MTH 254H: Vector Calculus I, Fall, 2018 - Credit: Dr. Showalter, Oregon State University

LECTURE: MWF 14:00 -15:20 LINC 345 **CRN** 12279
Instructor: R. E. Showalter Kidder 286 show@math.oregonstate.edu
Office Hours: After class and by appointment. Kidder 286
Prerequisite: MTH 252 [C-] or MTH 252H [C-] and Honors College approval required.
Topics: Vectors, vector functions, and curves in two and three dimensions. Surfaces, partial derivatives, gradients, and directional derivatives. Multiple integrals in rectangular, polar, cylindrical, and spherical coordinates. Physical and geometric applications.
Textbook: *Calculus: Early Transcendentals*, by William L. Briggs and Lyle Cochran (2014, 2nd Edition)

> Homework will be assigned but not collected. Two 50 min Tests will be given during the term; the Final Exam is the third Test. Quizs will be given weekly, and a cumulative score will be recorded. The Grade for the course is determined by the best three of these four scores. *Test, Quiz and Final Exam problems come directly from the assigned Homework.*

Test Dates: October 10, November 2.
Final Exam: Wednesday, December 5, 12:00 noon, LINC 345.

Students With Disabilities: Accommodations for students with disabilities are determined and approved by Disability Access Services (DAS). If you, as a student, believe you are eligible for accommodations but have not obtained approval please contact DAS immediately at 541-737-4098 or at http://ds.oregonstate.edu. DAS notifies students and faculty members of approved academic accommodations and coordinates implementation of those accommodations. While not required, students and faculty members are encouraged to discuss details of the implementation of individual accommodations

TUTORING:
General Chemistry and Mathematics In-Hall Tutoring Hours
Fall tutoring hours will begin on Week 3. They will be taking place in Sackett Hall near E/H wing.
Mathematics with Michael Kupperman - Every Wednesday from 5 p.m. to 8 p.m.

Mth & Stat Learning Center

REU at OSU: Check out the Research Experience for Undergraduates at OSU this Summer. Lining up letters of recommendation and essays is best done before break.

Winter 2019 MTH 256H has been reassigned - I'll be teaching Sections 001 and 002 (MF 13:00 and W 12:00-13:50). I just learned the sections are currently booked up. Get on the waitlist if you wish to add - no promises. My apologies to those who expected to be signed up with me before the change.

SCHEDULE: (This will be a current record of sections covered in the text and assigned homework problems.)
1. **Vectors in the Plane** 11.1: 1-47, 57, 59, 81, 86, 87. (9/21/2018)
2. **Vectors in 3-space** 11.2: 1-50. Read 10.2: 719-723 & 13.5: 1007-1008. (9/24)
3. **Dot product** 11.3: 1-8 and 4k, (k=3,4,5,...,11).
4. **Cross product** 11.4: 1-8, 4k (k=3,4,5,...11), 62, 63.
5. **Lines & Curves** 11.5: odd 9-23. **Calculus on Curves** 11.6: odd 15-25, 47, 49, 53, 55, 59, 61, 69, 71, 79, 81, 83. (10/1)

6. **Motion in space** 11.7: 8, 12, 16, 32, 36, 40, 44, 48, 67, 68. **Quiz#1**: Sections 11.3, 11.4, 11.5.
7. **Curve Length** 11.8: 4, 8, 12, 16, 20, 24, 41, 45, 49.
8. **Review** 11.3 - 11.8. (10/08)
9. **TEST #1**
10. **Planes & Surfaces** 12.1: odd 11 - 37. Read *Quadratic Surfaces*.
11. **Graphs & Level curves** 12.2: 21 - 37. (10/15)
12. **Limits & Continuity** 12.3 (Read) **Quiz#2**: Sections 12.1, 12.2(27,31).
13. **Partial Derivatives** 12.4: odd 7 - 37.
14. **Differentiability** and **Chain Rule** 12.5: odd 7-25. (10/22)
15. **Gradient & Directional Derivative** 12.5: 31-36; 12.6: odd 9-31, 43, 45.
16. **Tangent plane & Linear approximation** 12.7: odd 9-33, 47-53.
17. **Max-Min** 12.8: odd 19-27, 43-51. (10/29)
18. **Review** 12.5 - 12.8.
19. **TEST #2**
20. **Double Integrals** 13.1: odd 11 - 35.(11/05)
21. **General Regions**: 13.2: odd 7 - 37.
22. 13.2: odd 45 - 67. **Quiz#3** (13.1)
23. **Veterans Day** (11/12)
24. **Double Integrals in polar coordinates** (Read 10.2), 13.3: odd 11-27, 39, 51-57.
25. **Triple Integrals** 13.4: 7, 15, 25, 35, 39, 41, 43.
26. Quiz #4: 13.2 and 13.3. (11/19)
27. No class.

Thanksgiving Day

28. **Lagrange Multipliers** 12.9: 9, 19, 29. (11/26)
29. Review 13.2, 13.3, 12.9.
30. Review 11.3, 11.5, 11.6, 11.7, 12.5, 12.6, 12.7.

Extra office Hours: Tuesday, Dec 4, 12:30 - 13:30.

Final Exam: Wednesday, December 5, 12:00 noon, LINC 345.