



COURSE SYLLABUS
MAS4203 Number Theory

Department Information

Home Page: https://daytonastate.edu/dept_directory_mat/

Location: Building 500, Room 135

Phone: 386.506.3695 or 386.506.3520

Fax: 386.506.3036

Course: MAS4203 Number Theory

Credit: 3 semester hours

Prerequisite: MAC 2312/MAC2312L with a grade of "C" or better or placement through placement test or permission of the Chairperson.

Course Description: Topics include: Distribution of primes, representations of integers, Fibonacci Numbers, Divisibility, Euclidean algorithm, Mersenne Primes, Fundamental Theorem of Arithmetic, Number-theoretic functions, Diophantine Equations, Congruences, the Chinese Remainder Theorem, Perfect Numbers, Pythagorean Triples, continued fractions, Gaussian Integers, Euler's Theorem, Fermat's Little Theorem, and Wilson's Theorem. (Prerequisite: Passed MAC 2312/2312L with grade "C" or better or permission of chairperson). Check current catalog for lab fee.

Required Materials: Text: Elementary Number Theory, 6th Edition, by Rosen.
ISBN: 9780321500311.

Calculators: Graphing calculators and/or calculators with symbolic capabilities are optional for this course. Students may use a graphing or symbolic capable calculator during class and on homework assignments. However, students will not be permitted to use a graphing calculator or a calculator with symbolic capabilities during tests, quizzes, or any classroom assessment. **The only calculators permitted during classroom assessments are scientific calculators.**

STUDENT LEARNING OUTCOMES:

After successful completion of this course, the student will be able to:

1. Apply Divisibility properties and the Fundamental Theorem of Arithmetic.
2. Prove results involving the Fibonacci numbers.
3. Use the Euclidean algorithm to find the GCF of two integers.
4. Convert decimal numbers to numbers in other bases.
5. Find integral solutions to specified linear Diophantine equations.
6. Apply the Chinese Remainder theorem.
7. Find solutions to linear congruencies.
8. Apply divisibility tests to large numbers.

9. Apply properties of number-theoretic functions.
10. Apply Fermat's Little Theorem to prove relations involving prime numbers.
11. Use mathematical induction to prove a given equation or inequality.
12. Apply Wilson's theorem.
13. Prove results involving Pythagorean triples.

Course Chapter and Sections Covered:

Chapter	Sections
1	3, 4, 5
2	1
3	1, 2, 3, 4, 5, 6, 7
4	1, 2, 3, 4
5	1
6	1, 2, 3
7	1, 2, 3
12	2, 3
13	1, 2
14	1

Grading Scale and Policy:

For more detail on the course grading policy and procedure, you must contact the course's specific instructor.

90-100	A
86-89	B+
80-85	B
76-79	C+
70-75	C
60-69	D
0 -59	F

Grades: Students may access their final grades by logging onto my.daytonastate.edu, clicking on My Academics, then My Classes and finally View My Grades.

Grade for Non-Attendance:

Students who stop attending this class up to and including the official withdraw date will be withdrawn from the class and receive a final grade of W1 (Withdrawn). Attendance includes participating in online or face- to-face environments as required.

A student may receive a grade of "FN" for non-attendance when they stop attending class any time after the withdraw date without officially withdrawing. An "FN" for non-attendance may result in the student having to repay a portion of their financial aid money. For further information, visit the [Financial Aid Department](http://www.daytonastate.edu/financialaid/) website (<http://www.daytonastate.edu/financialaid/>) or call them at 386.506.3015.

Attendance: You are expected to arrive on time to class. Attend to your needs before entering the room. Students who come late or leave during class are a distraction to both the instructor and other students. Experience has shown that there is a high correlation between regular class attendance, punctuality, and good grades. Therefore, it is expected that you will attend all classes. If you are absent, you are responsible

for all that you have missed. Check with your instructor about his/her specific attendance policy and how it may affect your grade.

