NORMANDALE COMMUNITY COLLEGE
COURSE SYLLABUS

(1) **Identifying Information**

(a) **Mathematics 2520**, Section 20; **Calculus 4**, 5 credits

(b) Fall 2017 (August 21 – December 15)

(c) Prerequisite: Math 1520 with a grade of C or better or approved equivalent preparation.

(d) Classroom and Class time: P2840 12:00 – 12:50 M T W Th F

(e) Instructor: Dr. Mehdi Hakim Hashemi

(f) Office & Phone: C3107 & 952-358-8491

(g) e-mail: mehdi.hashemi@normandale.edu

(h) Office hours: 11 – 11:50 M T W Th F.

(i) Course material will be posted on **D2L**

(2) **Course Description**: This is a course of Differential Equations with Linear Algebra. Topics include matrices and systems, vector spaces, subspaces, linear independence, basis, dimension, linear transformations, eigenvectors, first and second order differential equations, Euler's method, phase plane analysis of linear and nonlinear systems, extensive modeling. Possible topics from numerical methods, Laplace Transforms, power series solutions, or partial differential equations. Applications include, but are not limited to, science, engineering, economics, and ecology.

(3) **Materials Needed**

(a) **Important Note:** The two textbooks mentioned below come as ebooks when you access **WileyPlus**. If you are comfortable with using ebooks, then **do not buy** the printed versions.

(b) **Required Textbooks:**

- William E. Boyce, and Richard C. DiPrima: **Elementary Differential Equations and Boundary Value Problems (11th edition)**, Wiley 2017.
- Howard Anton, and Chris Rorres: **Elementary Linear Algebra (11th Edition)**, Wiley 2014.
- **WileyPlus URL: www.wileyplus.com/class/596708**

(c) **Required**: A graphing calculator such as TI 83, TI 83+, TI 84, TI 84+, TI 89, TI-Nspire, or TI-Nspire CAS.

(4) **Topics**

(a) Linear Equations (Anton, Chapter 1)

(b) Matrix Algebra (Anton, Chapter 1)

(c) Determinants (Anton, Chapter 2)

(d) Vector Spaces (Anton, Chapters 3 and 4)

(e) Eigenvalues and Eigenvectors (Anton, Chapter 5)

(f) First Order Differential Equations (Boyce-DiPrima, Chapter 2)

(g) Second Order Differential Equations (Boyce-DiPrima, Chapter 3)

(h) The Laplace Transform (Boyce-DiPrima, Chapter 6)

(i) Systems of First Order Linear Equations (Boyce-DiPrima, Chapter 7)

(j) Nonlinear Differential Equations and Stability (Boyce-DiPrima, Chapter 9)

(k) Partial Differential Equations and Fourier Series (Boyce-DiPrima, Chapter 10)

(5) **Homework:** Seven to eight homework sets will be posted on **WileyPlus**. Each set has 50 points.

(6) **American Disability Act:** Normandale Community College is committed to equal access for students with disabilities through the services provided by the Office for Students with Disabilities (OSD). Please contact Debbie Tillman, the OSD Director, at 952-358-8623 or osd@normandale.edu to discuss how accommodations may be implemented in your Normandale courses, This syllabus is available in alternate formats by request.

(7) **Assessment**

- **Schedule:** There will be **four 50-minute short exams, three 100-minute long exams, and a final exam.** The long exams are given in two days. Exam papers will be collected on the first day and returned to you on the second day. You can make corrections and finish it on the second day. The schedule is:

Exam	Date(s)	Points	Extra Credit
Short Exam 1	Friday Sep 1	100	No
Short Exam 2	Friday Sep 15	100	No
Long Exam 1	Thursday and Friday Sep 28 and 29	200	Yes
Short Exam 3	Friday Oct 13	100	No
Short Exam 4	Friday Oct 27	100	No
Long Exam 2	Thursday and Friday Nov 16 and 17	200	Yes
Long Exam 3	Thursday and Friday Dec 7 and 8	200	Yes
Final Exam	Wednesday Dec 13 at 11:00 am	300	No
Total		1300	

- **Makeup:** Makeup test will be given only for absence due to unavoidable or legitimate circumstances. Such circumstances include verified illness, subpoenas, jury duty, military service, and religious observances. Students are responsible for notifying me of such circumstances as far in advance as possible and for providing documentation to verify the reason for the absence.

- **Academic Honesty:** Students are expected to be familiar with the Student Code of Conduct of Normandale Community College, including the consequences for students who violate standards of academic honesty.

(8) **Tentative Schedule**

Week	Topic(s)	Exam
Weeks 1 and 2 8/21 - 9/1	**Linear Algebra Chapters 1 & 2**	**Short Exam 1**
Weeks 3 and 4 9/4 - 9/15	**Liner Algebra Chapters 3 & 4**	**Short Exam 2**
Weeks 5 and 6 9/18 - 9/29	**Linear Algebra Chapters 4 & 5**	**Long Exam 1**
Weeks 7 and 8 10/2 - 10/13	**Differential Equations Chapters 2 & 3**	**Short Exam 3**
Weeks 9 and 10 10/16 - 10/27	**Differential Equations Chapters 3 & 6**	**Short Exam 4**
Weeks 11, 12, and 13 10/30 - 11/17	**Differential Equations Chapters 6 & 7**	**Long Exam 2**
Weeks 14, 15, and 16 11/20 - 12/8	**Differential Equations Chapters 9 & 10**	**Long Exam 3**