



MAT 361: Numerical Analysis Spring 2024

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Course Information

Instructor Information

Name: Dr. Caleb McWhorter
Office: Maguire 129
Phone: 845.398.4077
Email: cmcwhort@stac.edu
Office Hours: See 'Mathematics Help'

Class Information

Dates: January 22 – May 3
Time: TR 1:00 pm – 2:25 pm
Classroom: MAGR 121
Course Webpage: <http://coffeeintotheorems.com>

Course Description

Computer arithmetic, solutions of nonlinear equations; solving systems of linear equations, splines; numerical differentiation and integration; numerical solutions of differential equations. *Prerequisites: C- or better in MATH 109 or MATH 201 (MATH 301 and MATH 302 are strongly suggested, but not required).*

Course Objectives

After this course, among other things, students should be able to...

- Describe what numerical analysis is, broadly speaking, and some real life applications.
- Be able to implement a variety of numerical analysis concepts and algorithms using a computer system to both mathematical and 'real world' problems.
- Explain the concepts of error, loss of significance, stable/unstable problems, condition numbers, and norms.
- Be able to understand and explain big O notation and its relation to computational complexity.
- Be able to explain the problem of root finding along with a variety of algorithms that can be used to solve these problems.
- Be able to explain and implement the bisection method and Newton's method to find roots along with their error and convergence rate.
- Be able to understand and explain the concept of interpolation.
- Be able to implement a variety of interpolation techniques, especially Lagrange and Newton polynomials, to a data set as well as discuss their computational aspects and error bounds.
- Be able to explain the concept of Chebyshev nodes and use them in practice.
- Be able to explain the concept of splines and be able to interpolate points using splines.
- Be able to explain and implement a variety of techniques to approximate derivatives to functions along with their errors, especially Taylor series based methods.
- Be able to explain and implement gradient descent to minimize functions as well as discuss its real world applications.
- Be able to explain and implement a variety of numerical integration techniques along with the ability to discuss their computational aspects and errors.
- Be able to approximate integrals using composite trapezoid and Simpson's rule and discuss the errors associated with these approximations.
- Be able to compute and use quadrature-based approximations, especially Gaussian quadrature.
- Be able to discuss and implement a number of numerical linear algebra techniques, e.g. Gaussian elimination, LU decomposition, SVD decompositions, Power/Jacobi Method, etc. as well as discuss computational aspects and associated errors.
- Be able to explain and implement a variety of algorithms to fit models to a given dataset, e.g. least square regression, least square parabolas, power fitting, etc.

- Be able to explain and implement a variety of techniques to approximate solutions to initial-value problems and general differential equations.
- Be able to existence and uniqueness to solutions of differential equations as well as identify when a differential equation has a solution and when it is unique.
- Be able to explain and implement Euler's Method and Runge-Kutta to approximate solutions to initial values problems as well as discuss error and step size issues.

Furthermore, students should. . .

- Improve their ability to engage in mathematical thinking, reasoning, communication, and problem solving.
- Develop a matured perspective on how to approach mathematical problems and concepts.
- Be able to state ways Mathematics applies to real world problems.
- Learn to properly utilize technology to explore, expand upon, or answer mathematical questions.
- Refine their cognitive skills by improving their ability to learn independently, approach problems imaginatively, solve problems methodically, and communicate solutions intelligibly.
- Feel more comfortable writing code/programs, especially in Mathematica, and applying Mathematics to real-world problems.

Course Materials

Textbook. The primary reference for course topics will be lecture notes and related materials provided by the instructor. However, students wishing to have a consistent standard reference are suggested to use the free open source textbook *Applied Finite Mathematics* by Rupinder Sekhon and Roberta Bloom found at [https://math.libretexts.org/Bookshelves/Applied_Mathematics/Applied_Finite_Mathematics_\(Sekhon_and_Bloom\)](https://math.libretexts.org/Bookshelves/Applied_Mathematics/Applied_Finite_Mathematics_(Sekhon_and_Bloom)) or *Applied Finite Mathematics* by Rupinder Sekhon found at <https://archive.org/details/cnx-org-col10613/mode/2up>.

Calculators. Basic graphing calculators will be allowed during the course, unless otherwise instructed. However, these will not be required. The course may make use of the computational engine Mathematica via the WolframAlpha website: <https://www.wolframalpha.com>. Although WolframAlpha does have a paid account option for additional resources, the course will not make use of these features and students *will not* be required to setup an account or make any kind of payment.

