



Planning and Quality Assurance Affairs

Form (A)

Course Specifications

General Information				
Course name	Soil Microbiology			
Course number	BIOL4377			
Faculty				
Department				
Course type	Major Needs			
Course level	4			
Credit hours (theoretical)	3			
Credit hours (practical)	0			
Course Prerequisites				

Course Objectives

- 1 Introduction to soil microbiology
- 2 Soil rhizosphere as habitats for microbial populations
- 3 Types and distribution of terrestrial microorganisms
- 4 Cycling of elements in soil

Intended Learning Outcomes

ledge and Understanding	*	Understanding the soil ecosystem as habitat for microbial populations	
ectual Skills	*	Prpret the different types of microorganisms found in soil and their ivities.	
	*	Distinguish between the different soil types and soil microorganisms	
	<i>r</i> ledge and Understanding ectual Skills	rledge and Understanding * ectual Skills *	

Course Contents

- 1 Introduction to soil microbiology and soil environment
- 2 Microbial Phylogeny and Diversity in Soil
- 3 Horizontal Gene Transfer and Microevolution in Soil
- 4 Bacteria and Actinomycetes in Soil
- 5 _ Fungi in Soil
- 6 1st Midterm Exam
- 7 Protozoa and Other Protista in Soil
- 8 Plant-Associated Bacteria—Lifestyle and Molecular Interactions
- 9 Microorganisms Cycling Soil Nutrients and Their Diversity
- 10 Soil Microbial Communities and Global Climate Change
- 11 Methods to Detect and Quantify Bacteria in Soil
- 12 2nd Midterm Exam
- 13 Biosensors to Monitor Soil Health or Toxicity, Biological Pesticides for Control of Seed- and Soil-Borne Plant Pathogens
- 14 Biodegradation and Bioremediation of Organic Pollutants in Soil
- 15 Presentations

Teaching and Learning Methods

- 1 Lectures
- 2 Revision and Discussion sections
- 3 Student presentation
- 4 Exams

Students Assessment

Assessment Method	<u>TIME</u>	MARKS
First hour exam	60minutes	20
Second hour exam	60minutes	20
Presentations		10
Final Exam	120minutes	50

Books and References

Recommended books 2006, Modern soil microbiology, 2nd edition, Jan Dirk van Elsas