 2.4 Mushroom cultivation, floriculture and landscaping.

Unit 3: Essentials of Zoology

- 3.1. The classification of Kingdom Animalia and Chordata.
- 3.2 Animal Physiology – Basics of Organ Systems & their functions, Hormones and Disorders
- 3.3 Developmental Biology – Basic process of development (Gametogenesis, Fertilization, Cleavage and Organogenesis)
- 3.4 Economic Zoology – Sericulture, Apiculture, Aquaculture

Unit 4: Cell biology, Genetics and Evolution

- 4.1. Cell theory, Ultrastructure of prokaryotic and eukaryotic cell, cell cycle.
- 4.2. Chromosomes and heredity – Structure of chromosomes, concept of gene.
- 4.3. Central Dogma of Molecular Biology.
- 4.4. Origin of life

Unit 5: Essentials of chemistry

- 5.1 Definition and scope of chemistry, applications of chemistry in daily life.
- 5.2 Branches of chemistry
- 5.3 Chemical bonds – ionic, covalent, non-covalent – Vander Waals, hydrophobic, hydrogen bonds.



5.4 Green chemistry

References

1. Sharma O.P., 1993. Plant taxonomy. 2nd Edition. McGraw Hill publishers.
2. Pandey B.P., 2001. The textbook of botany Angiosperms. 4th edition. S. Chand publishers, New Delhi, India.
3. Jordan E.L., Verma P.S., 2018. Chordate Zoology. S. Chand publishers, New Delhi, India.
4. Rastogi, S.C., 2019. Essentials of animal physiology. 4th Edition. New Age International Publishers.
5. Verma P.S., Agarwal V.K., 2006. Cell biology, genetics, Molecular Biology, Evolution and Ecology. S. Chand publishers, New Delhi, India.
6. Sathyanarayana U., Chakrapani, U., 2013. Biochemistry. 4th Edition. Elsevier publishers.
7. Jain J.L., Sunjay Jain, Nitin Jain, 2000. Fundamentals of Biochemistry. S. Chand publishers, New Delhi, India.
8. Karen Timberlake, William Timberlake, 2019. Basic chemistry. 5th Edition. Pearson publishers.
9. Subrata Sen Gupta, 2014. Organic chemistry. 1st Edition. Oxford publishers.

ACTIVITIES:

1. Make a display chart of life cycle of nonflowering plants.
2. Make a display chart of life cycle of flowering plants.
3. Study of stomata
4. Activity to prove that chlorophyll is essential for photosynthesis
5. Study of pollen grains.
6. Observation of pollen germination.
7. Ikebana.
8. Differentiate between edible and poisonous mushrooms.
9. Visit a nearby mushroom cultivation unit and know the economics of mushroom cultivation.
10. Draw the Ultrastructure of Prokaryotic and Eukaryotic Cell
11. Visit to Zoology Lab and observe different types of preservation of specimens
12. Hands-on experience of various equipment – Microscopes, Centrifuge, pH Meter, Electronic Weighing Balance, Laminar Air Flow
13. Visit to Zoo / Sericulture / Apiculture / Aquaculture unit
14. List out different hormonal, genetic and physiological disorders from the society

Model question paper- Semester: I
Subject: Dairy Science Major wef: 2025-26

Max. Time: 3 hrs.

Max. Marks: 75

Section: A

Answer any 5 of the following 10 questions. Each question carries 3 marks (2 questions should be given from each unit) 5Q X 3 M - 15 M

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.

Section: B

Answer 5 of the following 10 questions following internal choice. Each question carries 12 marks (2 questions should be given from each unit) 5Q X 12 M - 60 M

11. Questions 11 & 12 from unit 1. One should be answered.
- 12.
13. Question 13 & 14 from unit 2. One should be answered
- 14.
15. Question 15 & 16 from unit 3. One should be answered
- 16.
17. Question 17 & 18 from unit 4. One should be answered
- 18.
19. Question 19 & 20 from unit 5. One should be answered
- 20.

