SYLLABUS

Differential Equations
MAP 2302-94227 / 3 credit hours
FALL 2024

Instructor: Dr. Sami Kadamani

Office Location: BTEC 108
Phone: (813) 259-6573
Course Meeting Days and Times: ONLINE
Effective Dates: 8/19/2024 – 12/10/2024
Instructor's EMAIL: skadamani@hccfl.edu

If you email your instructor. You can expect the instructor to respond to your emails within 24 hours of receiving your email, except on weekends and holidays.
OFFICE HOURS:
Office hours:
M T W 8:30 – 10:30 a.m. (BTEC 108)
T R 5:00 p.m. – 7:00 p.m. (Online)
ADDITIONAL OFFICE HOURS AVAILABLE BY APPOINTMENT ONLY.

Course Description:
Major topics include trigonometric functions, their properties and graphs; inverse trigonometric functions, their properties and graphs; trigonometric identities; trigonometric equations; solutions of triangles; polar coordinates; trigonometric forms of complex variables; vectors; applications.

REQUIREED MATERIALS:

- MyMathLab (register and access through MyHCC/Canvas)
- etext *Fundamentals of Differential Equations,* 9th Edition by Nagle included in MyMathLab
- **WEBCAM AND MICROPHONE**
- **FOR TESTS ONLY the FOLLOWING CALCULATORS ARE ALLOWED**: TI-30XA, TI-30XIIS, CASIO FX-260 SOLAR, CASIO FL-300 MS PLUS. NO COMMUNICATION DEVICES OR SHARED CALCULATORS DURING EXAMS. CELL PHONES CANNOT BE USED AS CALCULATORS

Prerequisites:
MAC 2312 with a grade of at least "C" or appropriate placement criteria.

Students should have a working knowledge of all material covered in the prerequisite courses: continuity; differentiation and integration of algebraic, trigonometric, hyperbolic, exponential, and logarithmic functions; rates of change; related rates; differentials; integration techniques; improper integrals; sequences and series; and approximations using Taylor polynomials.
Students who made a "C" in the previous course, did not take the previous course in the immediately preceding semester, or did not cover all of the required objectives in the previous course will be starting out already behind and will need to spend additional time out of class (at tutoring, during office hours, etc.) to ensure they are adequately prepared to succeed. *Students are strongly encouraged to ask questions*.

GRADING SYSTEM

SYLLABUS QUIZ:

There will be a syllabus quiz on MYHCC/CANVAS. By taking the syllabus quiz on CANVAS, you are acknowledging and accepting the policies stated within the syllabus. You must complete the online syllabus quiz by TUESDAY August 27TH, 2024 or you will be ADMINISTRATIVELY WITHDRAWN from the course

HONORLOCK PRACTICE QUIZ:

There will be Honorlock Practice quiz on MYHCC/CANVAS. You must complete the online Honorlock Practice quiz by WEDNESDAY September 11TH, 2024. The tests might be proctored by Honorlock. Honorlock is an online proctoring service.

Attendance (VIDEOS) :(5%) Since there are no live classes, to receive "attendance" credit, please watch all posted videos and other visual assignments on MyMathLab (links posted on Canvas). Please take notes as you would in a real class-setting *before* trying the homework exercises.

Testing:(40%)

Three tests will be administered as outlined on the tentative class schedule. You might be asked to submit your work for credit. Tests cannot be made up. A cumulative **mandatory** final will be given at the end of the term. If a student takes the three tests and scores higher on the final exam than on one or more of the tests, the lowest test grade will be replaced by the final exam score. If a student misses one test, the grade for that test will be the grade from the final exam. If a student misses more than one test, the first zero score will be replaced with the grade from the final exam and all other grades will remain zeros.

Tests will not be made –up.

Test dates (mark your calendar)—All tests and final will be posted on Canvas and accessed through HonorLock link on Canvas.

Test #1 will be posted on Friday, September 20, and available through Sunday, September 22.
Test #2 will be posted on Friday, October 25, and available through Sunday, October 27.
Test #3 will be posted on Friday, November 22, and available through Sunday, November 24.
(See below for final exam date)

FINAL EXAM POLICY:(20%) If a student misses one test, the grade for that test will be the grade from the final exam. If a student misses more than one test, the first zero score will be replaced with the grade from the final exam and all other grades will remain zeros. If a student takes both tests and scores higher on the final exam than on one or more of the tests, the lowest test grade will be replaced by the final exam score. The final exam will be posted on Friday, December 6, and available through Sunday, December 8.