Mathematica. Students will be required to having a working copy of Mathematica. However, students will not have to purchase and download the actual program. Wolfram offers monthly access to an online version of Mathematica for a small fee. Students should create an account and get a monthly subscription to get access to Mathematica at <https://www.wolfram.com/mathematica/>. Students wanting to purchase their own student copy of Mathematica may do so, but it is not required.

Course Policies

Grading Components

Course grades are determined by the following components:

Quizzes	15%
Project	15%
Homework	40%
Midterm	15%
Final	15%

Grading Scale

The grade scale is the standard St. Thomas Aquinas College grading scale and is as follows:

A	95 – 100	C+	77 – 79
A–	90 – 94	C	73 – 76
B+	87 – 89	C–	70 – 72
B	83 – 86	D	65 – 69
B–	80 – 82	F	0 – 64

Course Format

The course consists of two lectures per week. Each class will begin with a quiz followed by lecture. These lectures will typically consist of a topic discussion followed by time for individual or group problem solving. However, due to the number and ‘depth’ of course topics, not every concept or problem type can be covered during class. Therefore, you may be assigned reading or videos before lecture. Lectures where readings or video are assigned will still cover course content; however, the focus of these lectures will be problem-solving. Therefore, be sure to do the assigned reading/viewing before the lecture. Regardless, students are expected to spend outside of class reading course material, studying extra materials, and solving additional problems. Students are highly encouraged to do additional practice problems from past semesters available via the course webpage. Finally, students are expected to typically spend approximately 3 hours per credit outside of class on course materials. However, some weeks this may be more or less.

Attendance & Participation

Attendance. It is essential to your success in this course that you attend each lecture and participate in class discussions. It is also a federal requirement that students who do not attend or stop attending a class be reported at the time of determination by the faculty that the student never attended or stopped attending the class. Therefore, you are expected to attend each lecture and to show up on time. Address any absence(s), anticipated or unanticipated, with the instructor as soon as possible. Should you anticipate an absence, you are to contact the instructor as soon as possible—at least twenty-four hours before the class, if possible. Certain absences from lecture(s) may be excused, depending on the reason for the absence. Determinations are made on a case-by-case basis at the discretion of the instructor. The student should discuss the issue with the instructor as soon as possible; however, to excuse an absence, the reason(s) for missing lecture(s) must be documentable and presented, if requested.

If you miss a lecture, you are responsible for any material covered, any work assigned, any course changes made, etc. during the class. Do not assume or expect the instructor to provide you with anything, particularly lecture notes, from the class(es) missed. *Four or more unexcused absences from lectures could result in receiving a grade penalty per additional absence or an 'F' in the course.* Furthermore, excessive lateness will also count as an absence. If you are dismissed from lecture due to problems during the lecture, e.g. disruptive behavior or unauthorized cell phone use, then this dismissal will be recorded as an absence for the lecture. If you cannot attend a class due to illness, inform your instructor immediately so that arrangements can be made. In this case, the student may be required to participate in lectures virtually and submit assignments online.

Participation. Students are expected to participate in the course—both inside and outside the classroom. Inside the classroom, this means attending class, paying attention, taking notes, asking and answering questions when appropriate, etc. However, course participation does not begin and end at the classroom door. Students are expected to review course material and complete course assignments. Typically, students can expect to spend approximately 3 hours per credit outside of class working for the course—although some weeks this could be more or less. Students are highly encouraged to form study groups to help support themselves and their fellow students' learning. These groups can be used to review notes or additional resources, work on class activities, discuss homework problems, etc. However, these groups *should not* be used to simply solve problems for others or have others solve your problems for you. For instance, students may not 'assign' homework problems to each other to solve in order to complete assignments. Using study groups in this or similar manners is an academic integrity violation that will be dealt with harshly. If you are unsure if what plan on doing or are doing in study groups is appropriate, discuss this with your instructor.

Quizzes

There will be a quiz *every* class. Quizzes are meant to be short and simple. These quizzes serve more as a method of gauging whether you are keeping up with the material. It is important that if you are late that you obtain a copy of the quiz immediately. Quiz solutions will often be discussed following the quiz. Because quiz solutions will often be discussed in class, no make-up quizzes will be given except under extraordinary circumstances determined on a case-by-case basis at the discretion of the instructor. Unless otherwise instructed, there are no calculators, computational devices, notes, or outside assistance of any kind allowed on quizzes.

