

**Islamic University Of Gaza**  
**Faculty of Science**  
**Department of Mathematics**  
**Abstract Algebra I ( Math 3415)**  
**Syllabus**

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- Semester:** First semester 2015  
**Instructors:** Professor Dr. Mohammed Al-Ashker.  
**Office:** C 724  
**Phone:** 2619  
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**Office Hours:** Saturday, Monday and Wednesday : 11-12  
Sunday and Tuesday : 9:30-11:30  
**Textbook:** Contemporary Abstract Algebra by Joseph A. Gallian, 7-th Editon, 2011  
( Houghton Mifflin company)  
**References:** (1) A First course in abstract algebra, J. Fraleigh.  
(2) A First course in abstract algebra, Dan Saracino.  
(3) Abstract algebra, John Beachy.

**Exams and Grading:**

- One Midterm Exams (40%)
- Final Exam (60%)

**Course Description:** The course covers the following topics: groups, subgroups, cyclic groups, symmetric groups, direct product, homomorphism and isomorphisms, cosets and Lagranges theorem, normal subgroups and quotient groups, finite Abelin groups.

**Prerequisites:** Principal of Mathematics (Math 2450).

**Aims of the course:**

1. To understand and use modular arithmetics.
2. To understand the basic definitions of a group, subgroup, cyclic group, symmetric group, direct product, homomorphism and isomorphism, cosets, normal subgroups, quotient groups, finite abelin groups, and rings.
3. To understand the proofs of the basic theorems in group theory and become able to prove them.

**Method of teaching:** Lectures, discussions, homeworks, and exams.

## Course Outline

Topics	Number of weeks
Intoduction	1 week
Ch.2 Groups	1 weeks
Ch.3 Finite Groups and subgroups	2 weeks
Ch.4 Cyclic Groups	2 weeks
Ch.5 Permutation Groups	2 week
<b>The Medterm Exam (18/10/2015)</b>	
Ch.6 Isomorphisms	1 weeks
Ch.7 Cosets and Lagrange's theorem	2 weeks
Ch.8 External Direct products	1 weeks
Ch.9 Normal subgroups and factor Groups	2 weeks
Ch.10 Group Homomorphism	1 weeks
<b>Final Exam (9/1/2015)</b>	