Your tests will be in Mylab. You need to access them from Honorlock (proctoring service).
To get used to accessing the test:

1. You need to watch the video in Canvas "LINK TO VIDEO TO WATCH BEFORE TAKING TESTS".
2. Take "BONUS: TEST FAMILIARITY TO HONORLOCK (out of 5 points to be added to Test 1)" which is due by 9/15.

Also, No formula sheet or cheat sheet will be given or allowed during the tests.

For tests: it is expected that you do ALL work. All your work needs to be neat, organized and numbered for every problem on the test. Then you need to scan it and send it to me within 20 minutes of your submission. Otherwise, no credit will be given.

Your exam score will be solely based on work sent. The score given automatically by Mylab is tentative/temporary.

NOTE: It will take some time to grade your exams. Please, be patient.

For example:

$$Solve\ for\ y\text{:}\ \int y^2\,dy = \int (x-5)dx$$

You wrote directly: $y = \left(\frac{3x^2}{2} - 15x + K\right)^{1/3}$ you will get ZERO even though your answer is correct.

But you showed these steps:

$$\frac{y^3}{3} = \frac{x^2}{2} - 5x + C \quad (1)$$

$$y^3 = \frac{3x^2}{2} - 15x + 3C \quad (2)$$

$$y = \left(\frac{3x^2}{2} - 15x + 3C\right)^{1/3} \quad (3)$$

Then $y = \left(\frac{3x^2}{2} - 15x + K\right)^{1/3}$.

You will get full credit. For comparison, if you are missing two of the three steps above, you might get partial credit depending on the severity of the steps.

Testing Policies: HONOR LOCK

Sit at a desk or table (not on a bed or couch).

Do not use multiple monitors.

Close all other files, programs, and windows/tabs on your computer prior to logging into Canvas/the exam.

You must have your microphone on. Do not talk to anyone else, or out loud to yourself. Do not read the questions out loud.

No one else should be in the room, do not leave a TV or music on. Headphone, earphone, buds, … not allowed.

Do not repeatedly look around the room, keep your eyes on the exam, or on your work.

Use of the internet, books, notes, phones, etc. is strictly not allowed. Only used an approved calculator on any exam.

Any form of academic dishonesty can result in a grade of 0 for any exam or assignment in the class, or an F grade for the entire course, at my discretion. The appropriate Dean may also be notified, and a student may be subjected to further punitive action at the discretion of the Dean. There will be no exceptions made and claims of ignorance will not be considered. Make sure you understand and abide by the rules.

Quizzes :(10%)

THREE online quizzes will be given throughout the term. The 2 highest scores will be counted. **Quizzes will not be made-up**. One quiz missed will count as the quiz grade to be dropped. If more than one quiz is missed, the first zero score will be dropped and all other zero scores will remain. Students will have two attempts at each online quiz and 75 minutes to complete each attempt. **The deadline for each online quiz is at 11:59 pm of the due date.**

Note: The students cannot attempt to open any other windows or pages during their online quiz time. This action will end their attempt to complete the quiz and a zero will be issued for that quiz.

Quiz dates (mark your calendar)—All quizzes will be posted on Canvas, and accessed through Canvas.
Quiz #1 will be posted on Monday, August 19, and available through Sunday, September 8.
Quiz #2 will be posted on Monday, August 19, and available through Sunday, October 13.
Quiz #3 will be posted on Monday, August 19, and available through Sunday, November 10.

Homework: (25%)
The homework consists of assignments on the Mymathlab website. All assignments will be graded by the computer for credit. If students miss a homework deadline, they can complete the late assignment up until 11:59 PM the night before the final exam for 90 percent credit.

NOTES: In every homework assignment you need to watch the MEDIA included in the section and write notes before starting the homework.

Every student gets a free 14-day grace period to use MyMathLab so it is very important that students register themselves in their MyMathLab course within the first 2 days of class. Students should see their instructor or call the toll free Product Support services number **(1-800-677-6337)**. Also, if you need any assistance besides the instructor ask **Academic Success Center (Math Lab)**

Success in this course is dependent upon the amount of time and effort spent working through the homework to *understand* the material (including instructions, definitions, and mathematical terminology and symbols) *not* time and effort spent memorizing and imitating examples.

SUGGESTION: As the students work through the online homework questions, they should write down the directions and problems neatly and keep the work organized so they have this to refer to when studying for quizzes and tests.
NOTE: Through each homework assignment, there are buttons to click to get explanations and assistance with the homework problems.