Disclaimer: Teaching policies and regulations for this course are not open for discussion or negotiation. This syllabus has been constructed to be as complete as possible but is by no means a binding document. Your instructor reserves the right to alter policies, procedures, and the syllabus as needed. Please utilize the website regularly as any changes to the syllabus will be posted there.

How to proceed through the course: Students should plan to have three hours of study time per week for each credit hour of class time. For example, when taking a typical 3 credit hour course, students should plan to spend at least 9 hours per week doing coursework and studying for that course regardless of the mode of delivery (online, hybrid, face-to-face).

Class expectations: This is a college credit course. All papers and communications related to the course must be written using proper grammar, spelling, and punctuation. Abbreviations, phrases, et cetera, that may be acceptable in emails between friends or on discussion boards outside of this course are not acceptable. Any written communication received without following the standards of proper English will adversely affect your grade. This course also helps develop the general education skills of critical thinking, computation, and computer literacy.

Cell phones: The use of watches, beepers, cell phones, MP3 players, iPods, laptops, and other electronic devices is a distraction. Please ensure that all electronic devices are off (or in silent mode). If an emergency arises, please be courteous to your fellow students and leave quietly. Under no circumstance should any of the electronic devices listed above be used during any classroom assessment.

Withdrawal Process: Students can withdraw from this class prior to the date listed in the Academic Calendar. It is not necessary to have approval from the instructor to withdraw from the course, but you should discuss the situation with the instructor prior to any action. Many times your issues and concerns can be resolved with communication. Also check with the Office of Financial Aid to determine how this withdrawal might affect your current and future aid eligibility. Please review [Refund/Repayment Policy](http://www.daytonastate.edu/finaid/withdrawal.html) (<http://www.daytonastate.edu/finaid/withdrawal.html>) and also check with the Office of Financial Aid to determine how this withdrawal might affect your current and future aid eligibility. If the decision has been made to withdraw, please visit the following [How to Withdraw from a Course](http://www.daytonastate.edu/recreg/howtoregister.html) for more details (<http://www.daytonastate.edu/recreg/howtoregister.html>).

Audit: Auditing a course means that you wish to attend the classes, but do not wish to receive a grade. It is school policy that no audit will be approved after the drop/add period has ended.

Incomplete Grade: A grade of "I" will only be given at the end of this course when the instructor deems that the student has satisfied each of the following:

1. Has completed a minimum of 75% of the course work and made every effort to pass the course which includes having a record of good class attendance;
2. Has provided the instructor with a legitimate and documented reason for not being able to complete the course work by the end of the semester;
3. Has requested in writing from the instructor a grade of "I" prior to the last class period of the semester;
4. Has a mathematical chance to pass the course.

If this math course is a prerequisite for another math course, you may not be able to register for that math course until the incomplete is satisfied and a grade is entered.

A grade of "I" is only intended for students with unforeseeable circumstances which will result in them not being able to complete the course during the current semester.

Student Rights & Responsibilities: See the [Student Handbook](http://www.daytonastate.edu/academics.html). (<http://www.daytonastate.edu/academics.html>) under “Student Resources.” Daytona State College is committed to providing you with quality instruction, guidance, and opportunities for academic and career success by fostering academic excellence in a supportive and personalized learning environment. Maintaining high standards of academic honesty and integrity in higher education is a shared responsibility and an excellent foundation for assisting you in making honorable and ethical contributions to the profession for which you are preparing. In order to preserve academic excellence and integrity, the College expects you to know, understand, and comply with the Academic Integrity Policy, which prohibits academic dishonesty in any form, including, but not limited to, cheating and plagiarism. Grades conferred by instructors are intended to be, and must be, accurate and true reflections of the coursework actually produced and submitted by you. All cases of suspected violations of the *Student Code of Conduct*, including academic dishonesty, are reported to the Judicial Affairs Office for resolution.

