Instructor: Dr. Bojko Bakalov, office SAS 3116, phone 513-7442, E-mail bojko_bakalov@ncsu.edu

Course Webpage: http://www4.ncsu.edu/~bnbakalo/ma720.html

Office Hours: MWF 12:30-1:30, in SAS 3116.

Course Objectives: This is an introductory graduate course in Lie algebras, which is a part of the Ph.D. qualifying sequence MA 520-720 on Linear and Lie Algebra. The course will start with basic concepts in Lie algebras such as subalgebras, ideals, homomorphisms, and derivations. Then we will discuss various properties of solvable, nilpotent, and semi-simple Lie algebras. In particular, we will study the structure and representation theory of the smallest semi-simple Lie algebra \( sl(2,F) \). At the end of the course, students will have a basic understanding of Lie algebras that will allow them to continue their study of this important area of Mathematics if they so desire.

Prerequisite: MA 520 or equivalent.


Homework will be assigned regularly but will not be collected or graded. Selected problems will be discussed in class. A key to success in this course is doing as many of the homework problems as you can.

Tests: There will be two in-class tests, two take-home tests and a cumulative final exam (on Wednesday, April 29, 1-4 p.m.). If you miss a test, I will need a letter documenting the reason. Makeup tests can only be given for reasons such as illness, family emergency, participation in a University-sponsored event, required court attendance or military duty, or religious observances as certified by the Department of Student Development. If you know you will be absent on a test date, you must clear the absence with me in advance and schedule a makeup date. In the case of an unanticipated absence on a test date, you must give me documentation and schedule a makeup date as soon as possible. See the University policies at http://www.ncsu.edu/policies/academic_affairs/pols_regs/REG205.00.4.php

Grade will be determined from the average of test grades. Each of the four midterm tests will have weight 1/6, and the final exam 1/3. The 10-point scale with +/- will be used. In borderline cases, attendance will be taken into account.
**Attendance:** Students are expected to arrive on time, to contribute to group work and class discussions, and to stay until the class ends. Attendance at all meetings of the class is expected. Occasional absences will be approved if they meet University policies (see [http://www.ncsu.edu/policies/academic_affairs/pols_regs/REG205.00.4.php](http://www.ncsu.edu/policies/academic_affairs/pols_regs/REG205.00.4.php)).

**Adverse Weather:** Announcements regarding scheduled delays or the closing of the University due to adverse weather conditions will be broadcast on local radio and television stations and posted on the University homepage.

**Cell Phones:** Pagers, cellular phones and other types of telecommunication equipment are prohibited from use during class. Make sure that any pagers, phones or other equipment are turned off during the class period. If you have a special need to have your pager or phone on during class, please let me know.

**Academic Integrity Statement:** Students are required to follow NCSU policy available at [http://www.ncsu.edu/provost/academic_regulations/integrity/reg.htm](http://www.ncsu.edu/provost/academic_regulations/integrity/reg.htm). “Academic dishonesty is the giving, taking, or presenting of information or material by a student that unethically or fraudulently aids oneself or another on any work which is to be considered in the determination of a grade or the completion of academic requirements or the enhancement of that student's record or academic career.” (NCSU Code of Student Conduct). The Student Affairs website has more information ([http://www.ncsu.edu/student_affairs/osc/AIpage/acaintegrity.html](http://www.ncsu.edu/student_affairs/osc/AIpage/acaintegrity.html)).

**Statement for Students with Disabilities:** Reasonable accommodations will be made for students with verifiable disabilities. In order to take advantage of available accommodations, students must register with Disabilities Services for Students ([http://www.ncsu.edu/dso](http://www.ncsu.edu/dso)).

**Class Evaluations:** Online class evaluations will be available for students to complete during the last two weeks of class. Students will receive an email message directing them to a website where they can login using their Unity ID and complete evaluations. All evaluations are confidential; instructors will never know how any one student responded to any question, and students will never know the ratings for any particular instructors.