	EVENT	PERCENTAGE
1.	Three Tests (in MyMathLab through HonorLock)	40%
2.	Three Quizzes (in MyMathLab) (lowest score dropped)	10%
3.	Homework (in MyMathLab)	25%
4.	Attendance(videos)	5%
5.	Final Exam (in MyMathLab through HonorLock)	20%

GRADING SCALE

90 – 100 %	A
80 – 89 %	B
70 – 79 %	C
60 – 69 %	D
0 – 59 %	F

Final grades may be viewed via WebAdvisor at the end of each term (www.facts.org).

Religious Observances:

HCC will reasonably accommodate the religious observances, practices, and beliefs of students in its admissions, class attendance and examination policies, and work assignments. Students must notify instructors in writing one week prior to a religious observance.

Withdrawal:

The last day for the students to withdraw from the course is **Saturday, October 26th, 2024.** Additional information regarding the withdrawal policy can be found in the HCC Catalog, 2024 - 2025.

RESOURCES AND POLICIES

MyHCC/Canvas & HawkNet Email:

All students are provided with an official HCC email address that is the primary means of communication between the students and the instructor outside of class. Students may set their HawkNet accounts to automatically forward email to another address if preferred. Additionally, students view and track grades, access homework and quiz assignments, and open the etext through MyHCC (http://hcc.instructure.com). The HCC Live Support Center can be reached at http://hcclive.hccfl.edu or 1-877-736-2575.

Recording of class:

Students may, without prior notice, record video or audio of a class lecture for a class in which the student is enrolled for their own personal educational use. A class lecture is defined as a formal or methodical oral presentation as part of an HCC course intended to present information or teach enrolled students about a particular subject. Recording class activities other than class lectures, including but not limited to lab sessions, student presentations (whether individually or part of a group), class discussion (except when incidental to and incorporated within a class lecture), clinical presentations such as patient history, academic exercises involving student participation, test or examination administrations, field trips, private conversations between students in the class or between a student and the faculty member, and invited guest speakers is prohibited. Recordings may not be used as a substitute for class participation and class attendance and may not be published or shared without the written consent of the faculty member. Failure to adhere to these requirements may constitute a violation of the HCC Student Code of Conduct.

Requests for Accommodations:

If a student requires accommodation due to a physical or learning disability in order to participate in this course, he or she must contact the Office of Services for Students with Disabilities in BSSB 109. Students may reach the office by phone at (813) 253-7914. Accommodations will be provided only after a current memo from OSSD has been presented to the instructor and will not apply retroactively to any past assignments or tests.

Religious observances, practices, and beliefs will be reasonably accommodated by HCC in its admissions, class attendance and examination policies, and work assignments. Students must notify instructors in writing one week prior to a religious observance.

Online Testing Policies:

1) Students may NOT leave the room for any reason without submitting the test to be graded. This includes restroom breaks unless a memo from OSSD provides accommodation.
2) Students may not communicate during tests. This includes talking aloud even to oneself, copying work, sharing answers, passing papers, or using unapproved notes (including *any* use of communication devices).
3) All tests must be taken in a private closed room with no other person being present.
4) The test environment must be well-lit.
5) Students should hold all scratch paper (front and back) to the camera's view before beginning the test to show that they are indeed blank.
6) Any approved formula sheet must also be held to the camera to verify the content of the sheet.
7) The room scan on HonorLock must include work area (e.g. desk) and area below and above the work area, e.g. the floor or under the desk and the walls and ceiling.

Any violation or appearance of violation of testing policies may result in the test being immediately collected and submitted to be graded, including the possibility of being given a zero that cannot be replaced by the final exam grade. See the HCC Catalog for additional details and consequences.

Testing Services:

Campus Testing Services is located in BSSB 203 and can be reached by email at brtesting@hccfl.edu and by phone at (813) 253-7820. If a student must take a test *early* for a demonstrably valid reason or has test center accommodations, the student must make an appointment with the test center and notify the instructor by email no later than two weekdays *before* the appointment date.

Academic Success Centers:

Academic Success Center (Math Lab):

Academic Success Centers are located on all five campuses and are free to students. Tutors, computers, software, videos, textbooks, and study areas are available. The STEM Center on the Brandon campus is located in BLRC 200 and can be reached by phone at (813) 253-7839.

