**SYLLABUS Spring 2017**

**The University of Iowa**
**The College of Liberal Arts and Sciences**
**Department of Mathematics**
**Calculus III, MATH:2850:0111**

**11:30A - 12:20P MWThF 61 SH**

**Prerequisites:** Calculus II MATH 1860 (or equivalent or MATH:1560) with a minimum grade of C-

Some of the policies relating to this course (such as the drop deadline) are governed by its administrative home, the College of Liberal Arts and Sciences, 120 Schaeffer Hall.

**Instructor:** Oguz Durumeric
Office location and hours: B20F MLH; MWTh 9:00-10:20 am, and by appointment
Phone: 319-335-0774
E-mail: oguz-durumeric@uiowa.edu
Website address: http://www.math.uiowa.edu/~odurumer/

**DEO Contact Information:**
Professor Dan Anderson, 14 MLH, 319-335-0714, dan-anderson@uiowa.edu

**Catalog Description of Course:** Multivariable calculus; vector functions, line integrals, total differentials, gradient, implicit functions, coordinate systems, Taylor's expansion, extrema, multiple integrals, vector fields, line integrals, surface integrals, Green's, Stokes' and divergence theorems.

**Objectives and Goals of the Course:** Learn multivariable differential and integral calculus of real and vector valued functions, curves, surfaces and 3D geometry. Specifically learn lines and planes in 3D, graphing, continuity, partial derivatives, gradient, total derivative, chain rule, implicit and inverse function theorems, extrema, Taylor polynomials, maximization, Lagrange multipliers, double and triple integrals, change of variables, polar, cylindrical and spherical coordinates, vector fields, line integrals, surface integrals, Green's, Stokes' and divergence (Gauss') theorems.

**Required text**: Vector Calculus by SJ Colley, fourth edition, ISBN 978-0-321-78065-2

> Also available as loose leaf 3-hole punched: ISBN 978-0-321-78064-5
> These are available at both the University Bookstore in the Iowa Memorial Union (IMU) and Iowa Book & Supply.

**Grading System:**     **Plus/minus** grading will be used.
50%     2 midterms (tentatively on **Fridays March 3 and April 14**, in class)
25%     Final exam (date, time and place to be announced)
15%     5 Quizzes, on Thursdays about every other week (2/2, 2/16, 3/23, 4/6, 4/27)
10%     Homework, assigned by Fridays, and usually due the following Friday
+/-5%   Attendance and class participation
**ALL EXAMS ARE COMPREHENSIVE**, unless specified otherwise.

**A Word about the Date and Time of the Final Exam:** The date and time of every final examination is announced by the Registrar generally by the fifth week of the classes. **No exams of any kind are allowed during the last week of classes.** All students should plan on being at the UI through the final examination period. Once the Registrar has announced the date, time, and location of each final exam, the complete schedule will be published on the Registrar's web site and will be shared with instructors and students. It is the student's responsibility to know the date, time, and place of the final exam.

**Course Policies:**

Students are expected to attend all lectures, and do all of the homework regularly. Students are responsible for everything covered in the lectures, textbook and the prerequisites. Important announcements about changes (if necessary) to the syllabus, homework, exams, etc. will be done in the lectures or they will be e-mailed to your UI e-mail address.

There will be <u>quizzes</u> on Thursdays every other week (excluding the weeks of the exams), consisting of problems similar to those assigned as homework. We will drop one lowest quiz grade. <u>Taking all quizzes and the three exams (midterms and final) is mandatory</u>. In the exams, you are expected to show all of your work in an organized and coherent fashion. In the long problems, all work must be shown, and giving only a final solution obtained by guessing or using a calculator may not earn full credit. <u>Make-ups</u> may be given for the exams missed due to unavoidable circumstances and compelling reasons which are documented in writing. If you have a conflict or a medical reason, discuss your situation with your lecturer as soon as possible. <u>No late homework without a good excuse. No extra credit homework and no make-ups for homework</u>. We will drop lowest two HW grades.

You are strongly encouraged to go to your lecturer's office hours. Make an appointment, if you have a conflict with the listed office hours.

<u>Cell phones</u> must be turned off during the lectures and exams. If you have to read or text a message during the lecture, please do it outside the classroom. During the exams, the cell phones are required to be put (far) away, preferably at the bottom of your backpack. During the exams, you cannot hold them in your hand, not keep them on your desk, chair, or anywhere easily accessible, and you cannot use it as a calculator.

**Other course resources:** There is **no TA** for this course and help is not available through the Math Tutorial Lab. You are **strongly encouraged** to go to your lecturer's office hours for additional help as needed. If you have conflicts with the listed office hours, make an appointment for additional office hours.

**Student Collaboration:** In this class, students are not allowed to collaborate with others on homework, and other graded assignments. Do not share your work with others or ask others to see their completed assignments since both are considered academic misconduct. If you need help, please stop by during your lecturer's office hours. Exams showing strong similarities and/or duplication will be considered the result of academic dishonesty and will be failed and the students involved will be reported to the College. Do not share your exams with others in the class. Students are responsible for understanding this policy. If you have questions, ask for clarification.

