The 3Rs	Respect, Responsibility, Reality	MCC

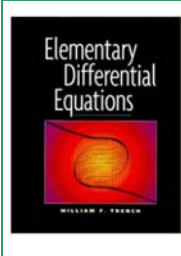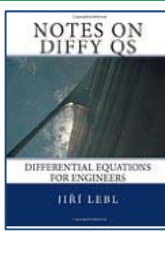**COURSE SYLLABUS:** Welcome to MTH 225 Differential Equations Online!

As you may expect, the **Course Information** in Blackboard includes more details, but I've included the most important course information on this printable PDF.

COURSE INFORMATION:

Instructor:	Paul Seeburger
Course Number, Section, & Title:	MTH 225-SL1 Differential Equations
Semester:	Spring 2020
Mailing Address:	Department of Mathematics Monroe Community College 1000 East Henrietta Road Rochester, NY 14623
Course Description:	An introduction to ordinary differential equations and their applications. Analytical methods include: separation of variables, linear first order equations, substitution methods, second order linear equations with constant coefficients, undetermined coefficients, variation of parameters, autonomous systems of two first order equations, series solutions about ordinary points, and the Laplace Transform. In addition to analytical methods, quantitative and qualitative analysis will be employed through the use of Euler's Method, phase lines, phase planes, and slope fields. Four class hours. (4 Credits.)
Course Prerequisite:	MTH 211 Calculus 2 with a grade of C or better, or equivalent.

Required Textbooks:	*Differential Equations* by Paul Dawkins, (c) 2007
	Elementary Differential Equations with Boundary Value Problems
	    by William Trench (Dec. 2013)
	Notes of Diffy Qs: Differential Equations for Engineers
	    by Jiri Lebl (Oct. 2014)
	Note: These textbooks are **FREE** PDFs or online texts and are NOT in the bookstore. See **Read the Textbooks** in the left sidebar of the course.

Calculator Policy:	A **TI-83 (plus) or TI-84 (plus) graphing calculator** is required!!
Faculty Webpage:	http://www.monroecc.edu/wusers/pseeburger/
Phone:	585-292-2946
Email:	pseeburger@monroecc.edu
Office Location:	Building 8, Room 542
Private Communications:	Email me or call or stop by my office during my Office Hours (see below).
Office Hours:	Mon., Wed., 11:00 am - 11:50 am Tue. 3:00 pm - 3:50 pm Thur. 11:00 am - 12:50 pm If these times don't work for you, please let me know via email when you would like to meet me and we can arrange a time to do so that works for both of us.

Respect for self and others in words and deeds
Responsibility for one's own success through personal accountability
Reality of the expectations and standards in a college environment

Department: Mathematics   Location: 8-510   Department Phone: 585-292-2036
REQUIRED COURSE MATERIALS:

Required Textbook:

	3 Required Free Course Textbooks: *Differential Equations* by Paul Dawkins, (c) 2007 (no image here) *Elementary Differential Equations with Boundary Value Problems* by William Trench (Dec. 2013) *Notes of Diffy Qs: Differential Equations for Engineers* by Jiri Lebl (Oct. 2014) Note: These textbooks are **FREE** PDFs or online books and are NOT in the bookstore. See **Read the Textbooks** in the left sidebar of the course.	

Required Software:

1. It is essential that you can scan your written assignments in some way and convert them to a PDF form, submitting each entire assignment as a <u>single</u> document.

    a. You can scan your written work (or take a clear photo with bright light) and create a PDF of your online visualization plots (using one of the options below) and then combine them (or convert them to PDF form) with the Online PDF Converter tool: https://online2pdf.com/
Read the instructions using the online link online on the **Needed Software** page in **Course Information**.

    Note: There are excellent free cell phone/tablet apps available for scanning written work that you may find useful. CamScanner is a common example. Please let me know if you find a favorite that I can add to this page.

    b. On Macs: Although the Online PDF Converter tool mentioned above in option a is easier, Preview can combine multiple pages into a single PDF.