FA24 ASC STEM Center Hours

On-campus

STEM Center:	**Mon - Thu**	**9am- 5pm**
Library:	**Mon & Tue**	**5pm-8pm**

Online

We will provide online service from Friday through Sunday. The schedule will be up on Brandon ASC Online (https://hccfl.mywconline.net).

For **online** services and information please see **https://hccfl.mywconline.net/**
Success Coach: mysuccesscoach@hccfl.edu for an appointment

Also available to students is **Upswing**: a 24/7 online tutoring service provided free to students at Hillsborough Community College. For more information, go here: : https://hccfl.upswing.io

Incomplete:

Incomplete grades may be awarded if the criteria below are met and are confirmed by the academic dean:

1. The student must have completed more than two-thirds of the course.
2. The student must have at least a "C" average.
3. The student must provide written documentation justifying the request.

"I" grades must be removed before the end of the eighth week of the following term (excluding summer term) or they will be changed to "F" grades on the students' permanent records.

Consequences of Drop and Withdrawal:

Dropping or withdrawing may have an impact on financial aid, veteran's benefits, or international student visa status. Students are encouraged to consult with financial aid, the VA certifying official, or the international student advisor as appropriate prior to dropping or withdrawing from class.

Safety and Security:

Students who notice situations that represent potential or real safety or security problems should notify the local campus Public Safety Office at **(813) 253-7911**.

Microsoft Software Discounts:

Students at HCC have the ability to purchase Microsoft software for heavily discounted prices. Examples of software available through this program include MS Office, Windows, MS Visio, and other related Microsoft products. These software products are the full academic versions and have the same benefits as software purchased off the shelf at a retail store. Students will need to access a website at http://hccfl.onthehub.com and will need to provide their HawkMail email address to be properly authenticated.

Equity Policy:

Hillsborough Community College is an equal employment opportunity and affirmative action employer. HCC does not discriminate based on race, color, gender (including pregnancy, childbirth or related medical conditions), religion, national origin, age, disability, sexual orientation, marital status, gender identity, gender expression, veteran status, or any other legally protected characteristics. Should you require assistance or accommodation due to disability, contact the Office of Services for Students with Disabilities (OSSD) at your campus. If you feel you have been discriminated against, you may contact Annazette Houston, Chief Diversity Officer at (813) 253-7043.

INSTRUCTOR'S EXPECTATIONS OF STUDENTS

1.) Students are expected to complete the syllabus quiz in myHCC/Canvas by the due date to avoid being administratively withdrawn from the course.

2.) Students are expected to follow the learning path modules set up in MyHCC/Canvas, including doing all coursework on MyMathLab and watching the lecture videos and taking notes.

3.) Students are expected to complete all assignments on time and with thoughtfulness and academic honesty.

4.) Students are expected to maintain open communication with the instructor by regularly checking HawkNet email (directly or through email forwarding) and MyHCC announcements and by expressing any concerns or issues that may interfere with the learning process.

5.) Students are expected to treat everyone with respect and tolerance.

WHAT STUDENTS CAN EXPECT FROM THE INSTRUCTOR

1) The instructor will establish and maintain—with students' involvement and help—a safe, comfortable learning environment in which opinions, thoughts, and questions are valued.

2) The instructor will make meaningful assignments designed to broaden student knowledge and help improve students' ability to problem-solve utilizing the critical thinking skills developed in the study of mathematics.

3) The instructor will keep the course moving at a reasonable pace in order to satisfy the learning outcomes.

4) The instructor will supply students with fair, honest, and timely evaluators of progress such as maintaining a gradebook in MyHCC/Canvas.

5) The instructor will work with students to answer all questions regarding the concepts studied in this course.

STUDENT LEARNING OUTCOMES

COLLEGE OUTCOMES (GENERAL EDUCATION)

1. Demonstrate ability to think critically.
2. Demonstrate ability to express oneself clearly in written and oral communication.
3. Demonstrate ability to express oneself effectively in quantitative terms.
4. Demonstrate understanding of and appreciation for the value and significance of culture.
5. Demonstrate the scientific method of inquiry and the historical and contemporary impact of science on daily life.
6. Demonstrate understanding of global, political, social, economic, and historical perspectives.
7. Demonstrate ability to use technology to access retrieve, process, and communicate information.

DISCIPLINE OUTCOMES (MATHEMATICS, STATISTICS)

a. Utilize mathematical techniques/problem solving.
b. Recognize mathematic words/symbols.
c. Utilize logical reasoning/critical thinking in math.
d. Be able to comprehend/draw inferences from numeric data.

