AUS | الجـــامعــة الأمـيـركـيــة في الـشـــارقـة
American University of Sharjah

Warning: During this difficult time (Covid-19 and its relatives), "trust" relationship between students and instructor will definitely facilitate our work, to ensure that this "trust" is not violated, suspicious Respondus reports (after exams) will be sent to the Associate Dean

A	**Course Title & Number**	Graph Theory, MTH 418
B	**Pre/Co-requisite(s)**	Prerequisite: MTH 213
C	**Number of credits**	3-0-3
D	**Faculty Name**	Ayman Badawi
E	**Term/ Year**	Spring 2021

F Sections

Course	Days	Time	Venue
MTH 418	M, W	15:30-16:45	ONLINE

G Instructor Information

Instructor	Office	Telephone	Email
Ayman Badawi	NAB 262		abadawi@aus.edu

Office Hours: **My office hours are available upon request** (just email me abadawi@aus.edu ; if you need a different time than the below, also email me

Sunday	Monday	Tuesday	Wednesday	Thursday
3- 4:30pm (upon request)		3- 4:30pm (upon request)		

H Course Description from Catalog

Covers graphs and sub graphs, connected and disconnected graphs, matrices, trees and girth, planar and nonplanar graphs, graph embedding, connectivity and edge connectivity, Hamiltonian graphs, matching, factorization and coverings, networks and applications to science and engineering.

I Course Learning Outcomes

Upon completion of the course, students will be able to:

- Identify subgraphs, induced subgraphs and spanning subgraphs.
- Identify Eulerian graphs, Hamiltonian graphs, and trees.
- Find degrees of vertices, Ramsey number for some graphs and Dijkstra's algorithm for finding shortest path.
- Demonstrate a thorough knowledge of the structure of complete graphs, bipartite graphs, complete bi-partite graphs, regular graphs, and partial order graphs.
- Find the clique and the chromic number of a connected graph.

J Textbook, Instructional

Class notes!   + Material on I-Learn : textbook and problems with solutions. Also, old HW's and old exams on my personal webpage :   https://www.ayman-badawi.com/MTH%20%20418.html

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	Material, and Resources	
K	Teaching and Learning Methodologies	• I Learn is used as a core tool (posting: syllabus, handouts, review sheets for exams, solutions for HW's and exams, grades…). We advise students to check it on regular basis. Also, see my personal webpage for old exams and HWs.
L	Grading Scale, Grading Distribution, and Due Dates	Grading Scale Grading Distribution
M	Explanations, Remarks & Other Policies	• There will be a number of HW's during the semester • There will be two Exams. • The final exam is comprehensive. The date and time of the final exam will be scheduled by the registrar's office. • Attendance Policy - Students in this course are required to follow the AUS Attendance Policy as outlined in the AUS Undergraduate Catalog 2020-2021.
N	Student Academic Integrity Code Statement	Student Academic Integrity Code Statement - All students are expected to abide by the Student Academic Integrity Code as articulated in the AUS undergraduate catalog 2020-2021. More information is given in Spring 2021 FAQ's https://www.aus.edu/about/ausresponse-to-the-coronavirus-disease-covid-19

Grading Scale

(92, 100]	4.0	A
(88, 92]	3.7	A-
(84, 88]	3.3	B+
(79, 84]	3.0	B
(74, 79]	2.7	B-
(69 , 74]	2.3	C+
(64– 69]	2.0	C
(59– 64]	1.7	C-
(49– 59]	1.0	D
Less than 49	0	F

Grading Distribution

Assessment	Weight	Date
HW's	15%	TBA
Exam 1	25%	March 23, Tuesday (6-7:30pm)
Exam 2	25%	May 6, Thursday (6-7:30pm)
Final Exam	35%	TBA

SCHEDULE

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Week #	CHAPTER	NOTES
1	**Graphs and their plane figures**	•
2	**Subgraphs**	•
3	**Paths and Connectivity of Graphs + distance, parameter and girth**	•
4	**Vertex cut**	•
5	**dominating set and domination number**	•
6	**clique number (components)**	•
		•
7	**Bipartite graphs and trees**	•
8	**Tours and Matching**	•
9	**Eulerian graphs**	•
10	**Hamiltonian graphs**	
11	**Colorings- vertex coloring**	•
12	**Edge colorings**	•
13	**Ramsey's Theorem and partial order graphs**	•
14	**Planar graphs**	•
15	**Reviews**	•