

CURRICULUM TRANSACTIONAL STRATEGY

Course Title: Applied zoology

Course Code: ZOO-CC-402

Unit	Topic	Method	Activity	No. of classes needed
I	Introduction to Host parasite relationship. Host: Definitive host and Intermediate host,	Lecture, Discussion/ PPT	Library/Lab consultation, Construction of a test/ Presentation & Assignment	02
	parasitism, Symbiosis, Commensalism,	do	do	02
	Reservoir, Zoonosis	do	do	01
	Life cycle and pathogenicity and control of Medically and veterinary important parasites such as: <i>Fasciola hepatica</i> , <i>Echinococcus granulosus</i> , <i>Ascaris lumbricoides</i> , <i>Ancylostoma duodenale</i> , <i>Trichuris trichura</i> and <i>Enterobius vermicularis</i> .	do	do	10

Learning Outcomes

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

- Define host and parasite.
- Differentiate between parasitism symbiosis and commensalism.
- What is reservoir zoonosis with examples.
- Discuss the life cycle and pathogenicity of *Faciola hepatica*.
- Explain pathogenicity of *Ascaris lumbricoides* or, *Ancylostoma Duodenale*.
- Give a detail account of life cycle of *Trichuris trichura* or *Enterobius vermicularis*

Points for discussion:

- Host-parasite specificity
- Modifications in host and parasites
- How parasitism differ from symbiosis and commensalism.
- Host involved in the life cycle of different parasites and factors required for completion of life cycle.
- Disease caused and methods to control it.

References

- Arora, D.R. and Arora, B. (2001). Medical Parasitology II Ed. CBS publ.
- Noble. E.R. and Noble, G.A. 1982. Parasitology: The biology of animal Parasites V Ed. Lea & Febiger.
- Chatterjee, K.D. 2009. Parasitology: Parasitology and Helminthology XIII Ed., CBS pulb. & Distributor,.
- Smith, J.D. Introduction to parasitology.

Unit	Topic	Method	Activity	No. of classes needed
II	Beneficial Insects: Insect products (Honey, Silk and Lac).	Lecture, Discussion/ PPT	Library/Lab consultation, Construction of a test/ Presentation & Assignment	05
	Insect pollinators; Insect as biological control agents (Predators and Parasitoids) of pests.	do	do	05
	Harmful Insects: Occurrence, life cycle and control of the pest attacking Apple (<i>Quadraspidiotus perniciosus</i>)	do	do	05
	Paddy (<i>Scirpophaga incertulas</i>) and Vegetable (<i>Pieris brassicae</i>) Vermiculture -Brief account	do	do	05

Learning Outcomes

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

- To Enlist the different types of honey bees in india.
- Describe the different types of silks found in india
- Understand the importance of insects as a pollinators
- Explain the life cycle and control of many pests

Points for discussion:

The aim of introducing such courses is to lure students towards the coming challenges of employment. These minute creatures find their importance in every sphere of human life as in medicine horticulture agriculture sericulture lac culture etc.

References

1. Prost, P.J. (1962). Apiculture. Oxford and IBH, New Delhi
2. Hafez, E.S.E. (1962). Reproduction in Farm Animals, Lea and Fabiger Publishers
3. Srivastava, C. B. L. (1999). Fishery Science and Indian Fisheries. Kitab Mahal Publ.
4. Sardar Singh, Beekeeping in India. Indian Council of Agricultural Research. New Delhi.

Unit	Topic	Method	Activity	No. of classes needed
III	Fish culture (General account of Trout culture);	Lecture, Discussion/ PPT	Library/Lab consultation, Construction of a test/Presentation	10
	Induced breeding in fish and prawn.	do	do	05
	Management of Hatchery of fish;	do	do	05
	Fish diseases- bacterial, Viral and Fungal.	do	do	05
	Fishery bye products;	do	do	05
	Prawn Culture- General Account	do	do	05

Learning outcomes

After going through this unit students should be able to:

- Know, how to culture the fish.
- Understand the process of induced breeding
- Discuss the different types of fish diseases.
- Understand the importance of bye products of fish
- Know the general accpount of prawn culture.