2. It may be helpful to have a PDF printer installed on your computer. Macs include this option in their print dialog by default. Also the Chrome browser and Microsoft Word both have save to PDF options now too, but there is not always a standard option to print to PDF on Windows computers yet. Since you will mostly be printing from apps that run well on Chrome, that option should work well for about everyone. And then you can use the online tool mentioned above to combine these printouts with your written work. If you need further help, read about the options online on the **Needed Software** page in **Course Information**.

3. You may wish to sign up for Dropbox (not to be confused with the dropboxes you will use to submit assignments to me in Blackboard). See the instructions online on the **Needed Software** page in **Course Information**.

4. You will need a way to take a screen capture video in order to show other students how to do something, to ask a question about something, to present something to the class, or to show me something that does not appear to be working correctly. There will also be **three or four** required video presentation review **problems** that you will be creating and submitting to Discussions during this course. Read about the options online on the **Needed Software** page in **Course Information**.

COURSE LEARNING OUTCOMES:

By the end of the course, the students should be able to:
1. Classify a differential equation using appropriate mathematical terminology.
2. Solve a variety of differential equations using analytical methods.
3. Describe the qualitative behavior of the solutions of a differential equation.
4. Estimate the solutions of a differential equation using numerical and graphical methods.
5. Solve a differential equation using power series.
6. Solve an autonomous system of two first order differential equations.
7. Examine the qualitative behavior of the solutions of an autonomous system of two first order differential equations.
8. Solve initial value problems using the Laplace Transform.
9. Solve applied problems using differential equations.

See the official full list of **MTH 225 Course Objectives** *using the online link on this page of* **Course Information**.

COMMUNICATION IN THE COURSE:

The general practice in Blackboard is for communication to take place through the **Ask a Question** forum (see below for details), through graded discussion forums in Blackboard, and though email (see the **Email Instructor** link in the left sidebar and the **Ask My Instructor** button under each problem in WeBWorK assignments).

Discussion Forums are where you post your responses to discussion questions and read the responses of others. Your contribution to discussions is an important part of the course, and part of the learning activities you'll be evaluated on. Graded Discussions are located within the Graded Assignments folder in each Unit in Course Content.

Ask a Question is a specific discussion forum in the course. It is a public forum and is the equivalent to raising your hand in a face-to-face class. Other students will be able to read and reply to your questions. You should **subscribe** to this discussion. This will allow you to receive an email when new questions and answers are posted.

Response Time - I will be monitoring this course on weekdays from 10:00 am - 4:30 pm, and when I am able to do so otherwise. I often cannot respond to emails or discussion posts between 5 pm and 10 pm every day and during the day on weekends because this is the time I spend with my family. In any case, you can expect a response from me within 24-48 hours, and usually much sooner.

You will have access to the **Ask a Question** discussion board throughout the course. This is equivalent to raising your hand in a face-to-face course. Follow the direct link to the **Ask a Question** located in the left sidebar.

MCC Student Email is the official means of communication at MCC. **All official MCC business is conducted using MCC email.** While you are certainly welcome to call me on my office phone, the best way to contact me and your other professors is through your student email account.

COURSE POLICIES:

DUE DATES and LATE ASSIGNMENTS
Please see the "**What's Due When?**" page on the left sidebar of our course in **Blackboard** (or **My Calendar**) for due dates.

Late assignments are generally not accepted for credit, but in case you are late with one, submit it as quickly as possible, and send me an email explaining why it is late. I may make an exception.

MAKE-UP POLICY
Proctored Exams are to be taken on the dates specified in the **What's Due When?** page. If you miss a Proctored Exam, you must arrange to make it up immediately.

A student who has taken all proctored exams on the specified class dates will be given the chance to **retake** one of the proctored exams on the MAKEUP DAY.

