

ECOLOGY & DIVERSITY OF MICROORGANISMS - Course schedule October 2001

Date	Activities		
	Lectures and Evening Sessions will take place in the lecture room of the Oceanography and Natural Sciences Department, unless stated otherwise in the program. Laboratory Sessions will take place in the Microbiology Laboratory.		
Week 1 - October 1 to 6	morning	afternoon	evening
Monday, October 1	08.30 Instructor's meeting	Finalize program, lab and lecture assignments	17.00 Welcome of participants. Introduction to the course
Tuesday, October 2	09.00 Lecture 1: Chemical basis for life and life processes (Kurt Hanselmann) 10.30 Lecture 2: Microbial perception and responses to environmental variability and change (Kurt Hanselmann)	15.00 Begin lab work . Presentation of lab exercises by instructors (Microbiology Seminar Room)	18.00 – 20.00 Student presentations Part 1 (Microbiology Seminar Room)
Wednesday, October 3	09.30 Lecture 3: Habitats of phototrophic bacteria (Kurt Hanselmann) 10.45 Departure for field trip: Estuaries along Rio Andalién from Aeropuerto to Talcahuano (Kurt Hanselmann). Take old cloths, sun protection, sampling vials and camera	16.00 Lecture 4: Mat-forming Cyanobacteria: Adaptation to material and energy gradients (Kurt Hanselmann) 17.00 Lab work: Sample storage, microscopy and sample processing (Kurt Hanselmann)	18.00 – 20.00 Student presentations Part 2
Thursday, October 4	09.30 Lecture 5: Antibiotic resistances in Gram-negative Bacilli (Gerardo González) 11.00 Lab work: Detection of Antibiotic resistance genes by PCR (Gerardo González)	14.30 Continue lab work with Gerardo González	18.00 – 20.00 Student presentations Part 3
Friday, October 5	09.30 Lecture 6: From thermodynamics to microbial life styles (Kurt Hanselmann) Vivaldi seminar room 11.00 Lecture 7: Simulation of environmental determinants: Cultivation techniques for microbes (Kurt Hanselmann)	14.30 Exercises: Designing microbial diets for the discovery of microbes	18.00 – 19.00 Student presentations Part 4 19.00 Preparations for Minisymposium
Saturday, October 6	09.00 - 15.00 Minisymposium 1: Current Aspects of Environmental and Eco-clinical Microbiology Sandwiches for lunch and drinks will be provided		free

Date	Activities		
Week 2 - October 8 to 13	morning	afternoon	evening
Monday, October 8	09.30 Lecture 8: Anaerobic Biofilms (Homero Urrutia) 11.00 Lecture 9: Interactions between heavy metals and bacteria (Maria Angelica Mondaca)	13.00 – 14.30 Lab work: Structure and Activity of Archaeal Biofilms (Homero Urrutia)	21.00 Volta experiment at Laguna Chica San Pedro (Homero Urrutia & Kurt Hanselmann). We will meet in front of the Microbiology lab at 20.30
Tuesday, October 9	09.30 Continue lab work with Homero Urrutia. Results 10.30 Lab work: Isolation of metal resistant bacteria from industrial effluents with Maria Angelica Mondaca	16.00 Exercises: Prepare microbiological problems for the computer lab (Kurt Hanselmann)	18.00 Computer lab: Thermodyn: Thermodynamic modelling, part 1 (Kurt Hanselmann)
Wednesday, October 10	09.30 Lecture 10: Vertebrate defence mechanisms against bacteria (Carlos Smith) 11.00 Lecture 11: Levels of abstraction in microbial ecology (Kurt Hanselmann)	Afternoon: Define and chose exam paper (library and literature searches)	18.00 Computer lab: Thermodyn: Thermodynamic modelling, part 2 (Kurt Hanselmann)
Thursday, October 11	09.30 Lab work: Degradation of halogenated aromatics with Miguel Martinez and Apolinaria Garcia	14.30 Lecture 12: Xenobiotics: bioremediation and survival under starvation (Miguel Martinez) 15.30 Continue Lab work with Miguel Martinez, Apolinaria Garcia in the investigator's labs	18.00 Lab work: Designing diets for microbes (Kurt Hanselmann). Microbiology course laboratory
Friday, October 12	09.30 Lab work: Results of experiments with Miguel Martinez and Apolinaria Garcia 11.00 Lecture 13: Eco-physiological and eco-genetic approaches to microbial diversity (Kurt Hanselmann) 12.30 Department Lecture 14: Nutrient cycling in oligotrophic high mountain lakes: A study on natural eutrophication processes (Kurt Hanselmann)	14.30 Lecture 15: Ecology of anaerobic food webs (Kurt Hanselmann) 15.30 Lecture 16: Brucella abortus and immunity (Angel Oñate)	18.00 Exercises: Apply what you know: Solving microbiological problems (Kurt Hanselmann) 20.00 Turn in exam paper
Saturday, October 13	Columbus Day Weekend		

Date	Activities		
Week 3 - October 15 - 20	morning	afternoon	evening
Monday, October 15	Columbus day (holiday), no scheduled classes. Microbiological sampling trip to the hot springs (Las Termas) of Chillan. Departure at 07.30 at the entrance to the University parking fields (please be on time and be aware of seasonal time change over the weekend).		
Tuesday, October 16	09.30 Continue Lab work with Maria Angelica Mondaca: Identification of heavy metal resistant bacteria. Results 12.00 Course photograph on the steps in front of the Microbiology Department (students, instructors, symposium speakers)	14.30 Lecture 17: Secondary metabolites produced by Cyanobacteria: Chemicals for communication and defence (Kurt Hanselmann) 15.30 Lecture 18: Gene transfer in nature and the evolution of microbes (Kurt Hanselmann)	18.00 Lab work: Results of experiments and analysis of hot spring samples (Kurt Hanselmann) 20.00 Preparations for exam and for paper presentation
Wednesday, October 17	“Thioploca day” at Dichato: Victor Gallardo & Kurt Hanselmann 09.30 Departure by bus for Dichato 11.00 Dichato research station 11.15 Lecture 19: Microbial life strategies for changing environmental conditions (Kurt Hanselmann) 12.45 Lunch at Dichato 14.00 Microscopic inspection of freshly dredged samples and physical enrichment for Thioploca and Beggiatoa 14.45 Lecture 20: Relationship between ENSO and Thioploca (Victor Gallardo) 15.45 Lecture 21: Marine Thioploca: Taxonomy, biogeography and ecological aspects of sulfur bacteria with nitrate in vacuoles (Juan I. Cañete) 16.45 Departure for return to Concepción by bus		Evening: no scheduled activities
Thursday, October 18	09.30 Course exam: Student exam and paper presentations, part 1. Staff & course participants, 25 minutes per student	14.30 Course exam cont. Student exam and paper presentations, part 2	No evening activities scheduled
Friday, October 19	09.30 Course exam cont.: Student exam paper presentations, part 3	16.00 Course graduation: faculty and invited guests Course Certificates	19.30 Fare well party End of course
Saturday, October 20	Course evaluation, ideas for future courses, course report	Departure	