



<b>Course Title and Number:</b> MTH 256 Differential Equations		<b>Instructor:</b> Benjamin Holt
<b>Year and Term:</b> Spring 2024	<b>Course Credits:</b> 4	<b>Office Location:</b> Sitkum 2C
<b>Office Phone:</b> 541-888-7608	<b>Office Hours:</b> Mon, Wed: 9 am – 9:50 am Tue, Thur: 10 am-11:30 am	<b>Class Location:</b> Sitkum 10
<b>Meeting Time/Days:</b> TR 11:00 am – 12:50 pm		<b>Email Address:</b> benjamin.holt@socc.edu
<b>Web Page Address:</b> <a href="https://holt.blue/MTH_256/Syllabus/syllabus.pdf">https://holt.blue/MTH_256/Syllabus/syllabus.pdf</a>		<b>Fax Number:</b>

<b>Course Description</b> <i>(as it appears in the approved College Course Outline)</i>	Topics include first-order linear and nonlinear ODEs; second-order linear ODEs; series solutions to second-order linear ODEs; Laplace transforms; systems of linear ODEs.
<b>Course Objectives Reflecting Expected Student Learning Outcomes</b>	<ul style="list-style-type: none"><li>• Explain the difference between differential and algebraic equations.</li><li>• Utilize terminology and classification schemes to describe differential equations.</li><li>• Explain the significance and usefulness of differential equations in engineering and science.</li><li>• Explain and solve standard applications of differential equations.</li><li>• Solve first-order linear and nonlinear ODEs and second-order linear ODEs.</li><li>• Solve linear ODEs by means of the Laplace transform.</li></ul> Utilize a systematic approach to obtain solutions to unfamiliar problems with confidence.
<b>Grading</b>	<b>Course Requirements:</b>  <b>myOpenMath Homework:</b> There will be a homework assignment for each section we cover in this course. Each assignment is completed in Canvas  The due dates for all assignments are given in the course schedule on the last page of this syllabus and are also on Canvas.  On each homework problem you have 100 attempts. Any problem on and assignment can be swapped for another one at a 20% penalty on the points for that problem.  Late homework assignments can be made up with a late pass which extends the homework due date by 72 hours. You have a total of 6 late passes for the term. Please use them only when you really need them.



Each assignment grade is a percentage, and the average of these is your homework grade. Your homework grade is worth 30% of the course grade.

**Exams:** There will be two exams (a midterm and a final) over the course of the term covering material up to each exam. Every exam will consist of 7 questions drawn randomly from an exam question bank. To practice for each exam, you may use the following the following page:

[https://holt.blue/MTH\\_256/exam\\_practice.html](https://holt.blue/MTH_256/exam_practice.html)

The midterm and final are each worth 35% percent of the course grade.

**Final Exam:** The final exam will NOT be cumulative and will have the same format and weight as the Midterm Exam. The final exam will be given ONLY on the day that is scheduled by the college. (Please see the schedule on the last page of this syllabus.)

**Calculators & Technology:** For the exam you may use the TI 30XIIS calculator. If there is another calculator that you would like to use, you need to get permission with me beforehand. You MAY NOT use any online resources during the exam.

**Handwritten Notes:** For the exam you may use your handwritten notes. You MAY NOT use any online resources during the exam.

**Policies on Missed Exams and Late Work:**

Late homework assignments can be made up with a late pass which extends the homework due date by 72 hours. You have a total of 6 late passes for the term. Please use them only when you really need them.

If you miss an exam for reasons which are beyond your control, you are welcome to present your circumstances to me during office hours. Otherwise, the missed Midterm will receive a penalty of 20% off the top of whatever score is received. Missed midterms must be made up **BEFORE** finals week.

Also, please be aware that travel arrangements made in advance of exam dates are NOT considered circumstances beyond your control.

