Math 100a, Introduction to Algebra, Part I

Spring 2016

Venue: Rosenstiel Basic Med118
Time: TF 12:30-1:50, Block J.
Instructor: Bong Lian (lian@–, Goldsmith 314, X6-3069)
Office Hours: TF 11:30-12:30, or by appointment

I will use the LATTE forum to communicate with you occasionally. You may post comments or questions that you think will be of general interest to the whole class. Most course announcements such as homework assignments and due dates, will be posted on the course webpage.

Course Description

Course webpage: http://people.brandeis.edu/~lian/math100a-S16/100a-S16.html
Topics we plan to cover include (but not necessarily the listed order):

- Groups, subgroups
- Group homomorphisms,
- Finite groups, Lagrange’s theorem,
- p-groups, Sylow theorems
- Abelian groups
- Rings, subrings
- Ring homomorphisms, ideals
- Commutative rings, factorial rings, principal rings
- Fields, subfields

Learning Goals

Students in Math 100a will learn to work with groups, rings, and fields, and the interconnections between these three types of algebraic structures; they will study and analyze these structures, both by way of examples and in the abstract setting; they will also apply these structures to solve problems in linear algebra and group theory.

4-Credit Course

Success in this 4-credit hour course is based on the expectation that students will spend a minimum of 10 hours of study time per week in preparation for class (reading, homework, in-class discussions preparation for exams, etc.).

Grading

Late homework will be accepted with a 25% penalty, up to one week after the due date and before the solution has been posted. Homework submitted more than one week late or after the solution has been posted will not be accepted. Students who miss a test (or
exam) will not be granted a make-up test (or exam) unless there is a documented medical or other emergencies. Almost all homework problems will be drawn from the textbook.

Grades will be based on homework, two 1-hour quizzes (in class), and a final exam (scheduled by the registrar), weighted as follows:

- **Homework**: 30% about 8 sets usually due on Fri
- **Quizzes**: 15% each Tue Feb 23 and Tue Mar 22
- **Final Exam**: 40% date & time TBA

**Policies**

You may discuss the homework problems with your classmates; however, if you do, you should write on your homework submission the names of the classmates with whom you have discussed the assignment. You do not need to mention any help you have received from the instructor or the TA. **You may not copy the written work of another student or from any other sources, or allow another student to copy your written work. What you submit should be your own work.**

You should state the source of a mathematical fact you use when writing up your work, unless the fact you use is something you had learned earlier as part of your prerequisite for 22a. You can state the source by citing a theorem in the textbook, the page number of an exercise we have gone over in class or in a prior homework, or a fact we have proved in class.

Both the instructor and the TA are available during their weekly office hours or by appointments. Students are encouraged to seek help from them on any course related matter.

**If you are a student with a documented disability on record at Brandeis University and wish to have a reasonable accomodation made for you in this class, please see me immediately.**

**Advice**

I recommend the following strategy: Try to prepare before each class. That means you should read (carefully!) the sections to be covered before coming to class, whenever possible. Try the exercises in the book even though you may not be able to get them all. Having thought through the material by yourself makes it a lot easier for you to understand the lectures and ask questions in class. It is also a very economical way to learn mathematics. For every hour you spend preparing before class, the pay-off could easily be a saving of two to three hours after class.