COURSE OUTCOMES (MAP 2302 Kent Nagle / Ninth edition)

1. Know what a differential equation is and to classify a given differential equation as ordinary or partial and linear or non-linear and determine the order of the equation. **(1.1)**

2. Know how to determine if a function or an equation is a solution of a given differential equation. **(1.2)**

3. Know how to classify solutions of a differential equation as general, particular, singular, explicit or implicit. **(1.2)**

4. Know how to find a differential equation which has a solution a given function or equation. **(1.2)**

5. Solve a first order differential equation with or without boundary values which either:
   a. has separable variables **(2.2)**
   b. is homogeneous **(2.6)**

c. is exact **(2.4)**
d. can be made exact by multiplying through the equation by an integrating factor **(2.3, 2.5)**

6. Solve rate problems involving a first order differential equation. **(3.1, 3.2, 3.3, 3.4)**

7. Be able to determine whether a set of equations is dependent or independent and when it constitutes a general solution of a homogeneous differential equation. **(4.2)**

8. From a general solution of a given homogeneous differential equation, find the particular solution satisfying certain boundary value conditions. **(4.2)**

9. From one solution of a 2^{nd} order homogeneous linear equation, find a second independent solution. **(4.2)**

10. Solve homogeneous linear equations with constant coefficients. **(4.2, 4.3)**

11. Use differential operators to solve non-homogeneous equations with constant coefficients. **(4.4)**

12. Use the method of variation of parameters for solving non-homogeneous 2^{nd} order linear equations. **(4.6)**

13. Find power series solutions to differential equations, both linear and nonlinear, where zero is an ordinary point. **(8.3)**

14. Use the Method of Frobenius to find power series solutions to differential equations where zero is a singular point. **(8.6)**

15. Find the Laplace transform, convolution, and the inverse Laplace transform of functions. **(7.2, 7.3, 7.4, 7.6, 7.7, 7.8, 7.9)**

16. Find the solutions of differential equations with given initial conditions using Laplace transforms. **(7.5, 7.10)**

TENTATIVE CLASS SCHEDULE

MAP 2302 FALL 2024
Differential Equations (ONLINE)
ASSIGNMENT, QUIZ, and EXAM DUE DATES

WEEK	DATE	ASSIGNMENT DUE
1	8/19 – 8/25	Orientation, 1.1, 1.2
2	8/26 – 9/1	1.3, 1.4
3	9/2 – 9/8	2.2, 2.3 & **SUN 9/8 QUIZ # 1 (1.1 – 1.4)**
4	9/9 – 9/15	2.4, 2.5, 2.6, "BONUS: TEST FAMILIARITY TO HONORLOCK"
5	9/16 – 9/22	9/22 TEST # 1 Review & 9/20 – 9/22 TEST # 1
	9/20 – 9/22	**TEST # 1 (1.1 – 1.4, 2.2 – 2.6)**
6	9/23 – 9/29	3.2, 3.3, 3.4
7	9/30 – 10/6	3.5, 4.1, 4.2
8	10/7 – 10/13	4.3, 4.4 & **SUN 10/13 QUIZ # 2 (3.1 – 3.5)**
9	10/14 – 10/20	4.5, 4.6
10	10/21 – 10/27	10/19 4.7 & 10/27 TEST # 2 Review & 10/21 – 10/22 TEST #2
	10/25 – 10/27	**TEST # 2 (3.1 – 3.4, 4.2 – 4.7)**
11	10/28 – 11/3	7.2, 7.3, 7.4
12	11/4 – 11/10	7.5, 7.6, 7.7 **& SUN 11/10 Quiz # 3 (7.1 – 7.5)**
13	11/11 – 11/17	7.8, 7.9, 7.10
14	11/18 – 11/24	11/24 TEST 3 Review & 11/22 – 11/24 TEST 3
	11/22 – 11/24	**TEST # 3 (7.2 – 7.10)**
15	11/25 – 12/1	**Final Exam Review**
16	12/2 – 12/8	**Final Exam Review, Final Exam, AND 12/8 is the last day to do any past due homework**
	12/6 – 12/8	**FINAL EXAM**

This schedule is tentative and maybe modified by the instructor as needed during the semester.

**** LAST DAY TO DROP/ADD: FRIDAY, AUGUST 23RD, 2024 ****

**** LAST DAY TO WITHDRAW: SATURDAY, OCTOBER 26TH, 2024 ****