

## Department Information

**Home Page:** <https://www.daytonastate.edu/academic-departments/college-of-arts-and-science/school-of-mathematics>

**Location:** Building 500, Room 135

**Phone:** (386) 506-3695 or (386) 506-3520

**Fax:** (386) 506-3036

**Course:** MAD2104 Discrete Mathematics

**Credit:** 3 semester hours

**Prerequisite:** Appropriate placement scores, successful completion of college prep course or qualified developmental exemption or passed MAC1114 with grade "C" or better or permission of chairperson.

**Concurrent Requisite:** MAC1114

**Course Description:** Topics include: Sequences and sequence notation, propositional logic, negation and logical equivalence, quantifiers, multiple quantifiers and their negations, implications, the logic of implications, valid and invalid forms of reasoning; Direct and indirect proofs, proving by cases, mathematical induction, proof by contradiction, and modular arithmetic; Sets, subsets, operations on sets, proving set properties, the duality principle, Boolean algebra; Notation and terminology of functions, inverse functions, properties of relations, order relations, proofs about properties of relations, equivalence relations; Graphs and Trees, proofs about graphs and trees, isomorphism and planarity, graphs in puzzles and games. (Prerequisite: Appropriate placement scores, successful completion of college prep course or qualified developmental exemption or passed MAC1114 with grade "C" or better or permission of chairperson or concurrent requisite of MAC1114). Check current catalog for lab fee.

## Required Materials

Textbook: Discrete Mathematics with Applications, 5th Edition by Susanne S. Epp  
ISBN: 9781337694193

**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 (*General Education Skills*)

*This course also helps develop the general education skill of (1) critical/creative thinking; (2) communication; (3) cultural literacy; and (4) information and technical literacy.*

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

1. Find a closed formula for recursive and non-recursive sequences. (1, 2, 4)
2. Solve puzzles involving logic by using truth tables. (1, 2, 4)
3. Translate statements of logic involving domain, quantifiers, predicates, and implications into symbols. (1, 2, 4)

4. Negate statements of logic. (1, 2, 4)
5. Identify valid and invalid arguments. (1, 2, 4)
6. Write proofs involving contrapositives, induction, contradiction, set properties, or Boolean Algebra. (1, 2, 4)
7. Perform modular arithmetic. (1, 2, 4)
8. Perform operations on sets. (1, 2, 4)
9. Solve application problems involving set operations. (1, 2, 4)
10. Create and apply arrow diagrams for relations and functions. (1, 2, 4)
11. Identify relations as having reflexive, symmetric, and/or transitive properties. (1, 2, 4)
12. Determine whether two relations are equivalent or nonequivalent. (1, 2, 4)
13. Solve applications involving recursive relations. (1, 2, 4)
14. Identify properties of vertex and edge graphs. (1, 2, 4)

## Course Chapter and Sections Covered

Chapter	Sections
2	1, 2, 3, 4
3	1, 2, 3
4	1, 2, 3, 4, 5, 6, 7, 8
5	1, 2, 3, 6, 7
6	1, 2, 4 (optional)
7	1, 2, 3
10	1, 2

## 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
Below 60	F

## Grades

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

## Classroom Policies

**Disclaimer:** This syllabus has been constructed to be as complete as possible, but I reserve the right to alter policies, procedures, and the syllabus as needed with notification to students. Please utilize the course shell in Falcon Online 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. 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).

**Communication:** College email is the official and primary internal communication method of Daytona State College. Employees and admitted students are assigned a Daytona State College email account which serves as the primary mechanism for official communication between College employees and registered students.

**Children/Non-Enrolled Individuals in Class:** Individuals who are not registered in the course are not permitted in the class when in session.

**Attendance:** Students who stop attending this class 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.

**Classroom Etiquette:** All students should be on time for class. Attend to your needs before entering the room. Students who come late or leave during the class are a distraction to both the instructor and other students. The use of cellular phones and other electronic devices is also a distraction. Please ensure electronic devices are off (or silenced). If an emergency arises, please be courteous to your fellow students and leave quietly. Finally, cell phones, watch alarms, etc. are strictly prohibited during classroom assessment.

**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.

It is the responsibility of the student to complete the remaining assignments before the incomplete automatically converts to the grade of F, which is 45 days following the end of the term in which the I grade was assigned.

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.

**Class 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, issues and concerns can be resolved with communication. Please review the Refund/Repayment Policy in the current college catalog and check with the [Financial Aid](#) office to determine how the withdrawal might affect your current and future financial aid eligibility. The steps for withdrawal from a class can be found on the [Student Falcon Self-Service InfoGuide](https://library.daytonastate.edu/student-falcon-self-service/home) (<https://library.daytonastate.edu/student-falcon-self-service/home>) under Drop Classes.

**Reinstatement Procedures and Instructions:** Students who are dropped from a class due to non-payment, non-attendance, or other process and wish to be reinstated should make a request following the [Class Reinstatement Procedure](#) (<https://www.daytonastate.edu/enrollment-information>). Students are advised to speak with Enrollment Services to ensure the reason for the drop is resolved.

**Student Rights & Responsibilities:** Students are responsible for reading and following all college policies outlined in the current Student Handbook. Some of the most important are summarized below. The Handbook

can be accessed on the [Student Resources](https://www.daytonastate.edu/student-resources) webpage (https://www.daytonastate.edu/student-resources) under the Student Resources left navigation menu.

**Sensitive Materials:** Course content aims to enable students to reach course goals and objectives. As such, students may be introduced to a wide range of topics and ideas that differ from familiar understandings and beliefs. Some content may be considered sensitive or offensive or disturbing (or all the above) by some students.