You will receive a zero for each exam you miss after the first one. You will also receive a zero for any quiz or in class assignment you miss and for any homework assignment not turned in on time.

Note: The Final Exam must be taken in order to pass this class.

MCC's Catalog and Student Handbook outlines a final examination procedure in case you miss taking the final exam. Please refer to that source for further details.

COURSE COMPONENTS:

- **Lecture Videos/Notes:** Watch all of the videos carefully, printing out the notes first and filling them in as you watch the videos.
- **Textbooks:** Read the sections we cover and complete the assigned practice problems from each section during the week they appear on the schedule.
- **WeBWorK** (a free online homework system): Complete the assigned homework sets in WeBWorK each week, being sure to give yourself time to get 100% by asking Professor Seeburger questions as needed.
- **Discussions:** There are two types of discussions we will use, **graded discussions** and the **Ask a Question** discussion (counted toward the participation grade).
- **Written Homework Assignments:** There is at least one graded written homework assignment per Exam.
- **Quizzes:** There are 8 written quizzes during the semester. The two lowest quiz scores will be dropped.
- **2 Proctored Exams:** You will need to arrange to take these exams with a proctor, either at MCC or by arrangement. See the **Proctor Information** section of the Course Information.
- **Final Exam (proctored):** Comprehensive, non-departmental

GRADING POLICY

(You can view your grades in the Blackboard gradebook.)			
10% Written Homework	A 93-100%	B- 80-82%	D+ 67-69%
10% WeBWorK Homework	A- 90-92%	C+ 77-79%	D 63-66%
5% Quizzes (The 2 lowest quiz scores will be dropped.)	B+ 87-89%	C 73-76%	D- 60-62%
8% Weekly Discussions	B 83-86%	C- 70-72%	F 0-59%
45% Exams 1 & 2 (each with a Proctored part & a Take-home part) and Exam 3 (Proctored only)			
2% Participation in ALL Discussions			
20% Comprehensive Final Exam			

The WeBWorK homework will be done on the WeBWorK online homework system. Each WeBWorK homework will generally open at least one week prior to the due date, and you have unlimited attempts on most of the problems until the due date. There are some problems in some of the homework sets that have a limited number of attempts. Please check to see how many attempts you have each time to be sure you don't use them up before you get the correct answers.

Graded Feedback: Typically, I try to grade Exams and written assignments (HW and Quizzes) within one week of due dates. Discussions are usually graded within several days of the discussion reply deadline, but sometimes these may be graded at a later date in the semester.

WeBWorK is graded as you go, and I can see your current score as you work on it. There is no need to submit these homeworks in addition to completing the problems. You should be able to see your current score in WeBWorK.

WeBWorK assignments will be transferred to the Blackboard gradebook several times during the semester, so they won't appear in Blackboard right away, but will eventually appear there.

Academic Honesty/Cheating Policy:

* **Cheating will NOT be tolerated.** For the first offense, the student will receive a zero on that **homework, quiz, or exam** (with no chance to retake it). A second offense will result in failure of the course. Any work you hand in, be it part of **a homework assignment, test, or quiz**, must be your own and not a copy of another person's work. In **every** case, the incident **WILL** be reported to the administration. Don't compromise your integrity. It's NOT worth it! See the MCC policy on Academic Honesty below.

ATTENDANCE / WITHDRAWAL POLICY:

Virtual "attendance" in this course will be determined by your participation in the weekly activities and assignments **EVERY** week during the course by reading, watching videos, participating in the activities, and submitting assignments. However, if you do not participate each week, or develop a pattern of turning in assignments late, your grade will be affected and could lead to failure of the course. Please refer to the *MCC Catalog and Student Handbook* for attendance and withdrawal guidelines. If you are concerned about your grade and virtual "attendance," please talk to the instructor early in the semester.

If you have a special circumstance that causes your absence, please talk to me about it.