**Course Grade:** Your course grade is determined by the following items and their associated weights:

myOpenMath Homework: **30%**

Midterm Exam: **35%**

Final: **35%**



	<p>The letter grade equivalents to the above course grade are: 90≤Course Grade&lt;100 <b>A</b> 80≤Course Grade&lt;90 <b>B</b> 70≤Course Grade&lt;80 <b>C</b> 60≤Course Grade&lt;70 <b>D</b> Course Grade&lt;60 <b>F</b></p> <p><b>Please Note:</b> 1. No graded items will be accepted past the deadline 11:59 pm on the day of the final exam. 2. Your final course grade will NOT be rounded up no matter how close it is to the next letter grade. Ample opportunity is provided during the term to earn the grade you want and it is your job to make sure your grade lands where you want it.</p> <p><b><u>Students who need reasonable accommodation should contact the instructor or call Disability Services for Students at 541-888-7405.</u></b></p>
Text(s)	<p><b>Optional Texts</b></p> <p><b>Differential Equations, by Jiří Lebl, LibreTexts, Open Education Resource (OER) LibreTexts Project (<a href="https://LibreTexts.org">https://LibreTexts.org</a>)</b></p> <p><b>Notes on DiffyQs, by Jiří Lebl (self published, available online)</b></p>
<b>Required Materials</b>	A TI 30XIIS , TI Multiview, TI-83/84, or any BASIC graphing calculator.
<b>Term Calendar</b> <i>(The instructor reserves the right to alter dates of presentations and exams/projects.)</i>	<p><b>Topics to be Covered:</b> Please see the course calendar on the last page of this syllabus.</p>
<b>Prerequisites</b>	MTH 252 is a prerequisite for this course. If you did not pass MTH 252 with a "C" or higher, you may be administratively withdrawn from this course within the refund period. This withdrawal could affect your financial aid and/or academic standing. If you are uncertain about whether you have passed MTH 252 with a "C" or higher, check MyLakerLink or with your advisor within the first week of class to ensure you have met the course prerequisites.
<b>Availability of Tutoring, Learning Lab, Academic Support</b>	In addition to office hours I highly recommend that you visit the tutoring center on the 3rd floor of the Tioga building. There are tutors there waiting to help you! Also, tutoring services are FREEEEEEEEEEEEEEEEEEEEEEE!!!!



**SOUTHWESTERN**  
AN OREGON COMMUNITY COLLEGE



## Policies and Guidelines

*Components marked with asterisk (\*) are required for every syllabus.*

### **\* Course Hours**

Southwestern's Credit Hour Administrative Policy (APP 8191) stipulates that credit-bearing courses, regardless of delivery method, are scheduled and conducted in compliance with the definition of the credit hour as set forth in Section 600.2 and 600.24 of the Code of Federal Regulations and the NWCCU Policy on Credit Hour.

For this reason, students are expected to complete a minimum of two hours of out-of-class student work per credit hour each week for the quarter.

### **\* Children in the Classroom**

Children represent a disruptive element for the classroom. They also increase the risk of accidents occurring in the laboratory. For those reasons, children should not be brought to either the classroom or the laboratory.

### **\*Academic Honesty: Plagiarism And Cheating**

Cheating, plagiarism, and other acts of academic dishonesty are regarded as serious offenses. Instructors have the responsibility to submit, in a written report to the Dean of Students any such incident that cannot be resolved between the instructor and student. The policy of the Board of Education of Southwestern Oregon Community College on Student Rights, Student Code of Conduct, and Student Grievance Procedure outlines penalties ranging from admonition to expulsion from the class or college. In the policy, academic plagiarism is defined as: "The intentional submission for evaluation to a college instructor or administrator of material based, in significant part, on work done by someone other than the submitter without reasonable written indication to the evaluator of the material's true source." Academic cheating is defined as "The intentional submission for evaluation to a college instructor or administrator of material based, in part, on a source or sources forbidden by generally accepted standards or by regulation established by the evaluator and disclosed in a reasonable manner." The complete policy, student rights and responsibilities, penalties, and recourse through the Grievance Procedure can be found in the Student Handbook (<http://www.socc.edu/studentlife/pgs/bm~doc/socc-hb.pdf>).

### **\*Academic Ethics and Confidentiality**

It is the responsibility of everyone engaged in the learning experience to respect the rights and feelings of their fellow learners. Information gathered in the classroom and from on-line discussions and exercises is to be considered confidential. At the same time, students must recognize that the instructor and the College cannot guarantee the confidentiality of what the student may choose to disclose. Students must use their own discretion when engaging in classroom discussion.

### **\*Classroom Behavior**

Instructors have the responsibility to set and maintain standards of classroom behavior appropriate to the discipline and method of teaching. Students may not engage in any activity which the instructor deems disruptive or counterproductive to the goals of the class. Students are required to keep cell phones, beepers, and pagers off during class lectures, unless there is permission in advance from the instructor. Instructors have the right to remove offending students from class. Repetition of the offense may result in expulsion from the course.

### **\*Student Conduct**

Opt #1: Students must read and be familiar with the Code of Conduct as published in the Student Handbook, policies and procedures as outlined in campus publications, Southwestern Oregon policies.

Opt. #2: Students in this (or any) program of study should be especially aware of the severe consequences of plagiarism. Students that submit work that is not their own will be dealt with quickly and severely. It will be the recommendation of the faculty to remove such students from the College.

Opt. #3: Students that have a concern regarding any inappropriate conduct should bring it to the attention of their instructor, advisor, or Department Chair immediately. Inappropriate conduct situations will be reviewed immediately.

Opt. #4: Students taking this course should be aware of the potential diversity of the artistic perception of the participants - particularly as applicable to violence, artistic statements, and nudity. Please keep your material and remarks professional and appropriate and be sensitive to individuals that have views different than your own.



