

SULTAN QABOOS UNIVERSITY

COURSE OUTLINE

PROGRAM: Soil Sciences

1.	Course Code	SWAE3304				
2.	Course Title	Soil & Water Conservation				
3.	Credits	3CR, 12 CP, 6 ECTS				
4.	Pre-requisite Course(s)	Introduction to Soil & Water (SWAE2201)				
5.	Co-requisite Course(s)					
6.	Equivalent Course(s)					
7.	Incompatible Course(s)					
8.	Course Category	University Requirement	University Elective			
		College Requirement	College Elective			
		Department Requirement	Department Elective			
		Specialization Requirement	Specialization Elective			
		Other (specify):				
9.	Course Owner	College: CAMS	Department: SWAE			
10.	Course Type	⊠ Lecture	Lecture/Lab			
		Lecture/Seminar	Lecture/Studio			
		Lecture/Tutorial	Lecture/Lab/Tutorial or Seminar			
			Laboratory (Practical)			
		Field or Work Placement	🗌 Studio			
		Seminar	Internship			
		Workshop	Project			
11.	Language of Instruction	English				

12. Course Description

This course will provide the students with a fundamental knowledge on the prudent use of soil and water resources and diverse aspects of soil and water conservation. The risks caused by erosion, sedimentation, pollution and the necessary actions to conserve soil and water and maintain environmental quality will be discussed. This course addresses the principals involved in the conservation and improvement of soil and water resources; classes, types and forms of soil erosion; classification, processes, and measurements of water erosion, wind erosion; and erosion control. The soil degradation as well as the management of soil and water resources in Oman will be discussed. Important topics to be covered are: Introduction to soil and water conservation; Geologic erosion and sedimentation; Water erosion and sedimentation, Wind erosion and deposition; Water conservation, Irrigation, Drainage and Salinity; Prediction of soil erosion, Agronomic techniques for soil and water conservation; Soil and water pollution and remediation strategies. This course will help the students to realize the importance of soil and water to life and recognize the significance of conservation of these resources to maintain environmental quality.

13. Teaching/Learning Strategies

The course will be graded out of 100 points. The grade assignments from the final mark will be as follow: (a) In class discussion: In some class there will be a discussion session on soil and water issues relevent to Oman where the students have to participate.

(b) Quizzes: There will be a series of quizzes. These are unannounced and will be given at the beginning of the lecture. They are generally short consisting of 1 to 4 questions. This to encourage student to revise the covered material as we move on during the semester.

(c) Students Debates: The students will have to select one topic/issue or problem related to soil and water conservation in Oman, review the literature and gather information pertaining to that topic and then make a debate presentation. This type of making a debate group presentation will be graded based on (i) thoroughness in the understanding and critical thinking of the topic, (ii) clarity presenting of arguments, and (iii) critical thinking during the discussion (e.g. scrutinizing

arguments, taking multiple perspectives, providing positive as well as negative appraisal of the topic content, etc.). This is worth of 10% towards the final mark of the course.

(d) Exams: There will be two exams each of one hour duration. The two exams will count for 40 % of the course mark. Students who fail to take any of these exams without a valid reason will receive a mark of zero. Student with a valid reason for not taking any of these tests will be allowed to take a make-up test or other arrangement is possible. Also, there will be a three-hour comprehensive final exam (worth 45%) and the date and time will be announced by the University timetabling office prior to exams.

14. Assessment Components and Weight [%]

Quizzes 5%	Practical	Other (specify): Students Debates			
Homework assignments	Project				
\square In-term examination(s) 40%	Final examination 45%				
15. Grading Method					
A-F Scale Pass/Not passed					

A-F Scale Pass/Not passed 16. Textbook(s) and Supplemental Material

Main Textbook

Soil and Water Conservation For Productivity and Environmental Protection (4th edition). 2003. Fredrick, R. T, J. A. Hobbs, and R. L. Donahue. Copyright © Prentice Hall, Englewood Cliffs, New Jersy. (Text book)

Supplemental Material

(a) Soil Degradation, Conservation and Remediation. 2014. Osman, K. T. © Springer Science+ Business Media Dordrecht. New York, London.

(b) Principles of Soil Conservation and Management. 2008. Blanco. H., Lal., R. Copyright © Springer Science+ Business Media B.V. New York USA.

(c) Selected published papers and other materials will be available on moodle.

