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).


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.

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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:
For more detail on the course objectives, go to (School of Mathematics website) and click on “Syllabi Page”.

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Grading Scale and Policy:
For more detail on the course grading policy and procedure, you must contact the course’s specific instructor.

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<tr>
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<td>D</td>
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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 website 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 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 website for more details http://www.daytonastate.edu/registrars/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;

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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.

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 Lenholt Student Center (Bldg. 130, room 124) or call them at 386.506.3065.

Counseling and Accessibility Services: If you need academic accommodations such as private testing, interpreters, note takers, etc., you must give your instructor a current letter from Counseling and Accessibility Services (CAS) that verifies that you need specific accommodations. Please make an appointment with your instructor as soon as possible to discuss the accommodations. See the Daytona State Counseling and Accessibility Services website for more information https://www.daytonastate.edu/cas/ or see the Student Handbook at http://www.daytonastate.edu/current.html.

Safety on Campus: Daytona State College has partnered with Rave Mobile Safety to provide Rave Alert, an emergency alert system that can deliver text and voice messages to your cell phone and voice messages to your home phone, as well as email messages to your FalconMail account or personal email account of your choosing. Daytona State College Rave Alert is also capable of posting emergency messages to the College's official Facebook and Twitter accounts and to the Falcon Central page. Check your FalconMail after you register for information on accessing and updating your free Daytona State College Rave Alert account. You can also visit https://www.getrave.com/login/daytonastate. In addition, the first few weeks of class you should note the door exits and stairwell locations in case of emergency situations. For more information concerning campus safety, go to http://www.daytonastate.edu/campus_safety/.

Student Rights & Responsibilities: See the Student Handbook. 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.

**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. Please make yourself very aware of this policy by clicking these two links:

- [Terms of Use](#)
- [Falcon Online User Expectations](#)
Academic Support Services – The Division of Library and Academic Support provides the following free services to students.

**Academic Support Center:** The Academic Support Center (ASC) assists students to achieve their potential by providing the resources they need to become successful, independent learners. ASC centers are available on all campuses providing academic support in the form of tutoring, learning sessions, instructor assistance, supplemental instruction and various workshops. For more information please go to [http://www.daytonastate.edu/asc/](http://www.daytonastate.edu/asc/) or email ASC@DaytonaState.edu.

**Writing Center:** The Writing Center assists students, staff, and faculty to become better writers through face-to-face or virtual consultations (up to 50 minutes) and workshops. As the hub for writing at Daytona State, staff work with all writers at any stage of the writing process – so whether you’re brainstorming ideas for a psychology paper or need a new perspective in the revision of a letter, consider meeting with the staff at the Writing Center. Scheduling appointments are recommended; call 386.506.3297 or visit the website [www.daytonastate.edu/cwc](http://www.daytonastate.edu/cwc) for more information.

**Library Services:** Daytona State Library Services offers many types of resources to support research needs (or just your curiosity). These resources include everything from e-books to online databases containing countless number of full-text newspapers, magazines and scholarly journals. Many of the resources can be accessed from the web 24/7. A staff of very helpful librarians is available for guidance to the best resources for any type of project.

E-mail the librarians, and/or call 386-506-3518, or check out the website for more information.

**Technical Support** is available for Falconmail, printing, web usage, Desire2Learn, and more. Students may call 386-506-4AID (4243) or e-mail FalconAid@Daytonastate.edu.

Local access numbers for your area are:

- Daytona 386-506-4243
- DeLand 386-785-2000 ext. 4243
- Deltona 386-789-7241 ext. 4243
- Flagler/Palm Coast 386-246-4800 ext. 4243
- New Smyrna 386-423-6300 ext. 4243

Please check the days and times to contact the **Student Helpdesk**. Times may vary during holidays and special circumstances.

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/asc/).

Times may vary during holidays and special circumstances.
ACADEMIC APPROVAL:
Professor Marc Campbell, Department Chair, School of Mathematics

REVISED: 1/17