**Recording:** Students may record video or audio of a class lecture for a class in which the student is enrolled for their own personal educational use. A class lecture is defined as a formal or methodical oral presentation as part of a college course intended to present information or teach enrolled students about a particular subject.

Recording class activities other than class lectures, including but not limited to lab sessions, student presentations (whether individually or part of a group), class discussion (except when incidental to and incorporated within a class lecture), clinical presentations such as patient history, academic exercises involving student participation, test or examination administrations, field trips, private conversations between students in the class or between a student and the faculty member, is prohibited. Invited guest speakers may be recorded with their consent. Recordings may not be used as a substitute for class participation and class attendance and may not be published, posted, or shared without the written consent of the faculty member. Failure to adhere to these requirements may constitute a violation of the Student Code of Conduct.

**Academic Integrity:** 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. The grades you earn must be based upon your own work and must accurately reflect your own knowledge and skills.

An instructor who finds that a student has violated Academic Integrity may apply an academic consequence ranging from a zero percent for the assignment, up to and including failure for the entire course. Violations may be reported to the academic department chair for review and/or referred to the Judicial Affairs for appropriate disciplinary resolution. Visit the [Student Services Departments](https://www.daytonastate.edu/student-service-departments) page (https://www.daytonastate.edu/student-service-departments) for more information about Academic Integrity and the appeal process.

**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." View the Student Handbook for more information.

### 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.

**Microsoft Office:** Microsoft Office 365, with 1TB of OneDrive storage, is available to enrolled Daytona State College students. Students are provided a college email address that serves as the student's official source for college communication. In addition to email, Office 365 provides students with shared calendars, the ability to create and edit documents online, team sites, and other collaboration tools. Whether you work on a PC, Mac, tablet, or phone, you will have a consistent experience across all your devices. The service includes online versions of Word, PowerPoint, Excel, Teams, OneNote, and OneNote Class Notebook. For more information about Office 365, visit the [Help Desk](https://www.daytonastate.edu/help-desk/) webpage (https://www.daytonastate.edu/help-desk/) and click on Office 365.

**Student Evaluation of Instruction:** Every semester for every course, you have the opportunity to give your instructors feedback on your experiences in class. Instructors use your feedback to make informed decisions about how they teach their courses. Understanding student perceptions and experiences is a part of how we improve teaching across the college. Student evaluations of instruction are also an important element of the faculty evaluation process, which is why collecting a broad, representative, and valid data set is important. What this means is the more students who participate, the better the feedback.

You'll receive email with instructions near the end of the semester. You have about two weeks before the evaluation window closes. You can find the Course Evaluation window for each semester in the Academic Calendar on Daytona State College's website menu under Academics. Your course evaluation link is unique, and evaluations are anonymous. Additionally, evaluations are anonymous, and instructors only see summaries after grades are posted.

**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.

**Student Rights & Responsibilities:** Students are responsible for reading and following all college policies outlined in the current Student Handbook. The Handbook can be accessed on the [Student Resources](https://www.daytonastate.edu/student-resources) webpage (<https://www.daytonastate.edu/student-resources>) under the Student Resources left navigation menu.

## 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) 506-3038.

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](https://www.daytonastate.edu/student-service-departments/counseling-accessibility/) webpage (<https://www.daytonastate.edu/student-service-departments/counseling-accessibility/>) 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) 506-3653. Please visit the [Veterans Services](https://www.daytonastate.edu/veterans-services) webpage (<https://www.daytonastate.edu/veterans-services>) 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 [Academic Support Center](https://www.daytonastate.edu/library-and-tutoring/academic-support-center/) webpage (<https://www.daytonastate.edu/library-and-tutoring/academic-support-center/>) for more information or email [ASC@DaytonaState.edu](mailto:ASC@DaytonaState.edu).

**Writing Center:** For assistance with all stages of the writing process, please visit the [Writing Center](https://www.daytonastate.edu/library-and-tutoring/writing-center/) webpage (<https://www.daytonastate.edu/library-and-tutoring/writing-center/>). Appointments are recommended.

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

**Technical Support:** Tech support is available for FalconMail, printing, web usage, Falcon Online, and more. Students may call (386) 506-3950 or email [HelpDesk@DaytonaState.edu](mailto:HelpDesk@DaytonaState.edu). Information can be found on the [Help Desk](https://www.daytonastate.edu/help-desk/) webpage (<https://www.daytonastate.edu/help-desk/>). General help information for using Falcon Self-Service can be found in the [Student Falcon Self-Service Help Guides](https://library.daytonastate.edu/student-falcon-self-service) (<https://library.daytonastate.edu/student-falcon-self-service>).

For Falcon Online 24/7 support of course tools, view 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 in the [Falcon Online for Students](https://library.daytonastate.edu/falcononline) InfoGuide (<https://library.daytonastate.edu/falcononline>).

**DSC Alert:** 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 automatically opted into DSC Alert when they begin classes and will receive this service at no charge.

It's important to keep your phone number current in the DSC system. To update your phone number, log in to Falcon Self-Service from the MyDaytonaState portal and select My Profile > Contact Info.

For more information, please contact [DSCAlert@DaytonaState.edu](mailto:DSCAlert@DaytonaState.edu).

## The Center for Women and Men:

- **CCAMPIS (Child Care Access Means Parents in School):** Assists eligible students with childcare.
- **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.
- **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](https://www.daytonastate.edu/child-care-and-other-support) webpage (<https://www.daytonastate.edu/child-care-and-other-support>) or call (386) 506-3068.

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### **ACADEMIC APPROVAL:**

*Senior Professor Marc Campbell, Department Chair, School of Mathematics*

**Revised: 01/2022**