Homeworks

The only way to learn Mathematics is to do Mathematics! Therefore, there will be weekly homework assignments. It is essential for students to complete all of the assignments for the course. Working on homework is the best way of engaging with course concepts and gauging one's mastery of the material. Moreover, homework is an essential portion of the course grade. Assignments should be started as soon as possible. Do not delay working through homework; it is easier to keep up than it is to catch up. Students may request extensions on homework assignments. Requests for extensions should be submitted to the instructor in a timely fashion—do not delay! However, do not simply assume that you will be able to receive extra time on an assignment and plan your schedule carefully. Any extensions, due dates, and grade penalties for late assignments will be determined by the instructor on a student-by-student basis.

You are encouraged to work with others on homeworks. Mathematics is a social activity! The purpose of working together on assignments is to engage with course topics, see different perspectives, ask questions, and have others look over your work. However, do not simply use others to do your assignments. You should also not allow other students to use you to complete their assignments. Of course, using online solutions is a violation of the St. Thomas Aquinas College academic integrity policies. If you are unsure of whether a particular resource is appropriate to use on an assignment, consult with your instructor first.

Homeworks will also entail the use of the software Mathematica. Students will be required to having a working copy of Mathematica. However, students will not have to purchase and download the actual program. Wolfram offers monthly access to an online version of Mathematica for a small fee. Students should create an account and get a monthly subscription to get access to Mathematica at <https://www.wolfram.com/mathematica/>. Students wanting to purchase their own student copy of Mathematica may do so, but it is not required. The written and software portions of homework will be weighted equally—each worth 20% of the course grade.

Access to any datasets required for these portions will be provided by the instructor. These portions may require a fair amount of independence on the part of the student. However, there are resources available to help you with these problems. Should you have difficulty with these problems, ask your instructor for help! Be aware that many of your fellow students may be more technologically literate and ask them for help as well! However, you should *not* simply copy someone's code or take it with only minor changes. Your code and method of solution should be your own!

If you are unsure if a person or resource you want to use to help with these programming homeworks is a violation of St. Thomas Aquinas College academic integrity policies, consult with your instructor *before* making use of the person or resource. Anticipate that there may be technological issues and always start these problem sets early! Do not wait until the problem(s) are due to try to complete or submit them. You are responsible for submitting solutions and any files for computer-based problems on-time and in the proper format. Always check the file(s) after submission. Failure to adhere to these guidelines may result in grade deductions or rejection of submissions. There is no guarantee that any late solution(s) or file(s) will be accepted. However, if you experience technical difficulties, document the issues thoroughly.

Exams

There will be two exams in this course (a midterm and a final), each worth 15% of the total course grade for a total of 30% of the course grade. The schedule of the exams can be found in the 'Course Schedule' section of the syllabus. However, these exam dates are subject to change. Students should not make plans to leave campus before May 3rd or otherwise have conflicts on/before that date. The exams may be take-home exams. The exact guidelines may differ between the exams. However, the content covered by an exam, the exam procedures, and the exam due date will be announced the week of the exam. In the case of a take-home exam, students will be given at least 24 hours to do the exam.

Each of the exams covers approximately the half of the course material proceeding the exam date. These exams are not meant to be cumulative—to the extent that they can be; that is, the focus of an exam will be the half the course material preceding the exam. However, due to the topics

contained in an exam, topics from the other half of the semester may appear on an exam. Students should be present, seated, and prepared for a scheduled exam before the exam begins. Students who are late should not expect extra exam time. Furthermore, students who miss an exam should not expect to receive a make-up exam. There will be no make-up exams except under extraordinary circumstances, e.g. in the case of an emergency. However, determinations for make-up exams or other substitutions, with possible grade deductions, are made at the discretion of the instructor on a case-by-case basis. Unless otherwise instructed, no devices or materials other than those provided by the instructor are allowed on any exam.

Project

There will be a project in this course that will be given in Mathematica—though the project can be delivered in other formats at the request of a student; however, in this case, more responsibility may need to be taken on the part of the student to complete the project. Students wanting alternative formats for the project should consult with the instructor immediately. These arrangements are made on a case-by-case basis at the discretion of the instructor.