**Calendar of Course Assignments and Exams:** The starting dates and the time spent on each topic are subject to change. We will cover Chapters 1-7 of the textbook, and discuss parts of Chapter 8 if time permits.

| Weeks | Start | # of Lectures | Chapters | Subject |
|---|---|---|---|---|
| 1-2 | Jan 18 | 7 | 1 (1-5) | Vectors |
| 3-6 | Jan 30 | 14 | 2 (1-6) | Differentiation in several variables |
| 6-7 | Feb 23 | 2 | 3 (1, 2) | Vector valued functions |
| **MIDTERM 1, March 3, Friday** | | | | |
| 7-8 | Mar 1 | 7 | 4 (1-3) | Taylor's formula, Max-Min, and Lagrange multipliers |
| 9-11 | Mar 22 | 12 | 5 (1-5) and 1.7 | Multiple integration |
| **MIDTERM 2, April 14, Friday** | | | | |
| 12-14 | Apr 12 | 8 | 3.3,4 and 6(1-3) | Vector fields, line integrals, path independence, and Green's Theorem |
| 14-15 | Apr 27 | 6 | 7 (1-3) | Parametric surfaces, area, surface integrals, Gauss' and Stokes' Theorems |

**FINAL EXAM: Date, time and place are to be announced**

**Resources for Students:**
Students will find the Writing Center and the Speaking Center very useful for this course:
Writing Center: http://www.uiowa.edu/~writingc/
Speaking Center: http://clas.uiowa.edu/rhetoric/for-students/speaking-center

**<u>Notes to the Students:</u>**
1. All students in the College have specific rights and responsibilities. You have the right to adjudication of any complaints you have about classroom activities or instructor actions. Information on these procedures and your responsibilities is available in the Schedule of Courses and on-line in the College's Student Academic Handbook, (https://clas.uiowa.edu/students/handbook ) In summary, first see the person you wish to complain about, and then see his/her immediate supervisor. The chain is: graduate or undergraduate assistants, then Prof. Durumeric, then the Chairman of the Department of Mathematics Prof. D. Anderson, and then an appropriate Dean. The Department of Mathematics has offices in 14 MLH (MacLean Hall). To make an appointment to talk to the chairman of the department call 335-0714 or contact the departmental secretary in 14 MLH.

2. We would like to hear from anyone who has a disability which may require some modification of seating, testing, or other class requirements so that appropriate arrangements may be made. Please contact your lecturer during his office hours, in the beginning of the semester and far in advance of the exams. You should notify the Office of Student Disability Services, SDS and obtain the form(s) needed. The necessary modifications will be made available to you after the SDS processes and approves your request.

3. We are planning to use ICON for posting grades and other course material. Also, some announcements may be e-mailed through ICON to your UI e-mail. Check ICON and your UI e-mail regularly, and make sure that UI has your correct e-mail address.

4. This course plan may be modified during the semester. All changes will be announced in class in advance. It is solely the student's responsibility to be informed of such announced changes.

**CLAS** Teaching Policies & Resources — Syllabus Insert

**Administrative Home**

The College of Liberal Arts and Sciences is the administrative home of this course and governs matters such as the add/drop deadlines, the second-grade-only option, and other related issues. Different colleges may have different policies. Questions may be addressed to 120 Schaeffer Hall, or see the CLAS Academic Policies Handbook at http://clas.uiowa.edu/students/handbook.

**Electronic Communication**

University policy specifies that students are responsible for all official correspondences sent to their University of Iowa e-mail address (@uiowa.edu). Faculty and students should use this account for correspondences (Operations Manual, III.15.2, k.11).

**Accommodations for Disabilities**

The University of Iowa is committed to providing an educational experience that is accessible to all students. A student may request academic accommodations for a disability (which includes but is not limited to mental health, attention, learning, vision, and physical or health-related conditions). A student seeking academic accommodations should first register with Student Disability Services and then meet with the course instructor privately in the instructor's office to make particular arrangements. Reasonable accommodations are established through an interactive process between the student, instructor, and SDS.
See http://sds.studentlife.uiowa.edu/ for information.

**Academic Honesty**

All CLAS students or students taking classes offered by CLAS have, in essence, agreed to the College's Code of Academic Honesty: "I pledge to do my own academic work and to excel to the best of my abilities, upholding the IOWA Challenge. I promise not to lie about my academic work, to cheat, or to steal the words or ideas of others; nor will I help fellow students to violate the Code of Academic Honesty." Any student committing academic misconduct is reported to the College and placed on disciplinary probation or may be suspended or expelled (CLAS Academic Policies Handbook).

**CLAS Final Examination Policies**

The final examination schedule for each class is announced by the Registrar generally by the fifth week of classes. Final exams are offered only during the official final examination period. No exams of any kind are allowed during the last week of classes. All students should plan on being at the UI through the final examination period. Once the Registrar has announced the date, time, and location of each final exam, the complete schedule will be published on the Registrar's web site and will be shared with instructors and students. It is the student's responsibility to know the date, time, and place of a final exam.

**Making a Suggestion or a Complaint**

Students with a suggestion or complaint should first visit with the instructor (and the course supervisor), and then with the departmental DEO. Complaints must be made within six months of the incident (CLAS Academic).

**Understanding Sexual Harassment**

Sexual harassment subverts the mission of the University and threatens the well-being of students, faculty, and staff. All members of the UI community have a responsibility to uphold this mission and to contribute to a safe environment that enhances learning. Incidents of sexual harassment should be reported immediately. See the UI Office of the Sexual Misconduct Response Coordinator for assistance, definitions, and the full University policy.

**Reacting Safely to Severe Weather**

In severe weather, class members should seek appropriate shelter immediately, leaving the classroom if necessary. The class will continue if possible when the event is over. For more information on Hawk Alert and the siren warning system, visit the Department of Public Safety website