Note: The Student Conduct Code prohibits the obstruction or disruption of any college class. Making inappropriate posts on the Class Discussions is considered disruptive, and will be counted as a week's absence.

*Note that regular participation in the **Ask a Question** discussion forum by either asking or answering questions (as well as participation in all required discussions) is expected and will be considered part of the Participation grade which is 2% of your final grade. This is fairly flexible, but I will give you credit largely based on your interactions in all the course discussions. Not responding to peers or not participating in some discussions at all will lower this part of your grade fairly quickly, so be sure to really participate in the course discussions, not just post minimally.

Class Withdrawal and Implications for Financial Aid:

Important: *A withdrawal may affect your eligibility for financial aid. Please see a financial aid counselor for more information*

PROCTORED EXAM INFORMATION:

Proctored exams are mandatory for this course. Any student enrolled in this course may take advantage of free proctoring at the MCC Brighton Campus. Available dates and times will be announced in advance.

Students living within a driving distance of 45 miles to the MCC Brighton Campus are encouraged to take advantage of our **free** on-campus proctoring or may choose one of the two local pre-approved local proctoring centers and submit a Proctor Information form accordingly. See the **Proctor Exam Information** in the **Course Information** for contact information for these testing centers.

All Proctored Exams will be offered in the Mathematics Learning Center, building 11, room 204, on MCC's Brighton Campus (unless you have provided me with an approved proctor form or documentation of special accommodations through the Office for Students with Disabilities).

The Mathematics Learning Center has limited testing facilities and staff. Since I understand that students in this online class have different schedules, each proctored exam will be offered on two-three different days. About a week before each proctored exam, I will send the class an email requesting your preferred date and time for taking that proctored exam. As requests come in, I will fill the time slots on a first-come, first-served basis.

Picture ID is required when taking any proctored exam for this course.

Only students who do not live in the Monroe County area (including adjacent counties) or who are physically unable to come to campus are eligible to have an off-campus proctor (other than the two approved testing centers listed on the proctor form) for the proctored unit exams and the final exam. All other students are encouraged to take these exams on MCC's Brighton campus.

For those who qualify for off-campus proctored exams, your proctor must be an approved testing center or a qualified person with easily verifiable professional credentials. Possible examination proctors include official testing services, the head librarian at a public library with a testing service, a college professor/administrator, or a military education or testing officer. Unacceptable examination proctors include family members, friends, direct supervisors, elementary or high school teachers, retired professors, and other MCC students. Your professor reserves the right to approve/deny all proposed examination proctors.

Please complete the Proctorship form (you can find in the Proctor Information page in the online course) with the name, position, address, phone number and email address of the proctor/testing center you select as soon as possible and submit it to me using the Proctor Dropbox in the Proctor folder of Course Information. If you plan to take your exams at MCC's Brighton Campus, there is <u>no need to submit a Proctor form</u>.

Please see more information in the **Proctor Information** page in the **Course Information** online.

COLLEGE POLICIES

MCCs CORE VALUES: MCC is committed to providing a respectful learning community that values integrity, courtesy, compassion and responsibility. This is MCC's Civility Statement: We, the students, faculty, staff and administration of Monroe Community College are committed to core values that include

- Creating an environment where we value and respect each other;
- Promoting a community that encourages the tolerance of divergent opinions and constructive resolution of conflict;
- Exchanging ideas and enriching our lives through the exploration of our multifaceted culture;
- Embracing responsibility, integrity, and courtesy;
- Respecting the dignity, rights, and freedoms of every community member;
- Respecting the intellectual and physical property of others; and
- Respecting college property including both public and private spaces.

We, as a community of learners, are affirming these core values to guide our actions and behaviors.

