Math 2320.021HY Differential Equations Hybrid

Course Syllabus: Spring 2022 R @ 11:00 – 12:20 MS - 130

"Northeast Texas Community College exists to provide personal, dynamic learning experiences empowering students to succeed."

Instructor: Dr. Doug Richey

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	Monday	Tuesday	Wednesday	Thursday	Friday	Online
Office Hours	Online Appointment	9:00-10:50	9:00-10:00	9:00-10:50	Online Appointment	Everyday

This syllabus serves as the documentation for all course policies and requirements, assignments, and instructor/student responsibilities.

Information relative to the delivery of the content contained in this syllabus is subject to change. Should that happen, the student will be notified.

Course Description: Ordinary differential equations, including linear equations, systems of equations, equations with variable coefficients, existence and uniqueness of solutions, series solutions, singular points, transform methods, and boundary value problems; application of differential equations to real-world problems. Three hours credit.

Prerequisite(s): MATH 2414 or equivalent with a grade of "C" or better

Student Learning Outcomes:

2320.1 Identify homogeneous equations, homogeneous equations with constant coefficients, and exact and linear differential equations.

2320.2 Solve ordinary differential equations and systems of equations using direct integration; separation of variables; reduction of order; methods of undetermined coefficients and variation of parameters; series solutions; operator methods for finding particular solutions; and Laplace transform methods.

2320.3 Determine particular solutions to differential equations with given boundary conditions or initial conditions.

2320.4 Analyze real-world problems in fields such as Biology, Chemistry, Economics, Engineering, and Physics, including problems related to population dynamics, mixtures, growth and decay, healing and cooling, electronic circuits, and Newtonian mechanics.

Program Student Learning Outcomes:

Critical Thinking Skills

CT.1 Students will demonstrate the ability to 1) analyze complex issues, 2) synthesize information,

and 3) evaluate the logic, validity, and relevance of data.

Communication Skills

CS.1 Students will effectively develop, interpret and express ideas through written communication.

Empirical and Quantitative Skills

EQS.1 Students will manipulate numerical data or observable facts by organizing and converting relevant information into mathematical or empirical form

EQS.2 Students will analyze numerical data or observable facts by processing information with correct calculations, explicit notations, and appropriate technology.

EQS.3 Students will draw informed conclusions from numerical data or observable facts that are accurate, complete, and relevant to the investigation.

Evaluation/Grading Policy: : Homework counting 100 points will comprise 25% of your grade, which is composed of 6.25% online discussion forum engagement and 18.75% written exercises submission. You will have 2 major exams, a midterm and a final, each counting 150 points worth 75% of your final grade. Grade determination: A 90-100%; B 80-89%; C 70-79%; D 60-69%; F Below 60%

Required Instructional Materials: **: Tenenbaum and Pollard. *Ordinary Differential Equations*.1985.**

Publisher: Dover Publications **ISBN Number: 978-0-486-64940-5**

Optional Instructional Materials: None

Minimum Technology Requirements: Scientific Calculator Recommended

Required Computer Literacy Skills: Access to a computer and internet connection..

Course Structure and Overview: You may not use electronic devices (with the exception of a calculator) in class or lab unless specifically provided permission from the instructor. Electronic devices include, but are not limited to, computers, tablets, phones, smartphones, and MP3 players. Students will be respectful to classmates and professor at all times. Homework will be assigned from handouts, videos, research and textbook, which will involve reading comprehension, analysis, writing, derivations and calculations

Communications: All graded work will be returned during the next face to face class meeting following its submission. Course email will have a response time of within six hours of reception

Institutional/Course Policy: Come to class regularly. Take notes. Ask questions. This is a hybrid class where students are required to access graded activities on blackboard online delivery of instruction.

Alternate Operations During Campus Closure and/or Alternate Course Delivery Requirements
In the event of an emergency or announced campus closure due to a natural disaster or pandemic, it may be necessary for Northeast Texas Community College to move to altered operations. During this time, Northeast Texas Community College may opt to continue delivery of instruction through methods that include, but are not limited to, online through the Blackboard Learning Management System, online conferencing, email messaging, and/or an alternate schedule. It is the responsibility of the student to monitor NTCC's website (http://www.ntcc.edu/) for instructions about continuing courses remotely, Blackboard for each class for course-specific communication, and NTCC email for important general information.

Additionally, there may be instances where a course may not be able to be continued in the same delivery format as it originates (face-to-face, fully online, live remote, or hybrid). Should this be the case, every effort will be made to continue instruction in an alternative delivery format. Students will be informed of any changes of this nature through email messaging and/or the Blackboard course site.

NTCC Academic Honesty/Ethics Statement:
NTCC upholds the highest standards of academic integrity. The college expects all students to engage in their academic pursuits in an honest manner that is beyond reproach using their intellect and resources designated as allowable by the course instructor. Students are responsible for addressing questions about allowable resources with the course instructor. Academic dishonesty such as cheating, plagiarism, and collusion is unacceptable and may result in disciplinary action. This course will follow the NTCC Academic Honesty and Academic Ethics policies stated in the Student Handbook. Refer to the student handbook for more information on these subjects.

ADA Statement:
It is the policy of NTCC to provide reasonable accommodations for qualified individuals who are students with disabilities. This College will adhere to all applicable federal, state, and local laws, regulations, and guidelines with respect to providing reasonable accommodations as required to afford equal educational opportunity. It is the student's responsibility to request accommodations. An appointment can be made with the Academic Advisor/Coordinator of Special Populations located in Student Services and can be reached at 903-434-8264. For more information and to obtain a copy of the Request for Accommodations, please refer to the special populations page on the NTCC website.

Family Educational Rights and Privacy Act (FERPA):
The Family Educational Rights and Privacy Act (FERPA) is a federal law that protects the privacy of student education records. The law applies to all schools that receive funds under an applicable program of the U.S. Department of Education. FERPA gives parents certain rights with respect to their children's educational records. These rights transfer to the student when he or she attends a school beyond the high school level. Students to whom the rights have transferred are considered "eligible students." In essence, a parent has no legal right to obtain information concerning the child's college records without the written consent of the student. In compliance with FERPA, information classified as "directory information" may be released to the general public without the written consent of the student unless the student makes a request in writing. Directory information is defined as: the student's name, permanent address and/or local address, telephone listing, dates of attendance, most recent previous education institution attended, other information including major, field of study, degrees, awards received, and participation in officially recognized activities/sports.

Tentative Course Timeline (*note* instructor reserves the right to make adjustments to this timeline at any point in the term):

Weeks 1 and 2: Basic Concepts
Weeks 3 and 4: Special Types of Diff Eq of Order 1
Weeks 5 and 6: Problems Leading to Diff Eq of Order 1
Week 7: Linear Diff Eq of Order Greater Than 1
Week 8: Midterm Examination March 10th
Weeks 9 and 10: Operators and Laplace Transforms
Weeks 11 and 12: Problems Leading to Linear Diff Eq of Order 2
Week 13 : Systems of Diff Eq
Week 14: Problems Giving Rise to Systems of Diff Eq
Week 15: Series Methods
Week16: Final Examination May 12th