Points for discussion

The aim for introduction of such topics is to make students aware about fish culture techniques and to learn the method of induced breeding so as to increase the production of the fishes as a massive rate. These topics will help the students to identify different diseases of fish and learn methods to treat them.

References:

1. Prost, P.J. (1962). Apiculture. Oxford and IBH, New Delhi
2. Hafez, E.S.E. (1962). Reproduction in Farm Animals, Lea and Fabiger Publishers
3. Srivastava, C. B. L. (1999). Fishery Science and Indian Fisheries. Kitab Mahal Publ.
4. Sardar Singh, Beekeeping in India. Indian Council of Agricultural Research. New Delhi.

Units	Topic	Method	Activity	No. of Classes Needed
IV	Introduction; Indigenous and exotic breeds of Ruminants (Cows)	Lecture, PPT, Discussion	Library/Lab consultation/presentation & assignment	02
	Rearing, housing, feed and rationing	do	do	03
	Commercial importance of dairy and poultry farming	do	do	03
	Varietal improvement techniques	do	do	03
	Diseases of Ruminants (Cows) and Poultry and their management.	do	do	04

Learning Outcomes

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

- Know the actual status of Animal farming world over.
- Distinguish between primitive farming and scientific farming.
- Discuss the advantages and disadvantages indigenous and exotic breeds.
- How to overcome with the present demand for milk and other animal protein food products.
- Improvement of breeds for milk and other capacities.
- Limitations of farming in Kashmir.
- Steps to be taken for the improvement of animal food resources in our Kashmir Region.

Points for the discussion:

The main aim to incorporate animal farming in the syllabi of our students is to focus the emerging demands for improved and scientific animal farming so that there is a general awakening regarding the animal farming sector especially for milk and egg production. Every care was taken to deliberate upon various aspects of animal farming so that responsibilities

among our youth could be generated and they are attracted to this sector as an alternative employment and a sort of entrepreneurship programme is also run along with traditional teaching.

References

Hafez, E.S.E. (1962). *Reproduction in Farm Animals*, Lea and Fabiger Publishers

Ensminger, M.E.; Parker, R.O. (1986). *Sheep and Goat Science (Fifth ed.)*. Interstate Printers and Publishers. [ISBN 0-8134-2464-X](#).

1. McTavish, E.J., Decker, J.E., Schnabel, R.D., Taylor, J.F. and Hillis, D.M. (2013). "[New World cattle show ancestry from multiple independent domestication events](#)". *Proc. Natl. Acad. Sci. U.S.A.* **110**: 1398–3625352. [PMID 23530234](#). [doi:10.1073/pnas.1303367110](#).
2. Gupta, Anil K. in *Origin of agriculture and domestication of plants and animals linked to early Holocene climate amelioration*, *Current Science*, Vol. 87, No. 1, 10 July 2004 59. *Indian Academy of Sciences*.
3. Adler, Jerry; Lawler, Andrew (June 1, 2012). "[How the Chicken Conquered the World](#)". *Smithsonian Magazine*. Retrieved 5 June 2017..
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5. Nicholson, Paul T. (2000). *Ancient Egyptian Materials and Technology*. Cambridge, UK: Cambridge University Press. p. 409. [ISBN 0-521-45257-0](#).
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7. O'Connor, Terry (30 September 2014). "[Livestock and animal husbandry in early medieval England](#)". *Quaternary International*. **346**: 109–118. [doi:10.1016/j.quaint.2013.09.019](#).
8. "[The Anglo-Saxon Chronicle](#)". Translated by [Giles, J. A.](#); Ingram, J. Project Gutenberg. 1996.
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10. "[The progress of farming in Medieval Europe](#)". *History of Agriculture*. University of Reading. Retrieved 28 May 2017.
11. Campbell, Bruce M. S.; Overton, M. (1993). "A New Perspective on Medieval and Early Modern Agriculture: Six Centuries of Norfolk Farming, c.1250-c.1850". *Past and Present*. **141**: 38–105. [doi:10.1093/past/141.1.38](#).

12. Crosby, Alfred. *"The Columbian Exchange"*. History Now. The Gilder Lehrman Institute of American History. Retrieved 28 May 2017.
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