The project will be selected by the instructor and will be a blend of both the theoretical and programming aspects of the course. This project will use topics examined in the course but also things students have not seen before. This will test whether you have developed stronger mathematical cognitive skills and programming skills that you can take to ‘real-world’ problems. Accordingly, the project will focus on some problem, topic, algorithm, etc. that is commonly implemented in careers today—most likely from Data Science.

The project will introduce the topic, problem, algorithm, etc. to students, slowly building up the motivation, content, and programming required to address the problem. Students will address each part of the project, developing their skills, before applying what they have learned to a ‘real-world’ dataset. Students should also expect to discuss applications, generalizations, and implications of what they have learned throughout the project. The project will be given out in-class at least a month before the project is due. However, do not delay in starting the project! The project should be worked on independently and students should not consult each other or any outside resources without the permission of the instructor. Students should be sure that their project code runs as expected and that the formatting of the code and any written comments or responses are complete, readable, and understandable. Be sure that your project is submitted on-time—late submissions may not be accepted!

Mathematics Help

Be proactive about your success in the course! If you need help, there are many resources available to help you. Your first primary contact for help is the instructor. If you are struggling, attend office hours or send an email. The instructors office hours for this semester can be found below:

Mon.	11:30 am – 12:30 pm
Tues.	11:30 am – 12:30 pm
Wed.	11:30 am – 12:30 pm
Thurs.	11:30 am – 12:30 pm

Do not wait to bring issues, course related or otherwise, to the attention of the instructor. If you cannot attend office hours, send an email to the instructor to try to make other arrangements. There are also a number of resources available to you at St. Thomas Aquinas College: Center for Student Success, Academic Recovery Program, Writing Center, etc. Students looking for extra mathematics help should consult with the Academic Services Office in Spellman 106, via email at academicservices@stac.edu, or on the web at <https://stac.edu/academics/academic-services/>. The Center for Student Success website is <https://stac.edu/academics/academic-services/center-for-student-success/> and can be found at Spellman 111 or contacted at 845.398.4090.

Respect Policy

Learning requires a healthy academic environment. A key component to this is respecting everyone's time—especially giving everyone time to fail, ask questions, and learn. Therefore, everyone should abide by the following respect policies:

The instructor will respect student's time:

- They will come prepared to help you understand the course material and prepare students for quizzes/exams.
- They will listen to student feedback on how to best help them succeed.
- They will return assignments, respond to emails, and give feedback in a timely fashion.
- They will be patient during the student learning process and will treat all students fairly.

Students will respect the instructor's time:

- They will be on time to class. Moreover, they will come prepared and pay attention during class.
- They will ask for help and communicate with the instructor in a timely fashion.
- They will keep track of assignments—completing them on time and to the best of their ability.
- They will read and follow course policies.

Students will respect each other's time:

- They will not be disruptive in class. If you need to call or text someone, take it outside of the classroom.
- They will work with each other to find solutions and understand course material. However, they will not simply solve problems.
- They will allow each other to make mistakes, ask questions, and participate in the learning process.
- They will use respectful language when speaking to or about one another.

Email Policy

All email communication in this course should be done using your @stac.edu email account. Similarly, any digital course access and file submissions should be made using your @stac.edu email account. Abiding by federal guidelines, emails coming from a non-STAC email may not receive a response. Emails should be properly written: contain appropriate subject line, possess an opening and closing address, be understandable and contain appropriate language, be grammatically correct, have appropriate font style and size, etc. Emails which do not follow these guidelines may not receive a response.

Electronic Device Policy

Students are expected to complete the course without the use of calculators or other computational devices on assignments, quizzes, exams, etc., unless otherwise instructed. Any unauthorized use of such devices are considered a violation of the academic integrity policies. During the course, <http://www.wolframalpha.com/>, <https://www.symbolab.com/>, and Mathematica may be used to demonstrate concepts give students an opportunity to be able to check work. However, these should only be used as instructed, and never during a quiz or exam. All electronic devices should be turned off and put away during class unless otherwise instructed or given specific permission. Use of such devices can result in dismissal from class.

