Biology of the Fungi
(NRMT/Biology 3450)

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

Teaching Assistant: Wren Mangelli

Lecture Slots: Monday & Wednesday 4:00 - 5:30 p.m. (BB1050)

Laboratory Slots: Tuesday 11:30 a.m. – 2:30 p.m. (BB1050)

Mark Distribution:

Midterm Examination 1	15% (Monday, February 3rd, 2025)
Midterm Examination 2	15% (Wednesday, March 12th, 2025)
Culture Collection	40% (due: Friday, April 4th, 2025)
Final Examination	30% (see examination schedule)

Last Date for Voluntary Withdrawal: Friday, March 7th, 2025

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 FREE OF CHARGE from the 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 it's 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 (Lecture 1)
Hyphae, Hyphal Modifications and the importance of anastomoses (Lecture 3)
Structure and Biology of the Basidiomycota (Lecture 21)
- Hymenomycetes (Agaricales, Boletales, Aphyllophorales)(Lecture 22)
- Decomposition of wood, ectomycorrhizas, fungus gardens (Lecture 23)
- Mushroom toxins (Lecture 24)
- Gasteromycetes (Lycoperdales, Sclerodermatales, Hymenogastrales, Phallales, Nidulariales) (Lecture 25)
- Mating Systems (Lecture 26)
- Jelly Fungi (Dacrymycetales, Tremellales, Auriculariales) and Smut Fungi (Ustilaginales) (Lecture 27)
- Rust Fungi (Uredinales) and Basidiomycetous yeasts (Lecture 28)

Structure and Biology of the Ascomycota (Lecture 11)
- Hemiascomycetes (Endomycetales, Taphrinales) (Lecture 12)
- Plectomycetes (Eurotiales, Onygenales, Ophiostomatales) (Lecture 13)
- Pyrenomycetes (Erysiphales, Sordariales, Xylariales, Hypocreales, Clavicipitales) (Lecture 14)
- Loculoascomycetes (Dothideales) (Lecture 15)
- Discomycetes (Pezizales, Helotiales, Tuberales) (Lecture 16)

Structure and Biology of the 'Deuteromycota' (Lecture 17)
- Saccardo system versus the Hughes system of classification

Structure and Biology of the Lichens (Lectures 18 & 19)
- Reproduction, anatomy, morphology, lichenometry, lichens and air pollution, economic uses of lichens

Mycotoxins caused by moulds (Lecture 20)
Medical Mycology (Lecture 7)
- Superficial or cutaneous infections & subcutaneous infections (Lecture 8)
- Systemic infections (Lecture 9)
- Opportunistic infections & Veterinary Mycology (Lecture 10)

Structure and Biology of the Zygomycota (Lecture 6)
- Mucorales
- Entomophthorales
- Glomales

Structure and Biology of the Chytridiomycota (Lecture 5)
Structure and Biology of the Oomycota (Lecture 4)
- Saprolegniales
- Peronosporales

Structure and Biology of the Myxomycota (Lecture 2)
- Stemonitales
- Physarales
- Trichiales
- Liceales