Classroom: Mon 7:10-8:50 pm and Wed 7:10-8:30 pm in PKH 487
Office etc: PKH 462, 817-272-3932, vancliff@uta.edu
Web page: http://www.uta.edu/math/vancliff/T/F08
My Office Hours: Mon after class in PKH 487 or 462, and Wed 3:45-5:30 pm (if not teaching at this time) or 4:45-5:30 pm (on days not available at 3:45-4:30 pm) in PKH 462, or by appointment (you can also ask me questions via e-mail or phone)
Tests: none
Grading: a nonzero quantity of homework solutions, attendance, participation and perhaps presentation of some material

COURSE CONTENT
We will cover the basic ideas in nilpotent, solvable and semisimple finite-dimensional Lie algebras. Emphasis will be placed on the 3-dimensional Lie Algebra $sl(2)$ & the 8-dimensional Lie algebra $sl(3)$. Some quantum Lie algebras and/or universal enveloping algebras, if time.

The detailed analysis of nilpotent (respectively, solvable) Lie algebras via universal enveloping algebras is itself very inspiring, but we will probably not have time to cover that in this course.

Lie algebras are useful in mechanics and quantum mechanics. In particular, they play a crucial role in the mathematics behind robotics, and in the theory describing the theory of movement of electrons in the nucleus of an atom. The Lie bracket is modeled on the Hamiltonian operator in the theory of differential equations.

EXPECTED LEARNING OUTCOMES
Upon completion of this course, students should be able to: define a Lie algebra and other commonly occurring terms in the theory of Lie algebras; list and identify several Lie algebras, including a few from physics; find and classify the irreducible finite-dimensional representations of $sl(2)$ & of $sl(3)$.

HELP OUTSIDE CLASS TIME
Feel free to ask me questions during class & after class. You can also e-mail me your questions, or e-mail me to schedule an appointment. My office hours are times I am planning to be in my office and you can drop by without an appointment to ask me questions.

My web page (given above) will list the homework as the semester progresses as well as other miscellaneous information pertinent to this course. You are advised to check it every couple of days.

I also recommend that, if possible, y’all discuss the class material with each other & collaborate on homework. Being able to converse mathematically is a skill, & is practiced by discussion with classmates & with the instructor.
DISABILITY ACCOMMODATIONS

The University of Texas at Arlington is on record as being committed to both the spirit and letter of federal equal opportunity legislation; reference Public Law 93112 — The Rehabilitation Act of 1973 as amended. With the passage of the Americans with Disabilities Act (ADA), pursuant to Section 504 of the Rehabilitation Act, there is renewed focus on providing this portion of the population with the same opportunities enjoyed by all US citizens. In particular, students in this situation who desire accommodation should notify me informally this week, and notify the Disabilities Office as soon as possible with official authorized documentation; the Disabilities Office will give you documentation that will authorize me to provide accommodation and inform me of the nature of the accommodation.

SCHOLARLY INTEGRITY

It is the philosophy of The University of Texas at Arlington that academic dishonesty is a completely unacceptable mode of conduct and will not be tolerated in any form. All persons involved in academic dishonesty will be disciplined in accordance with University regulations and procedures. Discipline includes suspension or expulsion from the University and a grade of FAIL in the class given to involved student(s). Part One, Chapter VI, Section 3, Subsection 3.2, Subdivision 3.22 of the Regents’ Rules and Regulations states the following. “Scholastic dishonesty includes, but is not limited to, cheating, plagiarism, collusion, the submission for credit of any work or material that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts”.

The University reserves the right to impose disciplinary action for any kind of infraction of University policies. Engagement in conduct which disrupts, obstructs or interferes with activities authorized by the University will result in disciplinary action against the perpetrator(s). Such action includes leaving and returning to the room frequently. It also includes the use of a cellular phone, ringing cellular phones, etc.

TUITION AND GRADE REPLACEMENT/EXCLUSION

If you are dropped from this class for nonpayment of tuition, you may secure an Enrollment Loan through the Bursar’s Office. You may not continue to attend class until your Enrollment Loan has been applied to outstanding tuition fees. For other UTA information, such as grade replacement/exclusion (for undergrads), see http://www3.uta.edu/registrar/gradeExclusion.asp.