Mental Health & Counseling Services

If at any point during the semester, you feel overwhelmed with your class work, feel thoughts of depression/suicide, experience sexual assault/rape, experience problems with substance abuse or relationship abuse, or have any other struggles with physical/mental health, **please seek help!** The Counseling & Psychological Services (CAPS) at St. Thomas Aquinas College is a resource offering assistance with any issue you might have. There is ***never*** any shame in seeking help. If you or someone you know is struggling with any of these issues, ***speak out!*** The CAPS website can be found at <https://stac.edu/student-life/counseling-psychological-services/>. CAPS is located in the upper level of the Romano Student Alumni Center and can be contacted at 845.398.4065. If you or someone you know is having issues with gender or sexual identity issues, CAPS is also there to create a safe space for those with marginalized genders and sexualities or those who might be struggling with these issues. Know that my office is a safe space and should you prefer any gender specific pronoun/name, please be sure to make me aware! Students may also make use of the College Health & Wellness Services located in the McNelis Commons Residence Life Complex, Apartment 2B which can also be contacted at stachealth@stac.edu or 845.398.4242, as well as the Campus Ministry and Volunteer Services, directed by Nick Migliorino, located in the Romano Student Alumni Center and can be contacted at nmiglior@stac.edu or 845.398.4084.

Faith/Tradition Observances Policy

The instructor recognizes the diversity of faiths and traditions represented in the campus community. Students should have the right to observe religious holy days according to their faith and traditions. Accordingly, students may notify their instructor, no later than the end of the second week of classes, of any classes that they will be missing due to religious or traditional observances. Students

following this guideline will be excused from these classes. Under this policy, students should have an opportunity to make up any examination, study, or work missed due to these observances or have an equitable and appropriate substitution made. All policy and procedural decisions are made at the discretion of the instructor on a student-by-student basis.

Use of Student Work

In compliance with the federal Family Educational Rights and Privacy Act (FERPA), registration in this class is understood as permission for assignments prepared for this class to be used anonymously in the future for educational purposes.

Course Materials Policy

All course materials (defined to include, but not limited to, course handouts, video/audio lectures, assignments, quizzes, exams, etc.) are the intellectual property of the instructor or St. Thomas Aquinas College, unless the copyright is already explicitly held by some other individual, group, or other entity. Therefore, course materials are protected by United States copyright law, see Title 17 USC. Students in this course are permitted to download some course materials for personal use.

However, students are not permitted to (in print, digitally, or otherwise) share, distribute, sell, or publish course materials, either in part or in whole, without the instructors explicit written and signed permission along with a personal usage code. Unauthorized reproduction or distribution of course materials is a violation of intellectual property law, and is a violation of the student code of conduct. The instructor, or agent acting on behalf of the instructor with written and signed permission, also reserves the right to delete or disable any link to any course materials. In enrolling in the course, the student agrees to abide by this course materials policy in perpetuity.

Syllabus Policy

The instructor reserves the right to revise, including substantially revise, the course syllabus at any time—with or without notification. By enrolling in this course, students agree to all the policies found in the syllabus. Wherever applicable, students also agree to follow syllabus policies in perpetuity, e.g. students may not provide unauthorized assistance, materials, etc. to students enrolled in future versions of this course.

Tips for Success

- Be proactive about your success in the course.
- Do not procrastinate! Begin your assignments and studying early!
- Attend every lecture.
- Address issues immediately. Ask questions during class, recitation, office hours, etc.
- Form a study group! Working together will help you and others better understand the course

material as you can work through different difficulties and offer each other clarifications on concepts.

- Do problems! Reading through your notes is not enough. Seek out new problems and work through them carefully. When you are done, check your answer. If you are wrong, examine carefully what misunderstanding occurred and how to avoid it in the future. If you were correct, examine if there was a faster way, check to see if your solution ‘flowed’ and was easy to read, and think over what concepts/computations were used and what ‘type’ of problem was the exercise.

Important Dates

- 01/26: Academic Add/Drop Deadline
- 03/08: Mid-semester
- 03/11 – 03/15: Spring Break (No Classes)
- 03/29: Good Friday (No Classes)
- 04/03: Academic Withdrawal Deadline
- 05/03: Last day of classes/exams

College Policies

Academic Integrity

Academic integrity is a commitment to honesty, trust, fairness, respect, and responsibility within an academic community. An academic community of integrity advances the quest for truth and knowledge by requiring intellectual and personal honesty in learning, teaching, research, and service. Honesty begins with oneself and extends to others. Such a community also fosters a climate of mutual trust, encourages the free exchange of ideas, and enables all to reach their highest potential.

A college community of integrity upholds personal accountability and shared responsibility, and ensures fairness in all academic interactions of students, faculty, and administrators. While we recognize the participatory and collaborative nature of the learning process, faculty and students alike must show respect for the work of others by adhering to the clear standards, practices, and procedures contained in the policy described below.

