

**Department of Environmental Health
Faculty of Health Sciences
American University of Beirut**

**ENHL 231 Course Syllabus : Water and Wastewater Quality and Control (3crs)
Fall Semester AY 2019-20**

A. Course Instructor:

Dr. Mey Jurdi E-mail Contact: mjurdi@aub.edu.lb

Office: Vandyke 4th FL ENVD (Environmental Health Department), Rm. 420.

Office Hours: Monday and Wednesday 10:00-11:00am; Tuesday 1:00- 2:00pm; OR by Appointment.

B. Class Time and Location:

MWF: 11:00-11:50 a.m. Vandyke Rm. 201

C. Course Description:

This course introduces the principles of water management (quantity and quality) with emphasis on fresh water resources for domestic and multipurpose utilization. In addition, the quality, treatment, reclamation and recycling of wastewater is presented and discussed. National and international guidelines, standards, and directives for water and wastewater management are also presented and discussed.

D. Course Learning Objectives (LOs): By the end of the course , students will be able to

LO1	
LO1a.	Comprehend the Concept of Water Safety and Evaluate Water Safety Practices.
LO1b.	Define Basic Water Requirements/ (BWR), its relation to burden of disease, and describe categories of water-related diseases.
LO1c.	Plan the investigation of a waterborne disease outbreak, analyze collected data and recommend environmental interventions.
LO1d.	Prioritize water and sanitation projects and define approaches to involve communities in planning, implementing and sustaining such projects.
LO2	
LO2a.	Identify and describe natural and anthropogenic factors influencing water quality and quantity.
LO2b.	Describe and comprehend components of integrated water resources management.
LO3.	Comprehend the significance of the physical, chemical, microbiological and radiological characteristics of potable water supplies, and identify and describe the steps for developing a potable water supply project.

LO4.	Identify and describe conventional and advanced water treatment processes and quality monitoring protocols.
LO5.	Identify and describe factors influencing wastewater quality, collection, treatment and reuse.

E. Course Content:

<u>Week/ Date</u>	<u>Topic</u>	<u>Course LOs</u>	<u>Assessment of LOs</u>	<u>References</u>
<u>Weeks 1-4</u> Sept. 3-27, 2019	Introductory Session (presentation of course syllabus & course dynamics) I. Water: A Quality of Civilizations A. The Quest for “Pure” Water B. Water and Human Health 1. Global Disease Profile 2. Water Related Disease Entities C. Investigation of Waterborne Diseases D. Water and Sanitation Projects in Developing Countries	LO 1 LO1a LO1b LO1c LO1d	F1, F2 & F3	Reference List I
<u>Weeks 5-8</u> Sept 30- Oct. 21, 2018	II. Management of Water Resources A. Water Use, Supply and Demand B. Integrated Water Resource Management (IWRM) C. Existing Management profiles and Escalating Water Crisis (National, Regional and Global)	LO2 LO2a LO2b LO2a & 2b	F1, F2 & F3	Reference List II
<u>Midterm: Monday October 21, 2019</u>		LO1 & LO2	F3	
<u>Weeks 9</u> Oct 30- Nov 4, 2019	III. Determinants of Community Water Projects A. Quantity Determinants B. Quality Determinants (Physical, Chemical, Microbiological and Radiological Quality Indicators) C. Economical and Aesthetic Considerations. D. Water Quality Guidelines and Standards	LO3	F1, F2 & F4	Reference List III

<u>Weeks</u> 10-12 Nov.6- Nov.15, 2019	IV. Water Quality Management A. Protection, Treatment, Monitoring & Sustainability of Sources B. Guide to the Selection of Water Treatment Processes C. Conventional Water Treatment D. Advanced Water Treatment	LO4	F1, F2 & F4	Reference List IV
<u>Weeks</u> 12-15 Nov.18- Dec.3, 2019	IV. Wastewater Management (Collection, Treatment and Reuse) A. Collection Systems B. Quality and Quality Indicators C. Treatment (Primary, Secondary & Tertiary) D. Re-Use (Domestic, Agricultural, Industrial & Recreational)	LO5	F1, F2 & F4	Reference List V

F. Course Evaluation

	Type of Assessment	LOs Assessed	Percent
F1.	Attendance and Class Contribution	LO1-LO5	5%
F2.	Classwork: Drop Quizzes, Case Studies & Exercise	LO1-LO5	20%
F3.	Midterm Exam	LO1 & LO2	35%
F4.	Final Exam	LO3, LO4 & LO5	40%
			100%
	Bonus (individual contribution)	LO1-LO5	5%

J. Resources

Reading Sets I-IV based on topic covered (Posted on Moodle)

K. Attendance

Attendance is a mandatory based on AUB rules and regulations. Missing more than one fifth of the sessions of the course during the first ten weeks of the semester with out valid reasons would result in course withdrawal (AUB Undergraduate Catalogue, AY 2019-20).

L. Academic Integrity

The American University of Beirut has a strict anti-cheating and anti-plagiarism policy. So please review the AUB Undergraduate Catalogue and familiarize yourself with definitions and penalties. If you are in doubt about what constitutes plagiarism, ask your instructor because it is your responsibility to know. The AUB Code of Conduct is available at: <https://www.aub.lb/sao/Documnts/Students%20Handbook%202016-2017.pdf>

M. Students with Special Needs

“AUB strives to make learning experiences accessible for all. If you anticipate or experience academic barriers due to a disability (such as ADHD, learning difficulties, mental health conditions, chronic or temporary medical conditions), please do not hesitate to inform the Accessible Education Office”. In order to ensure that you receive the support you need and to facilitate a smooth accommodations process, you must register with the Accessible Education Office (AEO) as soon as possible: accessibility@aub.edu.lb; +961-1-350000, x3246; West Hall, 314

N. Non-Discrimination – Title IX – AUB

“AUB is committed to facilitating a campus free of all forms of discrimination including Sex/gender-based harassment prohibited by Title IX. The University’s non-discrimination policy applies to, and protects, all students, faculty, and staff. If you think you have experienced discrimination or harassment, including sexual misconduct, we encourage you to tell someone promptly. If you speak to a faculty or staff member about an issue such as harassment, sexual violence, or discrimination, the information will be kept as private as possible, however, faculty and designated staff are required to bring it to the attention of the University’s Title IX Coordinator. Faculty can refer you to fully confidential resources, and you can find information and contacts at www.aub.edu.lb/titleix. To report an incident, contact the University's Title IX Coordinator Ms. Mitra Tauk at 01-350000 ext. 2514, or titleix@aub.edu.lb. An anonymous report may be submitted online via EthicsPoint at www.aub.ethicspoint.com”.

Work Hard & Enjoy the Semester