

King Fahd University of Petroleum & Minerals
Department of Mathematics & Statistics
Math 232 Syllabus
Second Semester 2016-17 (162)
Instructor: Dr. A. Laradji

Title: Introduction to Sets and Structures

Textbook: Mathematical Proofs, A Transition to Advanced Mathematics (3rd edition) by Chartrand, Polimeni, and Zhang (Pearson, 2014).

Description: Elementary logic. Methods of proof. Set theory. Relations and functions. Finite and infinite sets. Equivalence relations and congruence. Divisibility and the fundamental theorem of arithmetic. Well-ordering and axiom of choice. Groups, subgroups, symmetric groups, cyclic groups and order of an element, isomorphisms, cosets and Lagrange's Theorem.

Assessment:

- Exam 1: 20% (Wednesday 15 March 2017, Chapters 1,2,3,4)
 - Exam 2: 20% (Wednesday 19 April 2017, Chapters 5,6,8,9)
 - Tests/Quizzes: 20%
 - Homework: 5%
 - Final Exam: 35% (Tuesday 30 May 2017 (9 PM), Comprehensive)
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Attendance and Academic Integrity: KFUPM policies regarding attendance and ethics will be enforced.

Course Plan:

Chapter	Title	Number of weeks
1	Sets	1
2	Logic	2
3	Direct Proof and Proof by Contrapositive	1
4	More on Direct Proof and Proof by Contrapositive	1
5	Existence and Proof by Contradiction	1
6	Mathematical Induction	1
8	Equivalence Relations	1
9	Functions	1
10	Cardinalities of Sets	2
11	Proofs in Number Theory	1
13	Proofs in Group Theory	2
-	Well-ordering and Axiom of Choice	1