Academic integrity is essential to St. Thomas Aquinas College’s mission to educate in an atmosphere of mutual understanding, concern, cooperation, and respect. All members of the College community are expected to possess and embrace academic integrity.

Academic Dishonesty

Academic dishonesty is defined as any behavior that violates the principles outlined above. St. Thomas Aquinas College strictly prohibits academic dishonesty. Any violation of academic integrity policies that constitutes academic dishonesty, including the use of AI tools without the explicit permission of the instructor, will be subject to harsh penalties, ranging up to and including suspension from the College.

For all Academic Integrity violations, faculty must file a Student Conduct Academic Dishonesty Report, which will be shared with the Dean of the appropriate School, the Provost, and the student. The student will also have to file a Student Academic Integrity Violation Report. Please view the full policy and the associated forms at <https://stac.edu/academics/registrar/academic-policies/>.

Electronic Use Policy

Faculty members at St. Thomas Aquinas College have the discretion to regulate the use of electronic devices in their classes, and students should not use such devices without the expressed permission of the professor. This policy covers cell phones, tablets, laptop computers, or any other device the use of which might constitute a distraction to the professor or to the other students in the class, as determined by the professor. Students with documented disabilities should discuss the use of laptops and/or other electronic devices with their professor at the beginning of the semester.

When a professor designates a time during which electronic devices may be used, they are only to be used at the discretion of the faculty member and in accordance with the mission of the college. Professors may develop specific and reasonable penalties to deal with violations of these general policies. For more extreme cases of classroom disruption, refer to the College's Disruptive Student Policy.

Students cannot personally record class sessions and then share them outside of the course, although they can maintain them for personal use.

Academic Accommodations for Students with Disabilities Statement

St. Thomas Aquinas College values diverse types of learners and is committed to ensuring that each student is afforded equal access to participate in all learning experiences. If you have a learning difference or a disability—including a mental health, medical, or physical impairment—that would hinder your access to learning in this class, please contact Disability Services. They will confidentially explain the accommodation request process and the type of documentation that may be needed to determine your eligibility for reasonable accommodations. To learn more about academic accommodations for students with disabilities, please contact Anne Schlinck, Director of Disability Services, at aschlinck@stac.edu or call/text 845.398.4087. Disability Services is located in Room L102 in the lower level of Spellman Hall.

If you've already been granted academic accommodations at St. Thomas Aquinas College, you have the right to receive the academic accommodations that are listed on your Letter of Accommodation. Please understand that it is your responsibility as a student registered with Disability Services to provide your Letter of Accommodation to your instructor if you wish to use your accommodations in this course. If you will need to use your testing accommodations, please be sure to review the

Disability Services Testing Accommodation Policies—Academic Year 2023 – 2024 found at [Disability Services Testing Accommodation Policies](#).

Sexual Misconduct Policy

Students should be aware that faculty members are responsible employees and are required to report certain information to STAC's Title IX Coordinator. If you inform your instructor about, or that person witnesses, gender- or sex-based misconduct, which includes sexual harassment, sexual assault, intimate partner or domestic violence, stalking, or any gender- or sex-based discrimination, the faculty member will keep the information as private as possible, but must bring it to the attention of STAC's Title IX Coordinator.

Students should also be aware that disclosing such experiences in course assignments does NOT put the College on notice and will NOT begin the process of STAC providing assistance or response to those experiences.

Please remember that instances of gender- and sex-based misconduct that occur in virtual/online environments are covered by STAC's Title IX, Student Code of Conduct, and Faculty/Employee Conduct policies.

The College encourages individuals who experience, witness or become aware of alleged sexual misconduct to report the incident to the Title IX Coordinator. The College will assist individuals in contacting law enforcement, if desired. The College also provides individuals the opportunity to discuss alleged incidents with a trained professional on campus with the assurance that the discussion will be confidential.

