

**Nashville State Community College
School of STEM
Mathematics Program**

**Master Course Syllabus
Full 15-Week Term**

MATH 1830 – Applied Calculus

The purpose of the syllabus is to inform you how this course is organized, what the expectations are, and how you will be graded. In addition, there is important information about how the college will operate during severe weather and how the college will communicate with you. The syllabus is not a contract. Instead, it is meant to help you succeed in this course. If any of the content changes during the course term, you will be notified.

Course information:

Course Title: Math 1830 – Applied Calculus

Credits: 3

Class Hours: 3

Course Description:

An introduction to calculus without a requirement for trigonometry with applications from business, economics, life sciences, and health sciences. Topics include a survey of limits, continuity, differentiation, integration, related rates, maximum-minimum problems, and exponential growth and decay.

Prerequisites: Level 3 placement or higher in Math, MATH 1710, or MATH 1130

Instructor Information:

Name:

Email:

Office Phone:

Office Location:

Office Hours:

Instructor Zoom Room link:

Class Session Zoom Link Information (if virtual):

Course Delivery Method

- **On-Campus:** Course meets at a designated Nashville State Campus on (update to the days, times, and room numbers for your section)
- **Hybrid:** Course uses a blended format of online instruction where most classes require on-campus meetings. These courses have a designated Nashville State Campus with listed days, times, and room numbers.

- **Online:** Course is fully online (**asynchronous**) and has no scheduled on-campus meeting requirements.
- **Virtual:** Course meets live via Zoom at a set date and time (**synchronous**).

Required Textbook(s) & Other Materials:

Textbook(s): Calculus and Its Applications, 12th Edition, by Bittinger, Ellenbogen, Surgent, & Kramer.
ISBN: 9780135164884

Optional: Student Solutions Manual, ISBN: 9780135165683

Supplies: A graphing calculator is strongly recommended or required. The TI-84+ calculator will be the demonstration tool in the classroom. Some software may be used (the instructor will clarify).

Once you have registered for your courses, you should make sure you have the correct textbook and materials for each course. Before courses begin, you can do this by looking up your courses on the [bookstore's website](https://www.bkstr.com/nsccestore/shop/textbooks-and-course-materials) (<https://www.bkstr.com/nsccestore/shop/textbooks-and-course-materials>) using your A# or by entering your course information. If you are registered with the Access Center and need an alternate format for the textbook and other course materials, please contact the Access Center at 615-353-3721 or accesscenter@nsc.edu.

Digital Course Materials: These ensure you pay less for your course materials and have easy access through D2L throughout the term. When you registered for this course, the charge for these materials appeared on your account. If you decide you do not want to purchase the course materials embedded in NS Online, you can opt out of the program **until the end of the second week of classes**. If you opt out, you will be responsible for purchasing the required course materials on your own. For more information, please visit www.nsc.edu/dcm.

Honors Option: Honors credit is available in some classes. If you are interested in participating in the Honors Program, please see your instructor within the first four weeks of class.

Course Outcomes: At the end of the term, this is what you should know and/or be able to do:

Upon successful completion of this course, students should be able to:

- Solve problems using mathematics and determine if solutions are reasonable.
- Apply mathematical concepts to solve real-life problems using formulas (deduction) and interpret the meaning of the solution.
- Construct meaningful connections (transfer of knowledge) between mathematics and other disciplines.
- Apply technology for mathematical reasoning and problem solving.
- Analyze data/graphs by using mathematical modeling and/or statistical reasoning.

Course Competencies:

The following are detailed course competencies, or specific skills or knowledge, intended to help you achieve the course outcomes:

- Solve derivative and integral application problems and determine if solutions are reasonable.
- Analyze the graph of a function to determine intervals of concavity as well as intervals of increase or decrease.

- Determine the limits of functions both graphically and analytically.
- Determine the derivatives and/or integrals of algebraic, rational, exponential, and logarithmic functions.
- Recognize the relationship between the area under a curve and the Fundamental Theorem of Calculus.

The following are general education competencies intended to support the course outcomes:

- Apply mathematical concepts to problems and situations.
- Use critical thinking skills.

