

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

Knowledge and Understanding	* Understanding the soil ecosystem as habitat for microbial populations
Intellectual Skills	* Interpret the different types of microorganisms found in soil and their activities.
	* Distinguish between the different soil types and soil microorganisms

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

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

<u>Assessment Method</u>	<u>TIME</u>	<u>MARKS</u>
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
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