Forms of Academic Dishonesty

Cheating: Cheating can be defined as: receiving or giving unauthorized assistance on a quiz, test, exam, paper, or project or unauthorized use of materials to complete such; collaborating with another person(s) without authorization on a quiz, test, exam, paper, or project; taking a quiz, test, or exam for someone else or allowing someone else to do the same for you.

Plagiarism: Plagiarism can be defined as submitting work in which words, facts, or ideas from another source are used without acknowledging that the material is borrowed whether from a published or unpublished source. For specific information on how to document information from other sources, students should check with their instructors, academic departments, or a recognized writing manual, such as MLA or APA.

Self-plagiarism: When students turn in the same assignment for two different classes, they are self-plagiarizing. This rule also applies to sections of an assignment. Not only does ‘repurposing’ assignments deny students the opportunity to learn, but also it is not fair according to the college’s standards. Because of this, self-plagiarizing is coined ‘double-dipping,’ which leads to devaluation of grades and therefore, a devaluation of the College. Daytona State College prohibits self-plagiarism.

Online Academic Integrity Violations: These violations include, but are not limited to the following: sharing your Falcon Online password, working on an assignment with someone else when it is supposed to be done on your own, looking at someone else’s work while taking a quiz or exam, using a cell phone to share quiz or exam information, revising a paper that was found on the Internet, or submitting a paper purchased from a website.

Fabrication: Fabrication can be defined as listing sources in a bibliography that one did not actually use in a written assignment; presenting false, invented, or fictitious data/evidence in a written assignment.

Other Academic Misconduct: Other Academic Misconduct might include, but is not limited to:

- In a testing situation, conduct, such as, looking at a classmate's test, talking to a classmate, or leaving the classroom without the instructor's or proctor's permission.
- Obtaining help while taking online tests or quizzes in the form of another person consultation, Googling for answers, texting, or using other social media.
- Obtaining part or all of a test by theft/purchase, OR selling /giving part of all of a test to someone else.
- Soliciting someone to impersonate you online or in a classroom setting.
- Entering an office or building for the purpose of changing a grade on a test, assignment, or in a grade book or for the purpose of obtaining a test.
- Altering or attempting to alter academic records of the College which relate to grades; being an accessory to same.

Honor Pledge: I, as a member of the DSC community, pledge that I will neither give nor receive unauthorized aid in my work nor will I present another's work as my own, nor will I tolerate anyone who does. For more information on academic integrity, view [Honor Code](http://www.daytonastate.edu/academicintegrity/honorcode.html) (<http://www.daytonastate.edu/academicintegrity/honorcode.html>).

College Network Acceptable Use Policy: The purpose of this policy is to outline the acceptable use of the network and resources provided by Daytona State College and to establish a culture of openness, trust, and integrity. For more information, visit [Institutional Rights and Responsibilities](https://www.daytonastate.edu/commons/rightsresponsibilities.html) (<https://www.daytonastate.edu/commons/rightsresponsibilities.html>)

Support Services

Counseling and Accessibility Services: Counseling and Accessibility Services (CAS) provides tools and resources to students with documented disabilities. Students who self-disclose a disability and provide the required documentation to the CAS Office can receive confidential and reasonable accommodations to assist in their academic success. If you need accommodations, please contact the CAS Office at (386) 506-3238. To call Florida Relay dial 7-1-1, or the appropriate toll-free number: 1-800-955-8771 (TTY), 1-800-955-8770 (Voice). Counseling Services are available on campus to help students by providing confidential short-term counseling and linking them to local community mental health professionals for long-term assistance when needed. Please call (386) 506-3038 for more information. Visit the [Counseling and Accessibility Services web site](https://www.daytonastate.edu/cas/) (<https://www.daytonastate.edu/cas/>) for more information.

