



## SYLLABUS

Course Code	Course Num.	Course Name	Credit Hours	Lec.	Lab.	Tut.	Private study	Pre-requisites	Course Level	Teaching Language
BIO	454	Microbial Pollution	3	2	2	0	3-5	BIO 353	8	English

### A. Course Description

Introduce microbial processes of environmental and geochemical significance and provide detailed information on the most up to date methods for the study of microbial communities. A survey of modern micro-organisms and their activities of environmental and geochemical importance is an important foundation for the module as is the way that metabolic processes catalyzed by micro-organisms are related to major elemental cycles, biogeochemical processes and contamination.

### B. Course Outcomes

At the end of this course the student will be able:

1. To describe microbes contaminated air, water and food.
2. To comparing pollution treatment methods with microorganisms.
3. To determine the damage caused by these microorganisms.

### C. References:

#### Required Textbook

- Ross E .Mckinney, *Environmental Pollution Control Microbiology*. A Fifty-Year Perspective, (2004). ISBN 9780824754938.

#### Other references:

- Tulasi Satyanarayana, *Micro-organisms in Environmental management: Microbes and Environment* (2012) ISBN-13: 978-9400722286

**Course Website:** Google Classroom Webpage: <http://www.imamm.org/>

### D. Topics Outline

#### D1. Lectures topics

1. *Air pollution with micro-organisms.*
2. *Soil contamination with micro-organisms.*
3. *Water pollution with micro-organisms.*
4. *Microorganisms caused for polluting.*
5. *Methods of studying viruses.*
6. *Sources of pollution with micro-organisms.*



7. *Problems of microbiological contamination, and means of preventing.*
8. *The role of microorganisms in the detection of environmental pollution.*
9. *Reagents with micro-organisms for air pollution*
10. *Reagents with micro-organisms for soil pollution.*
11. *Reagents with micro-organisms for water pollution.*
12. *Microorganisms and treatment of environmental pollution.*
13. *Treatment with micro-organisms for contaminated air , soil and water.*

## **D2. Laboratories topics**

1. *Introduction, safety precautions.*
2. *Detecting of air pollution.*
3. *Detecting of soil contamination.*
4. *Detecting contamination of some food.*
5. *The study of mechanisms of contamination with micro-organisms.*
6. *Treatment pollution in the soil with micro-organisms.*
7. *Treatment pollution in the water with micro-organisms.*
8. *Treatment pollution in the food with micro-organisms.*
9. *Treatment the pollution in air with micro-organisms.*
10. *General revision.*

## **E. Office Hours**

Office hours give students the opportunity to ask in-depth questions and to explore points of confusion or interest that cannot be fully addressed in class.

## **F. Exams & Grading System**

The semi-official dates of the exams for this course are:

- **Midterm 1:** 6<sup>th</sup> or 7<sup>th</sup> week.
- **Midterm 2:** 11<sup>th</sup> or 12<sup>th</sup> week.
- **Quizzes & Homeworks:** During the semester.
- **Final lab. Exam :** 14<sup>th</sup> or 15<sup>th</sup> week.
- **Final Exam** : 16<sup>th</sup> week.



Your course grade will be based on your semester work as follows:

<b>Midterm 1: 15 %</b>	<b>Midterm 2: 15 %</b>	<b>Final lab. Exam: 20%</b>	<b>Final Exam: 40 %</b>
<b>Quizzes, Homework, Attendance &amp; Participation: 10 %</b>			

The grading distribution:

<b>A+</b>	<b>A</b>	<b>B+</b>	<b>B</b>	<b>C+</b>	<b>C</b>	<b>D+</b>	<b>D</b>	<b>F</b>
[95, 100]	[90, 95)	[85, 90)	[80, 85)	[75, 80)	[70, 75)	[65, 70)	[60, 65)	[0, 60)

### Student workload

#	Teaching/Learning activities	Contact hours	Frequency	Total contact hours	Self-study hours	Total self-study hours	Student learning time
5	Lecture	2	15	30	2	30	60
2	Tutorial	0	0	0	0	0	0
0	Lab\practical	2	15	30	1	15	45
5	Homework	0	4	0	2	8	8
4	Quiz	0.5	2	1	1	2	3
6	Midterm	1.5	2	3	5	10	13
7	Final Exam	2	1	2	12	12	14
<b>Total</b>				<b>66</b>		<b>77</b>	<b>143</b>



## G. Student Attendance/Absence

Only three situations will be considered as possible excused absences:

- Occurrence of a birth or death in the immediate family will be excused. (“Immediate family” is defined by the University as spouse, grandparents, parents, brother, or sister).
- Severe illness in which a student is under the care of a doctor and physically unable to attend class will be excused. Students are not excused for a doctor's appointment. Do not make appointments that conflict with rehearsals. Notes from the University Health Center will be accepted.

### [Executive Rules for Study Regulations and Exams](#)

[goo.gl/ykm7t3](http://goo.gl/ykm7t3)