(d) Lecture notes in the form of ppt. slides will be avaiable at SQU E-learning least one day before the class

17.	17. Matching Course Objectives with Program Outcomes and SQU Graduate Attributes					
	SQU Graduate Attributes					
А.	SQU graduates should be able to:	B.	SQU graduates possess	C.	SQU graduates should	
1. 2. 3.	apply the knowledge and skills relevant to the specialization communicate effectively and use information and communication technologies critically analyze complex information and present it in simple clear manner	 1. 2. 3. 4. 	interpersonal communication skills and alignment with culture of international labour market to assist them in practical life and in living successfully skills and motivation for independent learning and engagement in lifelong learning and research work ethics and positive values, and intellectual independence and autonomy teamwork skills and display potential leadership qualities		relish good citizenship qualities, be conscious of their national identity and be socially responsible, engage in community affairs and be mindful of contemporary issues.	

#	Intended Student Learning Outcome	Relevant Program Outcome(s)	Applicable
	/Course Learning Objective		Attribute(s)
	Comprehend the vital need of conserving soil and	Understanding of the professional	ABET: f1
1	water as the two principle resources for the survival	responsibility; become aware of	
1.	and existence of the human being societies.	professional responsibilities and	
		commitments as a scientist	
	Understand the different mechanisms and processes	Demonstrate proficiency in application of	ABET: a3
2.	that cause the degradation of soil ecosystems.	soil sciences principles in real world	
2.	problems		
	Define geologic erosion and sedimentation.	Demonstrate proficiency in application of	ABET a2
3.		science in solving soil and water	
		management problems.	

	Describe the physical processes of wind and water	Demonstrate proficiency in application of	ABET a2
4.	erosion.	science in solving soil and water	
		management problems.	
	Apply mathematical calculations in evaluating the	Analyze and interpret data in terms of	ABET b4
5	amount of soil loss and give appropriate	identifying trends, comparing with	
5.	recommendations based on the results of these	predictive equations and drawing	
	calculations.	conclusions	
_	Understand the fundamentals and obstacles or	Demonstrate proficiency in application of	ABET a2
6.	challenges of conservation programs or projects.	science in solving soil and water	
	Analyse and shiliter to dehote and more anonyments as	Explain the role in the team in a small	ADET 42.2
	A maryze and ability to debate and pose arguments, as	defined context, and bring a particular	ADET 02,5
	soil water and land to Oman	experience in solving the problem $\&$	
7.	son, water, and fand to offian.	Contribute to the team in a meaningful	
		manner to achieve the team's	
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16. Student Responsibilities

It is the student's responsibility to know and comply with all University Academic Regulations relevant to participation in this course. These regulations specifically include attendance requirement and students' academic code of conduct.

For attendance, it is the student's responsibility to be punctual and to attend all classes.

Students are expected to perform their work with honesty and avoid any academic misconduct, which is defined as the use of any dishonest or deceitful means to gain some academic advantage or benefit. This can take many forms, including but not limited to, the following: copying, plagiarism, collusion and forging documents. For full details, please refer to the Undergraduate Academic Regulations and to the Student Academic Misconduct Policy.

Additionally, this course requires that you:

COURSE INFORMATION					
Course Code SWAE3304 Course Title Soil & Water Conservation			Soil & Water Conservation		
Semester/Year Spring 2018 Section(s) 10		10			
Day, Time, and Place Sunday 12:00 pm - 01:20 pm (B12)					
	Thursday 12:00 pm - 01:20 pm (B12)				
Course Coordinator	Course Coordinator Said Al-Ismaily				
Office Location 247 ANX Office Hours		Sunday 2:00 pm – 3:00 pm & Thursday2:00 pm –			
3:00 pm		3:00 pm			
Office Tel. Ext. 3642 Email esmaily@squ.edu.om			esmaily@squ.edu.om		

Tentative Schedule

Week	Lecture #	Topic/Material to be covered	Assessment	
1		Introduction to course & Course outline		
2	Topic 1	Introduction to Soil & water conservation.		
		Need of conservation for Improving productivity and environmental		
		protection		
3	Topic 2	Obstacles to conservation,		
		Soil erosion and civilization		
4	Topic 3	Geologic erosion and sedimentation		
5	Topic 4a	Water erosion and sedimentation		
6	Topic 4b	Water erosion and sedimentation (cont.) & Exam 1 (Thursday Class)	20%	
7	Topic 5	Wind erosion and deposition & Exam 1 (Thursday Class)		
8	Topic 6	The universal soil loss equation (USLE)		
9	Topic 7	Soil conservation practices		
10	Topic 8	Biological measures of erosion control		
11	Topic 9a	Water conservation practices & Exam 2 (Thursday Class)	20%	
12	Topic 9b	Water conservation practices (Cont.)		
13	Topic 10	Soils and chemical pollution		
14	Topic 11	Remediation & cleanup of polluted soils and water		
15	Topic 12	Students debates	10%	
16		Final Exam	45%	
17				

APPENDIX A: INSTRUCTORS OF MULTIPLE SECTIONS						
Section Instructor		Day, Time, and Place	Office Location and Extension	Email	Office Hours	

APPENDIX B: ADDITIONAL INFORMATION