OAKLAND UNIVERSITY
COLLEGE OF ARTS AND SCIENCES
DEPARTMENT OF MATHEMATICS and STATISTICS
STUDENT INFORMATION SHEET AND SYLLABUS

COURSE: APM 2555, Introduction to Differential Equations with Matrix Theory, 4 Credits

SEMESTER: Winter 2018

Instructor	Office	Phone	Email	Section	Time	Room
S. Wright	453 MSC	248-370-4028	wright@oakland.edu	11887	TR 7:30-9:17 pm	233 HH

Attendance at every class is expected.

OFFICE HOURS: By appointment with Instructor.

CONDUCT: Success in this course requires an atmosphere conducive to learning. As a courtesy to your fellow students and instructor, please come to class on time and refrain from extraneous conversation during class. All noise-making devices such as cell phones, watch alarms, portable stereos, walkmans pagers, beepers etc. must be turned off prior to entering the classroom. Quiet consumption of beverages is permitted during class; eating food is not. If circumstances make it necessary for you to leave early, please notify the instructor in advance and leave quietly. Otherwise, come prepared to stay for the entire class.

COURSE(CATALOG)DESCRIPTION: An introduction to ordinary differential equations, Laplace transforms, linear systems, matrices, vectors, independence, eigenvalues and eigenvectors, and applications.

PREREQUISITES: A 2.0 or better in MTH1555 (formerly MTH 155) or an equivalent course at another school. In order to do well in this course, you need to have mastered the basic differentiation and integration techniques taught in a year of calculus. Theory and proof play a larger role in this course than in 100 level courses.

COURSE OBJECTIVES: The student should learn methods of solving first and second order differential equations become familiar with mathematical models that led to these types of differential equations, and master the necessary linear algebra to apply these methods and analyze solutions.

TEXT: Differential Equations and Linear Algebra by Edwards and Penney, Pearson Prentice-Hall, 4th edition. We will cover most of Chapters 1-5 and 10. See detailed syllabus below. You are expected to purchase a copy of this textbook.

CALCULATOR POLICY: You may use a calculator on all tests and homework assignments; however, this is not a course in calculator operation. Any questions you have about the operation of your particular calculator should be addressed by consulting its operating manuals or accompanying technical support. To receive full credit on tests, be sure to show all the mathematical work necessary for setting up a calculation before using the calculator. Using a calculator to store formulas you need for a test is not permitted.

TESTS: There will be 2 in-class tests scheduled for **February 13** and **April 3**. These tests and the final examination (see below) are closed book tests. Each test is worth 150 points.

HOMEWORK: Homework will be assigned regularly but it will not be collected or graded. However, it is imperative to do the homework in order to do well on the tests.

FINAL EXAM: THE FINAL EXAMINATION IS COMPREHENSIVE. It will be given on **April 24 from 7:00-10:00 pm in 233 HH**. The final examination will be worth 200 points.

(over)

EMERGENCY CLOSING: If the University is closed at the time of a scheduled test, quiz, or examination, it will be given during the next class period when the University reopens. Closures during the final exam period require rescheduling by the Registrar. The Oakland University emergency closing number is 370-2000.

GRADING POLICY: Your course grade will be based upon the percentage of total points you have earned out of the 500 points available to you (150 points for each test and 200 points for the final examination). There is no fixed grading scale for this course; a conversion formula from your percentage score to Oakland University grade will be determined at the end of the course. However, the following list shows the lowest possible grade that a given percentage score will earn: 95%→4.0, 80%→3.0, 65%→2.0, 50%→1.0.

MAKE-UP POLICY: No make-up tests will be given. If you miss one (respectively, two) test(s) and promptly present legitimate, documented evidence for a valid excuse, your final exam will be worth 350 (respectively, 500) points; otherwise the missed test will be counted as 0.

ACADEMIC HONESTY: Cheating is a serious academic crime. Oakland University policy requires that all suspected instances of cheating be reported to the Academic Conduct Committee for adjudication. Anyone found guilty of cheating in this course will receive a course grade of 0.0, in addition to any penalty assigned by the Academic Conduct Committee. Working with others on a homework assignment does not constitute cheating. Handing in an assignment that has essentially been copied from someone else does. Receiving help from someone else or from unauthorized written material during a test or final exam is cheating, as is using a calculator as an electronic "crib sheet."

STUDY HABITS: Cultivating good work and study habits is necessary for doing well in mathematical sciences courses. You should keep on top of the subject by doing large amounts of homework (frequently working on problems not assigned), regularly reviewing earlier material, asking questions in class, and making good use of your instructor's office hours and the Academic Skills Center. If you are having difficulty with some concept or mathematical procedure, you should get it clarified as soon as possible. If you make mistakes on tests rework these problems with the idea that you will not make similar mistakes later. Regular reviewing of older material in the course will put you in good stead when it comes to final exam time. This will help you to avoid the usual non-retention problems students encounter at the end of the course. You should expect that doing all of these things will take at least two hours outside of class for each hour in class. Many students find it helpful to spend some of this time working with others, in study groups.

TENTATIVE SYLLABUS:

• Chapter 1: First-Order Differential Equations	Sections 1.1-1.2,1.4-1.5
• Chapter 2: Mathematical Models	Sections 2.1, 2.3
• Chapter 3: Linear Systems and Matrices	Sections 3.1-3.6
• Chapter 4: Vector Spaces	Sections 4.1-4.4
• Chapter 5: Higher-Order Linear Differential Equations	Sections 5.1-5.6
• Chapter 6: Eigenvalues and Eigenvectors	Section 6.1
• Chapter 10: Laplace Transforms	Sections 10.1-10.5

IMPORTANT DATES: The Registrar sets dates for "no record" drops and official withdrawal. Current information can be found at:sail.oakland.edu or 248-370-4646,