MCC REGULATIONS AND POLICIES

Academic Honesty Policy
In the academic process, it is assumed that intellectual honesty and integrity are basic responsibilities of any student. However, faculty members should accept their correlative responsibility to regulate academic work and to conduct examination procedures in such a manner as not to invite violations of academic honesty. Such violations consist mainly of cheating and plagiarism. For more details regarding MCC's Academic Honesty policy regarding definitions, disciplinary action, and procedure for appeal, check the MCC Catalog and Student Handbook or MCC Website.

Policy Statement on Sexual Harassment
Monroe Community College strives to recognize human dignity and therefore does not tolerate sexual harassment or any other type of harassment within or connected to this institution. Sexual harassment is illegal and unfairly interferes with the opportunity for all persons, regardless of gender, to have a comfortable and productive education and work environment. We are committed to taking all reasonable steps to prevent sexual harassment and to discipline those who do harass.

Code of Conduct
The following actions or conduct are **prohibited.**

1. The **obstruction or disruption of any College function or activity, including the classroom instructional environment**, administration of the parking program and service functions and activities.
2. The **detention, physical abuse or intimidation of any person**, or threat thereof, or any conduct which threatens or endangers the health, safety, or welfare of any person on College-owned or operated property or at College-sponsored activities.
3. The **use of obscene or abusive language** or any other means of expression, language, or action which may reasonably be expected to provoke or encourage physical violence by other persons.
4. The **refusal to obey any reasonable or lawful request, order, or directive** of a College public safety officer, a teacher, College administrator, or any other identified representative of the College.

SERVICES FOR STUDENTS WITH DISABILITIES
Students with a documented learning difficulty should make an appointment with the Coordinator of Services for Students with Disabilities on the Brighton or Damon Campus to arrange for support services. You must provide the instructor with appropriate documentation regarding accommodations within the first two weeks of class.
All deaf or hard of hearing students should contact the Counseling and Advising Center.

MATH LEARNING CENTERS
Monroe Community College has a number of Learning Centers at Brighton (for example, Accounting, Math, Psychology, Writing, the Electronic Learning Center, etc.) and at Damon (for example, the Integrated Learning Center, Electronic Learning Center, etc.). Learning centers are staffed with instructional personnel and may be equipped with computers and software to assist students. It is recommended that students use the Learning Centers

to get additional help with concepts learned in the classroom and with their homework. Please refer to your MCC student email to review your referral and objectives for your use of the Learning Center(s).

Students in this class are referred to the Robert A. Fratangelo Mathematics Learning Center, 11-204, to receive free tutoring from qualified faculty tutors; to use student solution manuals, study guides, and other reference materials on reserve for use in the MLC (MCC I.D. required); and to view videotapes/DVDs and software available for additional help.

You may use the computers (with free Internet access) at the Brighton Campus's Mathematics Learning Center computer room, 11-206, the Electronic Learning Center, 11-104, or the Damon Campus Integrated Learning Center.

EMERGENCY CLOSINGS
If the College is **closed** or classes are cancelled due to inclement weather or some other emergency, all Rochester area radio and television stations will be notified no later than 5:30 a.m. or in the case of a mid-day decision, no later than 3:00 p.m. In addition, the home page on the MCC website (www.monroecc.edu) will display a message indicating the College is closed or classes are cancelled. Please do not call the College to avoid overloading the telephone lines.

In the event of an **emergency**, such as a campus evacuation or closure, severe weather alert, fire in a building, hazardous material incident, etc., where time-sensitive, proactive actions need to be communicated, the **SUNY NY-Alert** system will be utilized to provide immediate notification to all MCC students and employees who have opted to receive such alerts. Those who sign up for SUNY NY-Alert can choose to receive emergency messages via a variety of communication technologies, such as e-mail (college and/or personal accounts), and audio and/or text message to a campus, home or cell phone, fax, etc. For more information on SUNY NY-Alert, including how to sign up, please visit http://www.monroecc.edu/depts/pstd/NYAlert.htm.