Topics to Be Covered:

- Graphs & Equations
- Functions & Models
- Finding Domain & Range
- Slope & Linear Functions
- Nonlinear Functions & Models
- Exponential and Logarithmic Functions
- Limits: A Numerical and Graphical Approach
- Algebraic Limits and Continuity
- Average Rates of Change
- Leibniz Notation and the Power and Sum-Difference Rules
- The Product and Quotient Rules
- The Chain Rule
- Higher-Order Derivatives
- Exponential and Logarithmic Functions of the Natural Base, e
- Derivatives of Exponential (Base- e) Functions
- Derivatives of Natural Logarithmic Functions
- Applications: Uninhibited and Limited Growth Models
- Applications: Exponential Decay
- Using First Derivatives to Classify Maximum and Minimum Values and Sketch Graphs
- Using Second Derivatives to Classify Maximum and Minimum Values and Sketch Graphs
- Graph Sketching: Asymptotes and Rational Functions
- Optimization: Finding Absolute Maximum and Minimum Values
- Optimization: Business, Economics, and General Applications
- Differentials
- Elasticity of Demand
- Implicit Differentiation
- Related Rates
- Antidifferentiation
- Antiderivatives as Areas
- Area and Definite Integrals
- Properties of Definite Integrals: Additive Property, Average Value, and Moving Average
- Integration Techniques: Substitution
- Numerical Integration
- Consumer and Producer Surplus

Course Assessments: We will use the following assessments to demonstrate your understanding, knowledge, and skills:

Your course grade will be determined by homework, quizzes, chapter exams, a comprehensive final exam, and possibly discussion posts (if offered online). Homework will be assigned in MyLab Math with associated due dates for each assignment. Pay close attention to these dates and plan your time accordingly.

Quizzes may be assigned in MyLab Math and have associated due dates. Pay close attention to these dates and plan your time accordingly.

There will be four exams administered covering the course content. **No make-ups will be given for any missed exam.**

There is a comprehensive final exam that will be taken at the end of the semester. If the final exam score is higher than your lowest test score, then the final exam will be used to replace the lowest test score. This allows students who miss an exam to use the final exam to replace it. However, any subsequent missed exam will be assigned a grade of 0.

Grading Policy:

Homework: 15%

Quizzes: 10%

Exams: 50%

Final Exam: 20%

Discussions: 5% (if included)

Grading Scale:

Letter Grade	Percentage Range
A	90-100
B	80-89
C	70-79
D	60-69
F	0-59

FA

If you stop attending class or if you are in an online class and stop submitting assignments, but do not turn in a withdrawal form by the deadline, you are still enrolled in class. You will be given a grade of FA, which means you have failed due to not attending class and not completing your assignments. Please refer to the current academic calendar available on the Nashville State web site, looking for the date that indicates it is the “Last Day to Earn F for Attendance (FA).” If you stop attending your course after this date, you will receive an F.

FN

An FN is awarded if you have never attended your course or done any of the work in an online course.

Late Work Policy & Make-up Procedures for Missed Assignments and Work:

Attendance Policy

General Policy

- *Absences in a course may affect your final grade.*
- *Tardiness may also affect your final grade.*
- *You are responsible for all work/tests that occur during any missed course session(s) regardless of reason(s) for absence.*
- *If you are not well enough to attend a course session (class), you must notify the instructor as soon as possible before the scheduled course time.*
 - *If you are unable to notify an instructor before the scheduled course time, you must contact the instructor as soon as reasonably possible.*
- *If you have an unavoidable conflict with a scheduled course session, you must notify the instructor before the course session.*
 - *If you are unable to notify an instructor before the scheduled course time, you must contact the instructor as soon as reasonably possible.*

Instructor's Policy

The attendance policy for this course is:

For financial aid purposes, **attendance** is measured by participation in the course. Instructors can determine your level of participation in several ways. Some of those ways are:

- continued attendance
- participation in on-ground or virtual class sessions
- participating in D2L as prompted
- responding to an instructor's email
- posting to a discussion board
- completing and submitting assignments

Technology Statement

- All classes at the College are web enhanced. "Web enhanced" means that components of the course, such as assignments and online discussions, may be located online in the class D2L/NS Online course shell and used in the course, even if the course meets in a classroom on ground.
- You must have access to a computer and an internet connection to complete assignments, engage in online discussions, and access various course materials through D2L/NS Online course shells.
- You may also be required to use free video conferencing platforms (examples: Zoom, Teams, etc.) for course sessions and meetings.
- You will be responsible for appropriate dress while on video. This means that you are expected to dress as if you were in a classroom.
- You will be responsible for a distraction free environment while on video. This means that the professor and others in the course should not be able to hear noise in your home, such as cell

phones, TVs, or barking dogs. The best way to do this is to keep yourself on “mute” until you need to speak.