The following reporting processes are:

- **Non-Confidential Reporting Resources:** If you would like to talk to the Title IX Coordinator directly, you can contact Mr. Norman Huling (nhuling@stac.edu, 845.398.4068). Additionally, you also may report incidents or complaints to the Office of Campus Safety and Security (845.398.4080). You can find more information at <https://stac.edu/title-ix/>.
- **Confidential Reporting Resources:** If you would like to report to a confidential counseling resource who is not required to initiate a Title IX report, you may contact the following people on a confidential basis:

Ms. Anne Walsh RN, BSN
Director, Health and Wellness
845.398.4242
awalsh@stac.edu

Ms. Nicol Zambrano,
LMHC-Licensed Mental Health Counselor
Senior Mental Health Clinician, Health & Wellness
Romano Student Alumni Center Room 27;
nzambran@stac.edu

Center for Safety and Change
<http://centerforsafetyandchange.org/>
9 Johnsons Lane, New City, NY 10956
845.634.3344

Academic Semester On-Campus Office Hours
Thursdays, 1 p.m. – 5 p.m.
Romano Student Alumni Center, Room 21

Illness and Absences

For the health and safety of the campus community, students who are ill *should not attend classes*. If a student cannot attend classes due to illness, they should:

1. Communicate this change with their instructor(s) via email. Contact instructors as soon as possible, preferably within 24 hours.
2. Keep up with coursework and participate in class activities as much as possible. Students are responsible for completing any work that they might miss due to illness, including assignments, quizzes, tests, and exams.
3. Reach out to the instructor if illness will require late submission or modifications of assignments; work with the instructor to reschedule exams and other critical academic activities before they are due.

Diversity and Inclusivity Statement

St. Thomas Aquinas College is committed to creating an inclusive environment. Our community actively seeks the inclusion and full participation of individuals from groups that have historically experienced discrimination and prejudice. We are committed to a climate of mutual respect and inclusion, one in which diversity is a source of pride rather than a source of division. We encourage all persons—students, faculty, and staff alike—to reflect on their own experiences to explore the ways in which others' experiences can and do differ; the goal is to use this reflection to learn about different values, cultures, and ways of thinking. Ultimately, a just and equitable society will be easier to realize if we do not exclude those who are different from us and instead practice empathy and inclusivity.

To that end, if you experience or are aware of bias, mistreatment, or discrimination based on a person's (or your own) membership in a historically under-privileged or marginalized group, please report the incident [here](#), or contact one of the following individuals to share your concerns:

Samantha Bazile
Director of Admissions &
Chief Diversity Officer
845.398.4104
sbazile@stac.edu

Faculty reserve the right to provide open and honest readings and discussions in their classes about personal and institutional biases and prejudices and other topics that may cause discomfort to some.

More detailed information about the College's expectations and policies related to these matters can be found in the Student Handbook, specifically in the Student Code of Conduct, Section D: Harassment and Abuse, the Anti-Harassment Policy, and Rules and Regulations for Maintenance of Order.

Mental Health & Wellness

As a student, you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce a student's ability to participate in daily activities.

St. Thomas Aquinas College offers services to assist you with addressing these and other concerns you may be experiencing. If you or someone you know are suffering from any of the aforementioned conditions, you can learn more about the broad range of confidential mental health services available on campus via the Office of Student Development's Health and Wellness Counseling and Psychological Services (CAPS) by visiting <https://www.stac.edu/student-life/counseling-psychological-services> or calling 845.398.4065. CAPS is located on the 2nd Floor of the Romano Student Alumni Center (RSAC).

If you or someone you care about requires immediate assistance during the hours when CAPS is closed, you may reach out to Campus Safety at 845.398.4080. You can also reach an on-call mental health professional by dialing 988 on your phone or visiting the 24-hour emergency help service website at <https://988lifeline.org/>.

Course Schedule

The following is a *tentative* schedule for the course and is subject to change.

Date	Topic(s)	Date	Topic(s)
01/23	Calculus Review	03/14	Spring Break
01/25	Calculus Review	03/19	Newton & Lagrange Interpolation
01/30	Mathematica	03/21	Divided Differences
02/01	Mathematica	03/26	Hermite's Theorem
02/06	Floating Point Numbers	03/28	Chevshev's Theorem
02/08	Error, Significance, & Stability	04/02	Numerical Differentiation
02/13	Bisection Method	04/04	Numerical Differentiation
02/15	Newton's Method	04/09	Numerical Integration
02/20	Secant Method	04/11	Numerical Integration
02/22	Polynomial Roots	04/16	Numerical Integration
02/27	Linear Regression	04/18	Quadrature
02/29	General Curve Fitting	04/23	Ordinary Differential Equations
03/05	Gradient Descent	04/25	Euler's Method
03/07	Newton & Lagrange Interpolation	04/30	Runge-Kutta
03/12	Spring Break	05/02	Additional Topics