

NCSU Mathematics Department

MA 437 – Applications of Algebra

Fall 2009, MWF 11:20-12:10, COX 209

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

Course Webpage: <http://www4.ncsu.edu/~bnbakalo/ma437.html>

Office Hours: MWF 10:00-11:00 or by appointment, in SAS 3116.

Prerequisites: Linear Algebra (MA 405) and Modern Algebra (MA 403 or MA 407). Some experience with Maple helpful.

Course Objectives: To illustrate some of the many areas in science, industry and real life where Modern Algebra plays a pivotal role. Topics covered include: block designs, error correcting codes, cryptography, enumeration techniques.

Text: *Applications of Abstract Algebra with Maple and MATLAB*, by R.E. Klima, N.P. Sigmon, E.L. Stitzinger, Second Edition, Chapman & Hall/CRC, 2006. ISBN-10: 1584886102. ISBN-13: 978-1584886105.

Multimedia Center: The Multimedia Center (SAS 2105) has several computers for student use. Computer consultants provide assistance with Maple, Matlab, and general computing questions. Tutoring may also be available on a first-come, first-served basis. See <http://www.math.ncsu.edu/mmc> for schedules and more information.

Grade will be based on the homework (75%), final project (20%), and attendance (5%). The 10-point scale with +/- will be used.

Homework will be assigned regularly, must be done individually, and will be collected and graded every 1-2 weeks. It will consist of problems to be worked by hand as well as some to be solved using Maple. You will not be asked to write new code in Maple, only to modify existing code supplied with the textbook on a CD. The hand-written problems must show all steps of the solution and will be collected at the beginning of the lecture on the due date. The Maple problems should be submitted by email before 11:20 a.m. on the due date. Late homework will be accepted only in case of a documented excused absence. Selected problems will be discussed in class.

Project: A final project due at the end of the semester will consist of a 3-4 page written report and an oral presentation on a book chapter or journal article. The topic will be selected by the student subject to the approval of the instructor. Oral presentations of the projects will take place during the time scheduled for the final exam: Wednesday, Dec. 9, 8-11 a.m. (and if necessary on one more day).

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 and will be recorded. Occasional absences will be approved if they meet University policies (see http://www.ncsu.edu/policies/academic_affairs/pols_regs/REG205.00.4.php).

H1N1 Information: If you are ill with symptoms of H1N1 influenza (i.e., fever over 100, sore throat, cough, stuffy or runny nose, fatigue, headache, body aches, vomiting and diarrhea) please do not come to class. Instead, immediately contact your medical provider or Student Health Services (515-7107) for advice or to arrange an appointment. If you are diagnosed with H1N1, please inform your instructor immediately. You will be required to be isolated away from class for up to 7 days or 24 hours after symptoms subside, whichever is longest.

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/policies/student_services/student_discipline/POL11.35.1.php. *“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).

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/provost/offices/affirm_action/dss). For more information on the NCSU policy on working with students with disabilities, see http://www.ncsu.edu/provost/hat/current/appendix/appen_k.html

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.