Math 457/507 Syllabus  
Spring 2009

Instructor.  Dr. Patrick J. Morandi. My office is Science Hall 237 and my office phone number is 646-3901. If you need to turn in an assignment or leave me a message you can do so in the math office. You can also reach me through email at pmorandi@nmsu.edu.

Office Hours. My regularly scheduled office hours are

<table>
<thead>
<tr>
<th>Day</th>
<th>Time</th>
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<tbody>
<tr>
<td>Monday</td>
<td>2:30-3:30</td>
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<tr>
<td>Tuesday</td>
<td>1:30-2:30</td>
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<tr>
<td>Wednesday</td>
<td>10:00-11:00</td>
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If you need or want to see me outside these hours, you may make an appointment with me before or after class, by phone, message, or by email. I understand that your schedule might not allow you to come to my office during the hours listed above; by all means talk to me if you wish to come to office hours but are unable to make the hours listed above.

Course Web Page. The web address for this course is sierra.nmsu.edu/morandi/math507. At this web site you will find the syllabus, handouts, and assignments.

Prerequisite. C or better in Math 331 or consent of instructor. More specifically, you should have some familiarity with linear algebra and modular arithmetic.


Course Content and Objectives. The course is about cryptography, which is roughly the study of communication over nonsecure channels and designing systems to keep information secret. We will see how such systems can be designed through the use of algebraic structures. Generally, the more sophisticated the algebraic notion is, the more sophisticated and good the cryptography system one gets. We will thus see applications of abstract algebra.

We will mostly likely cover all or part of Chapters 2, 3, 6, 7, 9, 13, 16. Sections and topics may be added or subtracted from this list, depending on how the semester progresses.
**Reading and writing mathematics.** It is important to read the textbook before coming to class and working homework problems. It is usually necessary to read mathematics repeatedly in order to understand the material. Do not expect to read a mathematics text like a novel. Often classroom lecture will be based on questions students have from the reading; it is therefore very important to read the text ahead of time and come to class with questions.

Writing clear and complete solutions to the homework will be crucial for you to learn the material. On all assignments, your work needs to be neat and legible, and your reasoning must be clear. Writing mathematics well takes practice, and you will improve your ability to communicate mathematics from this course. It will be important to rewrite assignments in order to better learn the mathematics and to improve your writing.

**Homework.** Homework will assigned each class period and due the following period. I will give several problems each week, but will specify one problem to be turned in each class period. The other problems are not to be turned in. You may turn in a revised draft of any homework assignment. A revision is due within one week of when the assignment was returned to you, and must be turned in with the original submission.

**Exams.** There will be two midterm exams, and an in-class final exam. The midterm exams will likely occur around the first and second third of the semester, respectively. The final exam is scheduled for Thursday 7 May from 3:30-5:30.

**Grading.** The grade for the course will be based on your performance on written assignments and exams. The breakdown is: homework, 50%; two midterm exams, 15% each; final exam, 20%.

**Computer Algebra Packages.** At times during the semester we will use computer algebra packages to help to introduce and work with some concepts. The main package that we will use is Maple. Help on using Maple will be given in class, and some Maple worksheets and handouts will be available on the course home page as the semester progresses.

**Incomplete Grades.** Incomplete grades may be given only if a student passed the first half of the course and is precluded from successful completion of the course by a documented illness or family crisis which genuinely precluded successful completion of the course.

**Attendance.** You will need to attend regularly in order to do well in this course. If you miss a class, you are responsible for making up the material that was missed. Missing a class is not an excuse for handing in late work. You may send me email to find out what assignment is due, and possibly find out from the course website.
Important Dates to Remember.

- Last day to add a class: Monday 26 January.
- Last day to withdraw with a W: Monday 9 March
- Final Exam: Thursday 7 May, 3:30-5:30.

ADA. Feel free to call Jerry Nevarez, Director of Institutional Equity, at 505-646-3635 with any questions you may have about NMSU’s Non-Discrimination Policy and complaints of discrimination, including sexual harassment.

Feel free to call Michael Armendariz, Coordinator of Services for Students with Disabilities, at 505-646-6840 with any questions you may have on student issues related to the Americans with Disabilities Act (ADA) and/or Section 504 of the Rehabilitation Act of 1973. All medical information will be treated confidentially.