Lie Algebras
Math 405, Fall 2017

Meeting Time and Location:
Lecture: MWF 1:00-1:50pm, CHAP 201
Discussion: Tu 1:00-1:50pm, SMUD 207

Professor: Yusra Naqvi
Email: ynaqvi@amherst.edu
Office: Seeley Mudd 201
Office Phone: (413) 542-5712

Course Webpage: http://ynaqvi.people.amherst.edu/math405fa17/

Prerequisites: MATH 350, or equivalent Abstract Algebra course

Textbooks: There is no required textbook for this class. However, we will primarily be following the material laid out in:
Introduction to Lie Algebras and Representation Theory by James Humphreys (ISBN: 9780387900537)
The following references may be useful as well:
Introduction to Lie Algebras by Erdmann and Wildon (ISBN: 9781846280405)
Complex Semisimple Lie Algebras by Jean-Pierre Serre (ISBN: 9783540678274)
All of these textbooks are on reserve in the library.

Course topics: This course is an introduction to Lie algebras, covering the basic concepts and fundamental results of the theory. We will look at the structure of finite dimensional Lie algebras, ideals and homomorphisms, nilpotent and solvable Lie algebras, Cartan subalgebras, semisimplicity, root systems, and the classification of semisimple Lie algebras.

Homework: Homework will be assigned weekly. Refer to the course website for assignments and their due dates. Written homework must be handed in at the beginning of the class in which they are due, and late homework will not be accepted for grading. Submitted work should be neat, organized, and stapled, and will be graded for both correctness and clarity of writing.

While you are strongly encouraged to work in groups, all submitted assignments must consist only of your own work, *written in your own words*. If you work with other students, you should include a note at the top of your homework saying who you worked with.

Absences: You are expected to attend every class and arrive on time for class. An absence due to emergency may be excused, provided that you can supply acceptable written evidence if required, and that you notify me *as soon as possible*. Two late arrivals will be treated as an absence. Students with more than four unexcused absences may have their grade lowered by one step (for example, a B- may be lowered to a C+).

Exams: There will be two midterm exams and a final for this course. All exams must be taken at the scheduled time. Make-up exams will only be allowed if you can supply *acceptable* written evidence, and that you notify me *before the end of the missed exam*.

Grading: Your overall grade will be determined using the following point distribution:

Homework	100
1st Midterm Exam	100
2nd Midterm Exam	100
Final	100
Total	400

About the Statement of Intellectual Responsibilty: While you are strongly encouraged to work on homework problems in groups, the work you write up and hand in must be your own. If you receive help from an outside source, please include a note in your homework specifying what this was. For exams, you are not permitted to work with other students or use any unauthorized aids such as calculators, notes, formula sheets, etc. If you are unsure about whether something is allowed or not, please speak with me and I would be happy to clarify.

Failure to comply with the above guidelines on homework will result in a 0 for the assignment. Cheating on an exam or final project will result in an F for the course. All incidents will be reported to your class dean.