

# Algebra I, MATH-UA.343.005

Fall Semester 2016

**Instructor:** Sophie, Marques,

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**Time and place:** TR 12:30PM - 1:45PM, CIWW 317.

*Office hours* Thursday 2:00-3:00pm or by appointment.

**Exams:** There will be one in-class midterm and a final. They will be announced soon.

**Recitation Section:** F 3:30PM - 4:45PM, CIWW 202.

**Instructor:** Hang Fu.

**Textbook:** I. N. Herstein, *Topics in Algebra*, second edition. (Recommended not required, lectures notes will be posted each week.)

## Course Prerequisites

A grade of C or better in V63.0121 Calculus I or II and Linear algebra. Algebra 1 is conceptually a challenging course. You are suppose to know how to write up a good proof.

## Course Requirements:

The class meets for a lecture twice a week, 1 hour and 15 minutes per class period and you have one recitation a week for also 1h15.

You are also expected to study outside class times, up to four hours for each hour of class. Studying can be reading the recommended book, reviewing the lecture notes, practicing problems, or doing homework.

**Program:** Over the year we will do a quick review of Set theory and a full study of Groups theory. You will discover your first algebraic structures and hopefully understand the importance of algebra in mathematics. Algebra is here to put order in mathematics and classify mathematical structure into categories. You know already Set theory and surely linear algebra where you have studied Vector spaces. You can imagine in defining a lot of algebraic structures arising in mathematics. One of them not the least are groups, for instance, they help you to understand geometric figures and much more.

We will focus on the importance in being meticulous, organized and use the mathematical reasoning logic. Our emphasis is more on groups in this course. The other topics will be covered in more detail in the second term. Throughout, number theory provides a wealth of examples and applications.

**Special note:** This is an abstract algebra course. So, you will have to get use to a certain level of abstraction. This might seem very hard at the beginning. In order to not get completely lost after one month you need to let me know if you have any question from the beginning, and not accumulate them. Midterm time will be too late to overcome all the left behind material.

You will need to do your homework seriously and even if you work in group (which I recommend), you HAVE TO write your own homework, with your own wording. I will be very strict with proofs. As you might know by now, the answer do not really matter but the process (You can have a good answer and 0 credit for it, if the process is nonexistent or confused. In short, you have to analyze the questions, sometimes translate the problems in mathematical terms, and create a draft where all might be a bit messy and synthesize the all the arguments in a beautiful proof with logical connectors and no missing step.) Hard work is waiting for you but if you play the game following the rules, you will improve in many ways.

### **Calculator Policy**

At NYU, undergraduate mathematics is largely conceptual rather than computational. Calculators may be used on homework but do not suffice on problems for which explanation is required. Calculators may not be used on quizzes or exams.

### **Policy on missed and out-of-sequence assessments**

In general, out of fairness to the rest of the students in the class, late homework assignments and makeup quizzes or exams are not possible. We may approve a rescheduled or makeup exam or quiz in the following cases:

1. A documented medical excuse.
2. A University-sponsored event such as an athletic tournament, a play, or a musical performance. Athletic practices and rehearsals do not fall into this category. Please present documentation from your coach, conductor, or other faculty advisor describing your absence.
3. A religious holiday.
4. Extreme hardship such as a family emergency, again with documentation.

Weddings and other special family events do not qualify as any of the above; the free pass is appropriate here. Nor can we reschedule for purposes of more convenient travel, even if tickets have already been purchased.

Rescheduled exams and quizzes (those not arising from emergencies) must be taken prior to your absence. Otherwise, please contact us before you return to class.

If you require additional accommodations as determined by the Moses Center for Student Disabilities, please let us know as soon as possible.

**Policy on Academic Integrity:**

New York University takes plagiarism and cheating very seriously and regards them as a form of fraud. Students are expected to conduct themselves according to the highest ethical standards. These offenses are all considered violations of academic integrity:

1. Use of unauthorized resources for completion of assignments (e.g., a solution manual illegally purchased or downloaded or an internet community that provides answers);
2. Nondisclosure of copying another student's written solution (including for homework);
3. Discussion of a quiz or exam between someone who has taken it and someone who has not;
4. Copying another student's quiz or exam;
5. Forging documentation to justify a makeup quiz or exam or late assignment.

There are of course other possibilities. We expect you to be familiar with your school's student handbook and its statement of academic integrity. Penalties range from a score of zero on a problem, assignment, quiz, or exam, to a failing grade in the course and notification of the student's Dean. Multiple violations can result in dismissal from the University.

**Participation** Participation will be taken under account at the end of the semester while deciding for the final grade. It is important for the class time to be dynamic. Sincere questions are important, and help the whole class. Please never stay bothered by a question after the end of the class. Questions should always be asked with respect and modesty.

**Submission of assignments** is *mandatory*. Homework will be given each week starting on the second week of classes.

**Special note:** Collaboration on the assignments is *encouraged*. Each student must submit the assignment separately and must note on the assignment the names of other students with which he/she has collaborated. If it is obvious, you looked up at the solutions or just copied the solution of someone else, all of the students involved will have 0 as a grade. The policy about copying will be very strict.

Quizzes will be given often to force you to realize your level, in order to not get submerged by the amount of new notions. Quizzes frequency will be determined as follow: if the class is experiencing a lot of difficulty overcoming the class, I will give quizzes more often.

**Grading** The final grade will be based 40% on the Final Exam, 25% on the Midterm, and 15% on the Homework and 20% on the quizzes. But grades are not determined by an algorithm, subjective factors such as class participation will count in the final computation.