Nashville State Community College
Division of Mathematics and Natural Science

Master Course Syllabus

This master course syllabus is a general guide and overview of the course. Each instructor will further clarify specific criteria for grading, classroom procedures, attendance, exams and dates, etc. on his/her individual course syllabus.

Course Title: MATH 2110 – Calculus and Analytic Geometry III

Credits: 4
Class Hours: 4
A continuation of MATH 1920 and the third course in the traditional three-course calculus sequence. Topics include solid analytical geometry, the calculus of more than one independent variable, surfaces and curves in space, cylindrical and spherical coordinate systems, vectors and vector-valued functions, partial derivatives, multiple integrals, and applications.
Prerequisite: Math 1920

Instructor Information:
Name:
Email:
Office Phone:
Office Location:
Office Hours:

Textbook and Other Materials:
Textbook: Calculus, Early Transcendentals, 2nd Edition by Briggs, Cochran, & Gillett
Publisher: Pearson. ISBN: 0321947347
Some instructors may only require a MyMathLab access code that contains an e-text and may be used for homework and/or quizzes. ISBN: 032119991X
Supplies: A graphing calculator is strongly recommended or required. The TI-84+ calculator will be the demonstration tool in the classroom. A TI-89 calculator or other software that performs symbolic manipulations may not be used for exams.

Course Outcomes:
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 intended to support the course outcomes:

- Calculate operations on three-dimensional vectors, including the dot product and cross product, and determine what the results reveal about the relationship between the vectors.
- Classify cylinders and quadric surfaces from their equations and graphs.
- Write the equations of lines and planes and determine whether a set of lines is parallel, intersecting, or skew.
- Solve projectile motion applications using vector functions and explain the results.
- Use partial derivatives to calculate directional derivatives and interpret the result as it relates to the slope of surface.
- Apply the method of Lagrange multipliers to optimize a function subject to given constraints.
- Evaluate double integrals over rectangular and bounded regions, including the use of polar coordinates to find the volume of a solid.

**Topics to Be Covered:**

- Vectors in the Plane
- Vectors in Three Dimensions
- Dot Products
- Cross Products
- Lines and Curves in Space
- Planes and Surfaces
- Graphs and Level Curves
- Limits and Continuity
- Partial Derivatives
- The Chain Rule
- Directional Derivatives and the Gradient
- Tangent Planes and Linear Approximation
- Maximum/Minimum Problems
- Lagrange Multipliers
- Double Integrals over Rectangular Regions
- Double Integrals over General Regions
- Double Integrals in Polar Coordinates
- Triple Integrals
- Triple Integrals in Cylindrical and Spherical Coordinates
- Integrals for Mass Calculations
- Calculus of Vector-Valued Functions
- Motion in Space
- Vector Fields
- Line Integrals
- Conservative Vector Fields
- Green’s Theorem
Course Assessments:
The following performance assessments will be used to demonstrate students' understanding, knowledge, and skills:

In-class exams, homework and/or quizzes, and a comprehensive final exam.

Grading Policy:

Grading Scale:
A = 90-100
B = 80-89
C = 70-79
D = 60-69
F = Below 60
FA (see below)
FN (see below)

Per TBR policy, a student who does not officially drop or withdraw from a course, but receives a failing grade, will receive an “FA” if the last day of attendance was earlier than two-thirds into the part-of-term. That date equates to the last day to withdraw from the course.

An FN is awarded to students who never attended class.

Late Work Policy & Make-up Procedures for Missed Assignments and Work:
Each instructor will provide policy.

Attendance Policy
A student is expected to attend all scheduled classes and laboratories. Absences in a course may affect a student’s final grade. The student is responsible for all assigned work in the course regardless of excused or unexcused absences. Tardiness may also affect a student’s final grade.

D2L Brightspace/NSOnline and myNSCC email
It is the student’s responsibility to check D2L and MyNSCC email on a regular basis. These are the official communication channels between the college and students. Students are responsible for the information communicated through those channels. D2L contains specific course information and MyNSCC contains information important for other purposes.

Technology Statement
Nashville State's classes are considered to be web-enhanced. Faculty have an expectation that students will use a computer and the Internet to complete assignments, engage in online discussions, and access various course materials through Desire2Learn (D2L) course shells. Computers are available for student use at each campus during campus open hours.
ADA Compliance Statement
Nashville State complies with the Americans with Disabilities Act. If you wish to request any special accommodations for any courses in which you are enrolled, contact the Access Center at 615.353.3741 or 615.353.3721.

Classroom Misconduct
Nashville State Community College has a zero tolerance policy for disruptive conduct in the classroom. Students whose behavior disrupts the classroom will be subject to disciplinary sanctions. The Nashville State Student Code of Conduct policy is available at http://www.nscc.edu/content/resources/Student_Code_of_Conduct_Policy.pdf.

Please be aware that children are not allowed in class or unattended on campus.

Academic Misconduct
Any form of academic dishonesty, cheating, plagiarizing, or other academic misconduct is prohibited. Students are responsible for understanding and aiding by the Academic Misconduct Policy in the Nashville State Student Code of Conduct that can be found at http://www.nscc.edu/content/resources/Student_Code_of_Conduct_Policy.pdf.

In addition to other possible disciplinary sanctions that may be imposed through regular college procedures as a result of academic dishonesty the instructor has the authority to assign an “F” or a “Zero” for the exercise, paper, or examination or to assign an “F” for the course. Students may appeal through the appropriate college grade appeal procedures.

Academic Early Warning System
Nashville State Community College has implemented an Early Warning System to notify students via e-mail about academic problems such as poor classroom attendance, poor performance on assignments/tests, poor communication skills, late/missing assignments, and/or lack of classroom participation. *Please note that Early Warning Alerts do not affect a student’s academic standing.

RAVE Emergency Alert System
Emergency events can happen at any time and Nashville State Community College wants to be able notify students if and when they occur. For this reason, all students have been enrolled in the free RAVE alert system. If you have not already done so, please log in at https://getrave.com/login/nscc to confirm and update your contact information and notification preferences. It is critical that your information be correct so that you will receive any emergency notifications. 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.

Inclement Weather Policy
Nashville State will use the RAVE alert system to send a text message to students, staff, and faculty about adjusted hours of operation and/or closings at individual campuses. All students
should check the Nashville State web site home page at www.nscc.edu for announcements on campus closures, which may vary from campus to campus. Campus closures will also be announced on local television stations.

When classes are cancelled, an online assignment will be posted in NS Online. Check NS Online for a message from your instructor regarding your online assignment requirements.

Students should use their own best judgment in determining whether to report to campus during inclement weather when classes are not cancelled.

**Class Cancellation Policy**

If the class is cancelled, the instructor will notify all students by posting in the NSOnline/D2L course, e-mailing through NSOnline/D2L, and/or by posting a sign on the classroom door. In the event of class cancellation, students must access NSOnline/D2L to complete classwork and the assignment that will be posted in the course D2L site.