

**MATH 4713 INFORMATION**  
**Section 001/01G, MWF 12:30 PM, CLB 203**

**Instructor:** David Wright, MS 527, 744-5775, FAX: 744-8275,

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Online Classroom (D2L): online.okstate.edu (Main location of class resources and grades)

External website: <http://klein.math.okstate.edu/~wrightd/4713>

**Office hours:** MW 1:30–3:00PM at MS 527 and at other times by appointment. Please feel free to drop by or contact me to see if I am available at any time.

**Text:** *An Introduction to Number Theory with Cryptography*, by James S. Kraft and Lawrence Washington, CRC Press, 2014. An e-book is also available at CRC Press.

**Prerequisites:** At least MATH 3013: Linear Algebra, and preferably also MATH 3613: Introduction to Modern Algebra, especially if you need more experience in formal mathematical logic and reasoning.

**Course objectives:** Number theory, the science of whole numbers, is the most ancient and fundamental subject within mathematics. It simultaneously provides a source of fascination for even very young children and a wealth of challenges for the best mathematicians of each generation, and in the digital age has proved to be the mathematical cornerstone of digital communication and security. We shall touch on the basics of these aspects of the subject.

**Syllabus:** See the calendar for a tentative plan of sections covered in the textbook.

**EXAMINATIONS:** Two one-hour exams will be given in class, on Wednesdays, *Sept. 21* and *Nov. 2*. A final exam is also scheduled on *Friday, Dec. 9, at 10:00–11:50 AM* in our classroom. There will be no scheduled makeup exams; you should give me at least a week's prior notice of any absolutely compelling reason why you might need to reschedule an exam.

**Quizzes:** Five quizzes lasting roughly 25 minutes will be given in class on Wednesdays Aug. 31, Sept. 14, Oct. 5, Oct. 19, and Nov. 16. These will be at most 3 problems chosen from a selection of basic homework problems announced in advance.

**Homework:** Homework assignments from the text will be posted, and students are expected to maintain a notebook with their work on the problems written in detail. That work will not be collected or graded, but quizzes will be based on a selection of homework problems announced in advance.

Generally, all the work and reasoning necessary to justify solutions must be written down in clear brief phrases.

**Group Projects:** Two projects that will involve some exploration, pattern discovery, and verification and analysis will be assigned to groups of three or four students. Each group's results should be prepared in a formal typed report. Details on the projects, schedule, and objectives will be provided later after several weeks in the term.

**Grading:** The one-hour exams will be worth 150 points each, and the final exam will be worth 200 points. The quizzes will be worth 25 points each, and only the top four scores will be added to produce a quiz score out of 100. The two group projects will be worth 50 points each. The grand course total is then 700.

No missed quizzes may be made up. Students who achieve at least 90%, 80%, 70%, 60%, respectively, of the total score will receive at least an A, B, C, D, respectively. Depending on the median scores and the instructor's judgment, these cutoffs may be lowered.

**STANDARD OPERATING PROCEDURE:** All students must complete a minimum of six hours of work each week outside attending lectures. This work is to consist of reading in detail all sections of the book covered in class and performing all assigned homework problems and enough additional problems to make sure that you understand the material. It is very important that you contribute this six hours of work every week. If you cannot solve a problem completely, give as much of a partial solution as you can. Try to write down the exact point in the solution that you cannot understand. Try to record all theorems and examples from the class or the text that are possibly relevant to the problem. It is far better to learn this process of self-analysis than to depend on the collaboration of others. On all examinations and assignments, all steps necessary to prove that your solution is true must be given.

**Academic Dishonesty:** It is a cornerstone of academic integrity that written work submitted under your own name should be prepared entirely by yourself. Informal discussion between students is permitted. You are also encouraged to seek help on the homework from myself during office hours. However, academic misconduct includes organized collaboration between students on homework assignments that involve, say, jointly writing solutions on the blackboard and then copying down the alleged solutions on each individual's paper. Also, examination of another student's individual written work before an assignment has been collected and graded is strictly forbidden.

**Attendance Policy:** Attendance of lectures is mandatory in the sense that you are responsible for all announcements of changes in schedule made during class, as well as all material covered during lectures. Roll will periodically be taken, but not every class. If you're missing a lot of classes, you can expect to be contacted.

**Disability:** If you feel that you have a disability and need special accommodations to pursue the course, the instructor and the Office of Student Disability Services (315 Student Union) will work with you to ensure that you have a fair opportunity to complete this class. Please advise the instructor of such disability before the end of the second week of the term.