

Course code	Course Title	L	T	P	C
PHD19004	Introduction to Algae, Fungi and Lichens	4	0	0	4

UNIT I: Introduction to living world

Introduction to origin of life, plants and convergent evolution; System of classification of living organisms; Brief introduction on cryptogams and phanerogams; Importance of plants in modern world.

UNIT II: Introduction to Algae

General characteristics; Classification of algae; Morphology, occurrence and distribution, cellular organization, reproduction and life cycle pattern; Economic importance of algae.

UNIT III: Introduction to Fungi

General characteristics; Classification; Somatic structures, fructification, occurrence and mode of nutrition; Reproduction, para sexuality; Life cycle pattern; Spore dissemination; Economic importance of fungi.

UNIT IV: Lichenology

Introduction to symbiosis; Theory of symbiosis; History of lichenology: origin of lichens; Lichen classification; Types of lichens; Component and nature of lichen thallus and their relationship; Specialized structure of lichen thallus, lichens distribution, habit and habitat; Reproduction; Economic importance of lichens.

UNIT V: Applied lichenology

Morphological difference between micro lichens, macro lichens, non-lichenized fungi; strategies for lichen collection; preparation of lichen herbarium and storage of lichen samples.

References:

1. College botany, vol II, 5th edition by Ganguly.
2. Textbook of Algae, by O.P. Sharma.
3. Handbook of Micro algal mass culture by Amos Richmond.
4. Protocols for macro algae research by Bénédicte Charrier.
5. Laboratory Handbook of Medical Mycology by Michael R. McGinnis.
6. Fungal genetics: Principles and Practice by Cees J.Bos.
7. Applied Mycology by Mahendra Rai and Paul Dennis Bridge.
8. Protocols in Lichenology culturing, biochemistry, ecophysiology and use in biomonitoring by I. Kranner, R.P. Beckett.
9. CRC Handbook of Lichenology, vol II, by Margalith Galun.
10. Recent advances in Lichenology; Mordern methods and approaches in biomonitoring and bioprospection, vol I by Dalip Kumar Upreti, Pradeep K. Divaker.
11. Lichen Biology, 2nd edition, by Thomas H. Nash, III.