Math 2120-N01
Differential Equations
Syllabus and Course Information

Instructor Information

- Name:
- Office phone:
- Office location:
- E-mail address:
- Office Hours:

Course Description

This is an introductory course in ordinary differential equations. Topics include linear first-order differential equations, applications, homogeneous linear differential equations, second-order linear equations, systems of differential equations, and the Laplace Transforms.
Credit Hours: 3 credits     3 class hours
Prerequisite:  Math 1920

Course Outcomes and Topics

Upon successful completion of this course, students will:

- Use first-order and second-order differential equations and their solutions.
- Apply the concepts of differential equations to suitable mathematical model.
- Use graphing calculators and/or computer software as tools for the field of study.
- Apply analysis, synthesis, symbol manipulation, graphical conceptualization and technical writing skills in real-world situations.
- Analyze real-world problems related to population growth, predators and prey, competing species and corporations, biology, chemistry, mechanics, thermodynamics, harmonic oscillation, resonance, electric circuits, and anything else that moves.
- Analyze solution techniques comparatively: graphical, numerical, matrix, symbolic, and transforms.
Topics

- Initial Value Problems
- Mathematical Models
- First Order Differential Equations
- Separable Variables
- Linear Equations
- Solutions by Substitutions
- Euler’s Method
- Linear Models
- Nonlinear Models
- Higher Order Differential Equations
- Reduction of Order
- Homogeneous Equations with Constant Coefficients
- Undetermined Coefficients
- Variation of Parameters
- Cauchy-Euler Equations
- Mass-Spring Systems
- Laplace Transforms

Course Materials

- Calculator/software: A graphing calculator or a computer is strongly recommended. The TI-84+ calculator will be the demonstration tool in the classroom. Some software may be used.

Course Policies

**Attendance**

Each Instructor will provide information regarding his/her attendance policy. Failure to attend class will result in a final course grade of “FA” or “FN” (see explanation below) depending on the individual instructor’s course policy.

FA= failure, attendance-related (unofficial withdrawal) Last recorded date of attendance required
FN= failure, never attended class (unofficial withdrawal)

**Method of Evaluation**

Grading: 90-100 A, 80-89 B, 70-79 C, 60-69 D, below 60 F

The instructor will clarify specific examination, homework, and other methods of evaluation.

**ADA Statement**

Please contact the Access Services Coordinators at 615-353-3721 or 615-353-3741 if you would like to arrange ADA accommodations.

**Classroom Behavior**

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 instructor has primary responsibility for control over classroom behavior and maintenance of academic integrity. He/she can order temporary removal or exclusion from the classroom of any student engaged in disruptive conduct or in conduct which violates the general rules and regulations of the College. Disruptive behavior in the classroom may be defined as, but is not limited to, behavior that obstructs or disrupts the learning environment (e.g., offensive language, harassment of students and professors, repeated outbursts from a student which disrupt the flow of instruction or prevent concentration on the subject taught, failure to cooperate in maintaining classroom decorum, etc.), the continued use of any electronic or other noise or light emitting device which disturbs others (e.g., disturbing noises from beepers, cell phones, palm pilots, laptop computers, games, etc.).

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

**Academic Dishonesty (Honor Code)**

Any form of academic dishonesty, cheating, plagiarizing, or other academic misconduct is prohibited. “Plagiarism may result from: (1) failing to cite quotations and borrowed ideas, (2) failing to enclose borrowed language in quotation marks, and (3) failing to put summaries and paraphrases in your own words” (A Writer’s Reference 331). Academic dishonesty may be defined as, but is not limited to, intentionally trying to deceive by claiming credit for the work of another person, using information from a web page or source without citing the reference, fraudulently using someone else’s work on an exam, paper, or assignment, recycling your own work from another course, purchasing papers or materials from another source and presenting them as your own, attempting to obtain exams/materials/assignments in advance of the date
of administration by the instructor, impersonating someone else in a testing situation, providing confidential test information to someone else, submitting the same assignment in two different classes without requesting both instructor’s permission, allowing someone else to copy or use your work, using someone else’s work to complete your own, altering documents, transcripts or grades, and forging a faculty/staff member’s signature.

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.

Class Communications

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.

General Information

Inclement Weather Procedures: Nashville State rarely cancels classes. When classes are formally cancelled faculty members will post an assignment or other instructions for students. Students should check NS Online through MyNSCC for information in each course. Students are responsible for accessing and following instructions as directed. Free professional counseling is available on campus (Centerstone Counseling Services: call 483-8194 or email counseling@nscc.edu). Students wanting to make use of an electronic note-taking device (laptop, iPad, etc.) must see the instructor and sign a ‘use-contract’ prior to using the device.

NOTE: This syllabus is meant simply as a guide and overview of the course, the topics, the objectives, the general assessments, and some standard college policies. Some items are subject to change or revision at the instructor’s discretion. Each instructor will further clarify their criteria for grading, classroom procedures, attendance, exams and dates, etc.