

Biology of the Fungi

(NRMT/Biology 3450)

Instructor: Dr. Leonard J. Hutchison, Faculty of Natural Resources Management, Room 1007A, Braun Building

Teaching Assistant: Benjamin Bohemier

Lecture Slots: Tuesday & Thursday 11:30 - 1:00 p.m. (BB1050)

Laboratory Slots: Tuesdays 2:30 p.m. – 5:30 p.m., Thursdays 2:30 p.m. – 5:30 p.m. or Fridays 11:30 a.m. – 2:30 p.m.

Mark Distribution:

Midterm Examination 1	15% (Tuesday, February 6 th , 2024)
Midterm Examination 2	15% (Thursday, March 14 th , 2024)
Culture Collection	40% (due: Tuesday, April 9 th , 2024)
Final Examination	30% (see examination schedule)

Last Date for Voluntary Withdrawal: Friday, March 8th, 2024

Textbook: This course has no textbook. The CD **Mycoalbum** will be available to students to sign out overnight.

Laboratory Manual: Moulds, Their Isolation, Cultivation and Identification by D.W.Malloch (available from instructor).

Course Content: The structure, classification and biology of fungi and their importance to human society (*e.g.* industry, agriculture, health) and to the natural ecosystem. Emphasis will be placed on the various factors influencing the ecological success of fungi (*e.g.* discharge and dispersal of propagules, the substrate and its influence on growth and development). This will be highlighted by examining in detail various lifestyles exhibited by fungi (as saprotrophs, as symbionts, as parasites and predators) and their interactions with other organisms (especially plants, insects, and other fungi). **HOWEVER, BE WARNED, THIS IS A FAIRLY HEAVY COURSE. DON'T TAKE THIS COURSE IF YOU ARE LOOKING FOR AN EASY ELECTIVE!**

NRMT 3450/Biology 3450

Biology of the Fungi

(Brief course outline)

Introduction to Fungi

Hyphae, Hyphal Modifications and the importance of anastomoses

Structure and Biology of the Myxomycota

Stemonitales

Physarales

Trichiales

Liceales

Structure and Biology of the Oomycota

Saprolegniales

Peronosporales

Structure and Biology of the Chytridiomycota

Structure and Biology of the Zygomycota

Mucorales

Entomophthorales

Glomales

Medical Mycology

Superficial or cutaneous infections

Subcutaneous infections

Systemic infections

Veterinary Mycology

Structure and Biology of the Ascomycota

Hemiascomycetes (Endomycetales, Taphrinales)

Plectomycetes (Eurotiales, Onygenales, Ophiostomatales)

Pyrenomycetes (Erysiphales, Sordariales, Xylariales, Hypocreales, Clavicipitales)

Loculoascomycetes (Dothideales)

Discomycetes (Pezizales, Helotiales, Tuberales)

Structure and Biology of the Lichens

Reproduction, anatomy, morphology, lichenometry, lichens and air pollution, economic uses of lichens

Structure and Biology of the 'Deuteromycota'

Saccardo system versus the Hughes system of classification

mycotoxins caused by moulds

Structure and Biology of the Basidiomycota

Hymenomycetes (Agaricales, Aphyllophorales)

Mating systems, decomposition of wood and litter, ectomycorrhizas,
fungus gardens, mushroom toxins

Gasteromycetes (Lycoperdales, Sclerodermatales, Hymenogasterales,
Phallales, Nidulariales)

Jelly Fungi (Dacrymycetales, Tremellales, Auriculariales)

Teliomycetes (Uredinales, Ustilaginales)

Basidiomycetous yeasts