Veterans: If you are currently serving or have ever served in the U.S. Military, please feel free to visit the Veterans Center in the Building 100, Room 205 for any assistance or phone 386.506.3065. Please visit the [Veterans Information page](https://www.daytonastate.edu/admsvet/) (<https://www.daytonastate.edu/admsvet/>) for more information.

Academic Support Center: The Academic Support Centers (ASC) assist students on every campus to achieve their potential by providing the resources they need to become successful, independent learners. Visit the [ASC web page](http://www.daytonastate.edu/asc/) (<http://www.daytonastate.edu/asc/>) for more information or email ASC@DaytonaState.edu.

Writing Center: For assistance with all stages of the writing process please visit the [Writing Center](http://www.daytonastate.edu/cwc) (appointments recommended) www.daytonastate.edu/cwc

Library and Research Services: The Daytona State Library offers a variety of services and resources to support your academic success. Visit the [library website](http://library.daytonastate.edu/) (<http://library.daytonastate.edu/>)

Technical Support: Tech support is available for FalconMail, printing, web usage, Falcon Online, and more. Students may call 386-506-3950 or e-mail Helpdesk@daytonastate.edu. Information can be found on the [Student Self-Service Help page](http://daytonastate.edu/help/) (<http://daytonastate.edu/help/>) under Tech Support. For Falcon Online 24/7 support of course tools, view the Help/Resources on the Falcon Online navbar or call the Helpdesk at 386-506-3950, option 2. General Help information for Falcon Online can be found on the [Student Self-Service Help page](http://daytonastate.edu/help/) (<http://daytonastate.edu/help/>) under Falcon Online Technical Help. Personalized assistance via walk-in may be obtained at the new FalconAid Student Help Desk Kiosk located on the Daytona Campus in J. Griffin Greene, building 300, room 109. For days and times, check out the [Kiosk](http://www.daytonastate.edu/it/falconaid.html) (<http://www.daytonastate.edu/it/falconaid.html>). Times may vary during holidays and special circumstances.

Safety on Campus: Daytona State College has a mass notification system, DSC Alert. It's a multi-modal mass notification system that enables DSC to quickly send critical information to the College community via text, phone, and email during an emergency. Students also may receive non-emergency (outreach) communication including information on Registration, Financial Aid, College events, and other messages intended to make the enrollment process easier and improve your DSC experience. All DSC students are MAS4203

automatically opted into DSC Alert when they begin classes and will receive this service at no charge. After enrolling at DSC, you will receive an email at your DSC email address letting you know that the system has been activated and providing the link to the page where you can set up your account and select which types of outreach communications you would like to receive. The link is <https://dsc.bbcportal.com>. Once on the page, click the Sign Me Up! link and follow instructions to set up your account. Please use your DSC email address with the first_last@daytonastate.edu format. If you don't do anything, you are automatically opted in, but we encourage you visit the webpage to ensure that your account is set up to your preferences.

It's also important to keep your phone number current in the DSC system. To update your phone number, log in to your MyDaytonaState page and select My Profile > Campus Personal Data > Phone Numbers.

The Center for Men and Women: CCAMPIS-(Child Care Access Means Parents In School) assists eligible students with child care; New Directions: Access to financial assistance for tuition, books, uniforms, and/or equipment for single parents, displaced homemakers, single pregnant women, or those considering a non-traditional career; Lending Library: A limited library of textbooks available for loan; Clothes Closet: Students can achieve a professional image for job interviews and employment; Falcon Fuel: Free light snacks for students to fuel up and go! Homeless Student Services: College and community resources and referrals to help students stay in school. Health Services: Connections to local Health Care providers for DSC students and their children.

Visit the [Center for Women and Men web site](http://www.daytonastate.edu/centerforwomenandmen) (www.daytonastate.edu/centerforwomenandmen) or call (386) 506-3068.

ACADEMIC APPROVAL:

Senior Professor Marc Campbell, Department Chair, School of Mathematics

REVISED: 5/20