- You will be responsible for making sure your background is neutral. Keep in mind that students and professors come from all around the world, and you are all a part of our community. Therefore, please avoid having images in your background that may be offensive to your classmates.
- Certain publisher materials, such as textbook figures, may not work on cellphones and may require a laptop or a tablet.
- If you have questions or concerns regarding access to a computer or internet resources, please contact your instructor. Additional information is available on the [access to internet and technology website](#).

Computer Labs

Computers are available for all Nashville State students to use at each campus during open hours. Open computer lab availability may vary from campus to campus.

You should check the NSCC website for current hours of operation.

D2L/NS Online and myNSCC

It is your responsibility to check your email in **both** D2L/NS Online course shells and your @my.nsc.edu (student email) on a regular basis. These are the official communication channels between the college and you. You are responsible for the information communicated through these email channels. D2L/NS Online emails contain specific course information and @my.nsc.edu emails contain important information from college offices, such as Financial Aid.

ADA Compliance Statement

If you need accommodations due to a disability, please do not hesitate to reach out to our Access Center. Disabilities for which you can receive accommodations include documented physical, emotional, and/or learning conditions. Nashville State is committed to supporting your success, and we encourage you to get assistance if needed. If you require accommodations for any courses in which you are enrolled, contact the Access Center at 615.353.3741 or 615.353.3721, or e-mail accesscenter@nsc.edu.

Classroom Misconduct

Disruptive conduct is not allowed in the classroom. Disruptive conduct is any behavior that prevents students from learning and interferes with the ability of the instructor to teach. This may change from course to course; therefore, your individual instructors will give you guidance on what qualifies as “disruptive conduct” in their courses. Please review the [Nashville State Student Code of Conduct policy](#). Please be aware that children are not allowed in class or to be left unattended on campus.

Academic Misconduct

You have started this academic journey to prepare for a future career. Because of this, it is important that you learn the materials being presented in your courses. For this reason, cheating, in any form, robs you of your opportunity to learn and master the material that will enable you to succeed in that future career. Nashville State has a clear [Academic Misconduct Policy](#) that you are expected to follow. In

addition, your instructors will clarify what Academic Misconduct looks like and the consequences for violations in each course that you take. The instructor has the authority to assign an “F” or a “zero” for such violations or for the term grade.

Academic Early Alert System

If you are not doing well in your course, your instructor may send you an Early Alert through your @my.nsc.edu email. This email will go to your academic advisor and Student Success advisor, as well. If you get an Early Alert, contact your instructor immediately. Instructors send these when they want to help you figure out how to get extra support to pass the course. An Early Alert does not mean that you have already failed the course. Rather, it means you are in danger of failing the course if you do not change your learning strategy. Please use an Early Alert to your advantage and as an opportunity to improve your grade.

RAVE Emergency Alert System

You can log in to this free alert system to receive text messages about emergencies related to NSCC campuses through the [RAVE app \(https://www.getrave.com/login/nsc\)](https://www.getrave.com/login/nsc). The instructions for this are listed below.

- Your RAVE Username is your NSCC email address.
- If you've never received an email from RAVE with your password, or if you need to reset your password, select “Forgot your password?” and a new password will be emailed to you.
- Should the RAVE system indicate “user not found”, select Register and create your own RAVE account.

Student Wellness

Your well-being is important to us. With this in mind, the college has several resources available to provide support when needed:

- [Free tutoring](#) can assist you beyond the classroom to help you make the most of your college education.
- [These resources](#) include NSCC email, scheduling, online courses, textbooks, tech check out and support, computer labs on campuses, academic advising, financial advising, COVID-19 information and procedures on campuses.
- [Services](#) that help with bus passes, food, childcare, textbooks, housing, financial counseling, personal counseling, suicide prevention, health insurance.

Equity Statement

Nashville State Community College strives to ensure that each student receives what that student needs to be successful, with goals of success beyond the classroom. We understand and practice ideals of equity and inclusion for our students by embracing a full spectrum of experiences, viewpoints, and intellectual approaches in order to overcome barriers to success.

Inclement Weather & Campus Closings

You get notices about campus closings in these places: text messages from RAVE and [the Nashville State website](#).

Even when campuses are closed, you are still responsible for completing all assigned work. Check D2L/NS Online for a message from your instructor so you do not miss important assignments and due dates, which may change due to the campus closure.

Class Cancellation Policy

Our instructors post messages about cancelling classes in the [D2L/NS Online](#) course shells and/or on the classroom door on campus. These messages can be found in the News and Content section or the Email tab in the online shell. Please check these to be sure that you take advantage of opportunities for learning and points toward your grade.