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: Mondays & Wednesdays 1:00 - 2:30 p.m. (BB1050)

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

Mark Distribution:

Midterm Examination 1	15% (Monday, February 13th, 2023)
Midterm Examination 2	15% (Monday, March 20th, 2023)
Culture Collection	40% (due: April 11th, 2023)
Final Examination	30% (see examination schedule)

Last Date for Voluntary Withdrawal: Friday, March 10th, 2023

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 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
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, Hymenogastrales, Phallales, Nidulariales)
- Jelly Fungi (Dacrymycetales, Tremellales, Auriculariales)
- Teliomycetes (Uredinales, Ustilaginales)
- Basidiomycetous yeasts