Number Theory - MATH 4043  
Fall 2012  M,W 2:00-3:20; Boyd 301

Instructor:  Dr. Landman  
Office:  310 Boyd  
Office Hours:  M,W 1-2; 3:20-4; or by appointment  
Phone:  (678) 839-5190  
E-mail:  landman@westga.edu  
Text:  Elementary Number Theory, 7th Edition,  
by Richard A. Brualdi, Prentice Hall

Prerequisites:  
Successful completion of Math 2853 (Linear Algebra) and Math 3003  
(Transition to Higher Mathematics), or equivalent

Topics:  
1. Divisibility – Sections 2.2-2.5  
2. Primes and their distribution – Sections 3.1-3.2  
3. Congruences – Sections 4.2-4.4  
4. Fermat’s and Wilson’s theorems – Sections 5.2-5.3  
5. Special number theoretic functions – Section 6.1  
6. The Euler-phi function – Sections 7.2-7.3  
7. The quadratic reciprocity law – Sections 9.1-9.3  
8. Perfect numbers – Section 11.2  
9. Fibonacci numbers – 14.2-14.3

Homework:  
Graded Take-Home Assignments:  
Approximately seven sets of take-home problems will be assigned, and will be graded. Late papers will not be accepted. Your work on these assignments is to be your own. You are encouraged to talk to me if you are having trouble – I may be able to give some helpful advice. Discussion about the homework among students is also permitted, and encouraged. However, you must write up your own solutions, which must demonstrate your understanding of the work. If your write-up indicates that any solutions were shared, then a grade of 0 will be given, both to the “copier” and the person “copied from,” for that homework set.

Non-graded Homework:  
In addition to the graded problem sets, additional problems will be assigned on most days. These will not be graded and do not count toward your course grade, but these will be discussed in class. It is very important for your success in the course that you do the homework regularly and on time.

Tests:  
There will be three in-class tests plus a cumulative final exam. The lowest of the three test scores will be dropped. No make-up tests will be given without a
university-approved excuse or doctor’s note, and I must be informed of the absence before the scheduled test. One un-excused absence from a test is allowed, and will result in the final exam score replacing the missing grade; any additional missed tests will earn a grade of 0 for those tests.

**Grading Procedure:**

**Your grade in the course will be determined as follows:**

- Take-Home Assignments 35%
- Highest two tests 40%
- Final Exam 25%

- An average of 88 or above earns a grade of A
- An average of 76 or above, but below 88, earns a grade of B
- An average of 64 or above, but below 76, earns a grade of C
- An average of 52 or above, but below 64, earns a grade of D
- An average below 52 earns an F

**Classroom Etiquette:**

It is expected that students will respect the work environment of their fellow students. Therefore, to avoid distractions:

- Cell phones must be turned off during class time
- Students should not arrive to class late or leave class early unless absolutely necessary
- Students should not engage in conversations or cause other noise that may distract others
- Students should not eat during class time
- Students should not sleep during class time

**Other:** It is strongly recommended that you allow at least 6-7 hours outside of class, each week, for homework and study (more would be better).

If you find yourself confused about a topic, please do not wait more than a day or two to come see me or email me to get the confusion cleared up.

You are welcome to e-mail me with questions anytime, and I should get back to you within a day. However, for faster responses, I will set aside specific time slots (“email office hours”) when I will be able to respond quickly to your email questions.

**Important Dates:**

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
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<tbody>
<tr>
<td>August 26, Sunday</td>
<td>Last day of open drop/add</td>
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<tr>
<td>September 19, Wednesday</td>
<td>Test 1</td>
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<tr>
<td>October 12, Friday</td>
<td>Last day to withdraw with grade of W</td>
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<tr>
<td>October 17, Wednesday</td>
<td>Test 2</td>
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<tr>
<td>November 14, Wednesday</td>
<td>Test 3</td>
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<tr>
<td>December 3, Monday</td>
<td>Final Exam (2:00 – 4:30 p.m.)</td>
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