CLASS CANCELLATIONS
Information regarding **class cancellation** is available daily on the web or through the telephone. Simply go to the MCC website (www.monroecc.edu) and select the link in the second heading menu labeled "Current Students", and then select the "Class Cancellations" link along the left column under the "Academics at MCC "section. Additionally, class cancellation information is available by dialing 292-2066, press "1" for the Brighton campus and "2" for the Damon City campus. If possible, please use the web, as there could be delays in the voice recordings based on the number of cancellations.

Professor Seeburger's Recommendations:

Here are my recommendations for your approach to each unit in the course:

1. Look over the Course Schedule (**What's Due When?** page) to see what will be due each day of the current/coming week.
2. Watch the Lecture Videos I have posted for the sections/topics listed for each day/week.
3. Try the associated homework problems in the textbook after each video. It is best to read the textbooks and try the practice problems frequently, as you are going along, rather than watching videos for several topics in a row without doing the practice problems. Find these assigned homework problems in the PDF file titled, **"Textbook Homework for ..."** under the title of each unit's content folder in the Course Content page.
4. Complete any WeBWorK assignments, written homework sheets, or quizzes that have been assigned by the listed due dates.
5. Complete your Discussion posts by the deadlines of each week (usually Thursday night) and at least one reply to another student's post by the deadline shown in the syllabus (usually Saturday night).
6. Always complete assignments at least a day or two early so you will have time to ask me (or your classmates) questions, and so you can do your best with less stress.

As I noted in the course **Welcome** page, you should expect to spend between 30 and 40 hours (on average) studying for this course each week. Be sure to schedule enough time to work on this course each day to allow you to be successful in this class.

MTH 225 Course Description

An introduction to ordinary differential equations and their applications. Analytical methods include: separation of variables, linear first order equations, substitution methods, second order linear equations with constant coefficients, undetermined coefficients, variation of parameters, autonomous systems of two first order equations, series solutions about ordinary points, and the Laplace Transform. In addition to analytical methods, quantitative and qualitative analysis will be employed through the use of Euler's Method, phase lines, phase planes, and slope fields. Prerequisite: MTH 211 with a grade of C or better.

Course Learning Outcomes
- Classify a differential equation using appropriate mathematical terminology.
- Solve a variety of differential equations using analytical methods.
- Describe the qualitative behavior of the solutions of a differential equation.
- Estimate the solutions of a differential equation using numerical and graphical methods.
- Solve a differential equation using power series.
- Solve an autonomous system of two first order differential equations.
- Examine the qualitative behavior of the solutions of an autonomous system of two first order differential equations.
- Solve initial value problems using the Laplace Transform.
- Solve applied problems using differential equations.

Withdrawal: Regular class attendance is one of the most important contributing factors to your academic success. Missing classes may have an academic consequence. In addition, failure to attend class may impact scholarships, grants, loans, veteran affairs status, satisfactory academic progress (SAP), participation on athletic teams, eligibility to live in campus housing, and, most significantly, financial aid assistance.

MCC requires faculty to report student attendance in Starfish for all classes (see MCC policy 3.3 Student Attendance Policy). MCC uses the student attendance data to identify when students have been missing classes and to send messages from the Starfish Early Alert system letting students know when they have missed more than 10, 20, and then 30 percent of a class. The messages will encourage students to reach out to their instructors to either re-engage in the class or to discuss withdrawing from the class. **Please note: attending class is important to your success and this does not suggest in any way that it is OK to miss 10%, 20%, or 30% of class meetings.**

If you anticipate missing class, please keep in regular communication with your instructor. If you determine that you will be unable to complete any course, it is YOUR responsibility to withdraw ("W") in order to avoid a failing ("F") grade. If you need assistance in completing this process, please contact the Registration and Records Office, [Room 6-203, 585-292-2300 (Brighton)]; [Room 210, 585-685-6003 (Downtown Campus)].

College-Wide Policies: Students are required to read and acknowledge College-wide policies each term. They are found in "College-Wide Policies" on Blackboard under Student/Courses.