

<b>MATH 335 Modern Algebra 1 Spring 2015 SFSU</b>
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**Instructor:** Joseph Gubeladze

- **Lecture:** MWF 9:10–10am     **Room:** TH 335
- **Office hours:** TH 932, MW 2–3pm
- **Phone:** (415) 338 7722
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**Text:** *A Book of Abstract Algebra, 2nd Edition, by Charles C. Pinter*

**Prerequisite:** C or better in Math 325 (Linear Algebra), and Math 301 (Exploration and Proof) or instructor's consent.

**Grading:**

- Homework (assigned weekly) – 35%
- Midterm – 20%
- Projects – 15%
- Final – 30%

**Description:** Abstract algebra studies structures, i.e., sets with operations: like integers or rational numbers with addition and multiplication, vector spaces, linear mappings, matrices. The abstract point of view, based on axiomatic approach, reveals many deep ideas behind seemingly innocent structures – such as arithmetic of counting numbers – and serves as an elegant organizing law for the vast universe of the modern algebra. The generations of brilliant minds have crystallized these ideas in the concepts of a *group*, *ring*, *field*, *vector space*, *their homomorphisms*, *quotients etc* – the topics we will cover in this course. In the first half of the course we will focus on groups – classical structures with single binary operations. In the second half the techniques/approaches, worked out for groups, will manifest their relevance in the context of richer structures: classes of rings and then vector spaces.

One of the goals of this course is to make the students immerse in communicating mathematical thoughts (proofs, examples, counterexamples) in a written form.

**Homework:** homework will be assigned (and collected in class) weekly.

**Tests:**

- Midterm: Friday March 20, 2015
- Final: Wednesday May 20, 8:00–10:30am

**Projects:**

- Last four weeks of instruction – information to be provided in due time

**Course Page:**

<http://math.sfsu.edu/gubeladze/classes/spring2015/335/335.htm>

**Course plan** (subject to minor changes to be announced in time):

Lecture 1: Chapter 3  
Lecture 2: Chapter 3  
Lecture 3: Chapter 4  
Lecture 4: Chapter 4  
Lecture 5: Chapter 5  
Lecture 6: Chapter 5  
Lecture 7: Chapter 6  
Lecture 8: Chapter 7  
Lecture 9: Chapter 8  
Lecture 10: Chapter 8  
Lecture 11: Chapter 9  
Lecture 12: Chapter 9  
Lecture 13: Chapter 10  
Lecture 14: Chapter 11  
Lecture 15: Chapter 11  
Lecture 16: Chapter 12  
Lecture 17: Chapter 13  
Lecture 18: Chapter 13  
Lecture 19: Chapter 14  
Lecture 20: Chapter 14  
Lecture 21: Chapter 15  
Lecture 22: Chapter 15  
Lecture 23: Chapter 16  
Lecture 24: Chapter 17  
Lecture 25: Chapter 17  
Lecture 26: Chapter 18  
Lecture 27: Chapter 18  
Lecture 28: Chapter 19  
Lecture 29: Chapter 19  
Lecture 30: Chapter 20  
Lecture 31: Chapter 20  
Lecture 32: Chapter 21  
Lecture 33: Chapter 22  
Lecture 34: Chapter 22  
Lecture 35: Chapter 24  
Lecture 36: Chapter 24  
Lecture 37: Chapter 28  
Lecture 38: Chapter 28

**Grading scale:**

$$90 < A \leq 100$$

$$85 < A- \leq 90$$

$$80 < B+ \leq 85$$

$$75 < B \leq 80$$

$$70 < B- \leq 75$$

$$65 < C+ \leq 70$$

$$60 < C \leq 65$$

$$52 < C- \leq 60$$

$$45 < D+ \leq 52$$

$$40 < D \leq 45$$

$$30 < D- \leq 40$$

$$F < 30$$