

Module Name Molecular Ecology of the Polar Tundra						
Type of Module ○ Advanced Module				Module Code Polar Molecular Ecology		
Identification Number MN-B-SM (P 4)	Workload 360 h	Credit Points 12 CP	Term 2 nd term of studying	Offered Every Summer term, 2 nd half	Start Summer term only	Duration 7 weeks
1	Course Types a) Lectures b) Practical/Lab c) Seminar		Contact Time 9 h 166 h 3 h		Private Study 18 h 140 h 24 h	
2	Module Objectives and Skills to be Acquired Students who successfully completed this module <ul style="list-style-type: none"> • have acquired detailed knowledge on principles and methods used to study ecology in the polar environment including genetics, molecular biology next generation sequencing and microscopy. • have obtained an understanding of different aspects of plant and microbial ecology. • are able to independently plan, carry out and evaluate small scientific projects related to the topics of the module. • have learned how to present research results in oral and written form and to critically discuss scientific publications related to the topic of the module on a professional level. • are able to transfer skills acquired in this module to other fields of biology. 					
3	Module Content <ul style="list-style-type: none"> • Genomics of (polar) fungi and lichens • Metagenomics of biological soil crusts, including lichens and bryophytes • Metagenomic/genomics project on a selected data set. • Excursion/field trip to Longyearbyen/Spitsbergen Norway 					
4	Teaching Methods <ul style="list-style-type: none"> • Lectures; Practical/Lab (Project work); Presentation of scientific papers; Training in independent research and communicating scientific results in oral and written form. 					
5	Prerequisites (for the Module) Enrollment in the Master of Science degree course “Molecular Plant and Microbial Sciences” Additional academic requirements Previous attendance of the lecture module Molecular Plant and Microbial Sciences					
6	Type of Examination The final examination consists of two parts: Written report of excursion (50% of the total modul mark) and written examen (50 % of the total module mark)					

7	Credits Awarded Regular and active participation; Each examination part at least "sufficient" (see appendix of the examination regulations for details)
8	Compatibility with other Curricula None
9	Proportion of Final Grade 12.0 %
10	Module Coordinator Apl. Prof. Dr. Burkhard Becker, phone: 470 7022, email: b.becker@uni-koeln.de
11	Further Information Participating faculty: Apl. Prof. Dr. Burkhard Becker, Dr. Ekaterin Pushkareva, Prof. Dr. Bart Thomma Location: The module will be held in the laboratories of the participating faculty. Literature: Literature will be handed out during the class. General time schedule: Weeks 1-2 (Mon.-Fri.): Lab rotation in the participating labs, lectures; Weeks 3-4 (Mon.-Fri.): project work; Week 5: presentation of project; Week 6: excursion to Spitsbergen; Week 7 (Mon.-Fri): preparation for exam. Complete written report on excursion by end of Week 9. Note: The module contains hand-on laboratory work conducted individually, is taught in research laboratories and contain computer-based research as a main component. Introduction to the module: May 30, 2025 14.00, room 4.002 Written examination: July 18, 2025, second/supplementary examination August, 2025; the latter date may vary if students and module coordinator agree. More details will be given at the beginning of the module.