**\*Americans with Disability Act – Disability Accommodation Statement**

SWOCC recognizes the contribution that a diverse student body brings to the educational experience. If you have a documented disability that may require assistance, inform your instructor and then contact the Disability Services Office for coordination of your academic accommodations. To ensure that your instructor is aware of your request, you are required to set up an appointment to talk with them sometime during the first two weeks of the term. The Disability Services Office is located on the Southwestern campus in Student Support Services, Stensland Hall. Please call the following number for more information (541) 888-7405.

**\*Notice of Non-Discrimination**

Students, their families, employees and potential employees of the Southwestern Oregon Community College District are hereby notified that Southwestern Oregon Community College does not discriminate on the basis of race, color, gender, sexual orientation, marital status, religion, national origin, age, disability status, gender identity, or protected veterans in employment, education, or activities as set forth in compliance with federal and state statutes and regulations. Any persons having inquiries concerning Southwestern's compliance with Title II, Title IV, Title VI, Title VII, Title IX and/or Section 504 or wish to make a complaint may contact the College's Affirmative Action Officer:

Vice President of Administrative Services  
Southwestern Oregon Community College  
1988 Newmark Ave., Tioga Hall, Room 511  
Coos Bay, OR 97420  
(541) 888-7402

Southwestern Oregon Community College offers the following career and technical education programs for all students regardless of race, color, gender, sexual orientation, marital status, religion, national origin, age, disability status, gender identity or protected veteran status, including those with limited English proficiency: Business, Office Technology, Computer Technology, Childhood Education, Criminal Justice, Culinary, Fire Sciences, Health Sciences, and Welding and Fabrication. Persons seeking further information concerning the vocational education offerings and specific pre-requisite criteria should contact:

Ali Mageehon, Vice President of Instruction and Student Services  
Southwestern Oregon Community College  
1988 Newmark Ave., Tioga Hall, Room 506  
Coos Bay, OR 97420  
(541) 888-7417 [ali.mageehon@socc.edu](mailto:ali.mageehon@socc.edu)

**\*Grievances**

For more information on the grievance process visit the Student Handbook.

**Class Cancellations (Faculty Absence)**

Notices of class cancellations at SWOCC are made through an automated system called RAVE. Notices of class cancellations due to faculty absence will be sent to through the following devices: Voicemail to cell phone, text to cell phone, and email to college email account. To receive these important notices, please update your cell phone, telephone and email contact information through myLakerLink, click on the Student Information tab, then Rave User Portlet.

**Cell Phone Use Policy**

Given the disruptive potential posed by cell phones, students are required to keep cell phones off during class lectures. Use of cell phones during laboratory exercises are permissible, but please consider those around you.



Day	Topic	Due
M 4/1	Course Intro/Syllabus; Sections 1.2 & 1.3: Introduction to Differential Equations	MyOpenMath Intro
W 4/3	Section 2.1: Integrals as Solutions Section 2.2: Slope Fields	
M 4/8	Section 2.3: Separable Equations Section 2.4: Linear Equations	Sections: 1.2, 1.3, 2.1, 2.2
W 4/10	Section 2.6: Substitution Section 2.7: Autonomous Equations	
M 4/15	Section 2.8: Numerical Methods-Euler's Method Section 2.9: Exact Equations	Sections: 2.3, 2.4, 2.6, 2.7
W 4/17	Section 4.1: Second Order Linear ODEs Section 4.4: Second Order Linear ODEs with Constant Coefficients	
M 4/22	Section 4.8 Free Mechanical Vibrations Section 4.5: Higher Order Linear ODEs	Sections: 2.8, 2.9, 4.1, 4.4
W 4/24	Section 4.2: Undetermined Coefficients (Part 1) Section 4.3: Undetermined Coefficients (Part 2)	
M 4/29	Section 4.6: Reduction of Order <b>Review for Midterm</b>	Sections: 4.8, 4.5
W 5/1	<b>Midterm Exam (Covers up to Section 4.5)</b>	
M 5/6	Section 4.7: Variation of Parameters Section 4.10 Forced Oscillations and Resonance	Sections: 4.2, 4.3, 4.6
W 5/8	Section 8.1: The Laplace Transform	
M 5/13	Section 8.2: Transforms of Derivatives: Solving ODEs	Sections: 4.7, 4.10
W 5/15	Section 8.3: Convolution	
M 5/20	Section 8.4: Dirac Delta and Impulse Response	Section 8.1, 8.2, 8.3
W 5/22	Section 9.1: Power Series	
M 5/27	<b>Memorial Day Holiday</b>	<b>Enjoy the holiday! But please don't procrastinate.</b>
W 5/29	Section 9.2: Series Solutions of Linear ODEs	
M 6/3	Section 5.1: Introduction to Systems of ODEs	Sections: 8.4, 9.1, 9.2
W 6/5	<b>Review for Final</b>	
M 6/10	<b>Final Exam (10 am – 12 pm)</b>	Section 5.1