

<b>Hashemite University</b>	 	<b>Abstract Algebra (1( (101 341) 3 Credit Hours</b>
<b>Faculty of Science</b>		<b>Pre-requisite: Math-151</b>
<b>Department of Mathematics</b>		<b>Second Semester 2021/2022</b>

### Course Information

Lecture's Time	9:30-11:00 Monday, Wednesday
Lecture Room	202 ع.م
Instructor	Dr. Ameer Jaber
Office Location	210 د
Office Hours	11:00-12:00 Monday, Wednesday
<b>Text Book : A first course in Abstract Algebra, John B. Fraleigh, edition: 7<sup>th</sup></b>	
<b>References(s)</b>	(1) Contemporary Abstract Algebra, <i>Joseph A. Gallian</i> . (2) Elements of Abstract Algebra, <i>Hasten</i> . (3) Elements of Abstract Algebra, <i>Dean</i> . (4) Algebra, <i>Thomas W. Hungerford</i>

### Grading Policy:

#### Theory

First Exam	30%
Second Exam	30%
Final Exam	40%

### Course Objectives

This course is an introduction to Abstract Algebra. Through out this course we teach students about groups, subgroups, cyclic groups, permutation groups, homomorphisms and isomorphisms, direct product, cosets and Lagrange's theorem, normal subgroups, factor groups, first second and third isomorphism theorems.

### Teaching and Learning Methods

1. Introducing new definitions and using examples to illustrate new concepts.
2. Proving theorems which constitute the core of the course.
3. Solving some examples and assigning homework's.

4. Discussing some of the students' solutions of some sample assignment.
5. Making a discussion of the problems of each exam.

Chapter	Section	Topic	Week
I		<b>Groups and Subgroups</b>	1
	2	Binary Operations	
	3	Isomorphic Binary Structures	2
	4	Groups	3
	5	Subgroups	4
	6	Cyclic Groups and Generators	5
II		<b>More Groups and Cosets</b>	6
	8	Groups of Permutations	
	9	Orbits, Cycles and the Alternating Groups	7
	10	Cosets and the Theorem of Lagrange's	8-9
	11	Direct Products	10
III		<b>Homomorphisms and Factor Groups</b>	11
	13	Homomorphisms	
	14	Factor Groups	12-13
	15	Factor-Group Computations and Simple Groups	14
IV		<b>Advanced Group Theory</b>	15
	34	Isomorphism Theorems	

**Attendance is absolutely mandatory. Students who miss a 15% class sessions without a compelling excuse will qualify the student to be dismissal.**