

MATH 223 Sections 1 & 2

University Calculus III

Fall 2011

Instructor: Jonathan Cox
Office: 228 Fenton Hall
Office Phone: 673-3874

Office hours*: 10-11 M W F; 2-3 Tu; 1-2 Th
E-mail: Jonathan.Cox@fredonia.edu
Course Web Page: <http://www.fredonia.edu/faculty/math/JonathanCox/calculus3/>

* While these are the official office hours, I am available at other times as well. If you want to meet at a time outside of office hours, the safest option is to set up an appointment with me. You can also just drop by any time, but you might want to call or email first to see if I'm there.

Textbook. James Stewart. *Calculus: Early Transcendentals*, **Sixth** Edition. Brooks/Cole, 2008.

Technology. 1) A TI-eightysomething graphing calculator is strongly recommended. The particular model (83, 84, 86, or 89) is not important. Calculators may not be allowed on certain assessments, and, when they are, you will still be required to show work.

2) You must get access to this course on your WebAssign account—see the course web page.

Prerequisite. A grade of C- or better in MATH 123 (University Calculus II) **or** MATH 124 (Survey of Calculus III) **or** the equivalent

Catalog Description. Parametric equations, polar, cylindrical, and spherical coordinates, algebra of vectors, equations of lines, planes, quadratic surfaces, vector functions and space curves, calculus of functions of several variables including multiple integration; applications to the physical sciences and geometry; computational technology.

Course objectives. The purposes of this course for the student include (1) Developing an understanding of the fundamental definitions and concepts of multivariable calculus, (2) Developing computational skills in multivariable calculus, (3) Improving reasoning, critical thinking, and problem-solving skills, (4) Sampling some of the many application areas of continuous mathematics, (5) Acquiring an appreciation of the concepts that form the foundation of twenty-first century science and technology, and (6) Learning to communicate mathematical ideas, arguments, and results.

Expected results. Our course web page includes a link to the departmental master syllabus for MATH 223. See the “Objectives” section of this master syllabus for a list of abilities you should expect to develop and concepts you should expect to learn by the end of this course. This is more detailed and extensive than the list of course objectives given above.

Content and Methodology. The course will cover the material in Chapters 10 and 12-15 of the text with some omissions. An *approximate* daily schedule is available online at <http://www.fredonia.edu/faculty/math/JonathanCox/calculus3/sch223f11.pdf>. The beginning of most class periods will be made available for discussion of the homework and related questions. Up to the first 15 minutes of the period may be used for this purpose. Any questions remaining

after this time can be (a) discussed outside of class, (b) answered via email, or (c) postponed until the following class. Students are welcome to write questions on the board prior to the start of class to expedite the discussion. Much of the remaining time will be used for presentation of new material. Students are encouraged to ask questions and make relevant comments about this material at any time during such presentation. Often the instructor will lecture; at other times questions will be posed for discussion and voting. There will be brief quizzes, as well as occasional group work and some other activities.

Much of the standard textbook-type material (motivation, definitions, theorems) will be presented via handouts rather than in-class lecture. This will free up more class time for working on examples and discussing interesting questions. Students are expected to read the handouts on their own and know the information on them, but are free to ask questions about this material during class.

Homework and quizzes. Homework will be assigned from each section. **Do the homework! Your level of success in the class is directly related to how much homework you complete. If you aren't able to do the homework correctly, you probably won't pass.** It is further to your advantage to ask questions about homework problems that give you difficulty. You might also find it helpful to read the relevant section in the textbook. *Textbook homework assignments will not be collected unless this is explicitly stated.* (See the next paragraph.)

Your completion and understanding of the homework will be assessed regularly. In particular, you will be asked to submit answers to selected exercises using the online homework system

WebAssign. Sometimes I might also specify one or more problems for you to turn in on paper for grading as *hand-in homework assignments*. Some special assignments will also be collected and graded. In particular, there will be a number of **Maple worksheets** for you to complete.

Due dates for all assignments will be specified, and no late work will receive full credit, except in the case of an *excused absence* on the due date. (See the **Attendance Policy** section below.) I define work to be *late* if it is handed in, without an excused absence, after 8:30am the day following the due date. Late work can still be handed in and graded, but will receive credit for only 50% of the points earned. However, except in truly exceptional circumstances and with prior permission of the instructor, no late work may be handed in after the last day of classes or more than two weeks after the original due date.

In addition, there will be approximately 5 announced, in-class quizzes during the semester. Most material for the quizzes will be closely related to the textbook homework, but some may also be drawn from class discussions. The time allowed to complete each quiz will vary depending on its length, but the limit will be at most about 18 minutes.

At the instructor's discretion, quizzes missed due to *serious* and *unavoidable* circumstances may be made up for full credit, and quizzes missed for other reasons may be made up for half credit. (If you know in advance that you will be absent, talk to me about the possibility of taking the quiz early.)

Comments will always be provided on collected work (except online assignments), but some problems might be graded at least partially on completion rather than in full detail for correctness. I recognize the importance of timely feedback on your work, and will endeavor to return all graded material to you within one week.

Exams. The purpose of the exams is to determine your level of mastery of the *concepts* of the course as well as the procedures. They will test not only your ability to memorize, but also your ability to think. There will be two 75 minute in-class exams and a 120 minute comprehensive final examination. The *tentative* dates of the in-class examinations are October 5 and November 18. The final exam will be given on Thursday, December 15, at 8:30am.

A make-up exam can be taken if an exam is missed due to *serious* and *unavoidable* circumstances, or in the event of an excused absence, and only if your request to make up an exam is made *in advance of or as soon as reasonably possible after* the exam (and approved by the instructor). Make-up exams should be taken within two class periods following the in-class exam. If these conditions are not satisfied, it is understood that the opportunity to make up the examination is voided.

Grading and Evaluation. Performance in this course will be evaluated on a percentage system. Your average on the regular exams will constitute 40% of the final grade, so that each exam will individually be 20% of the grade. The online homework via WebAssign will make up another 15% of the grade. Other homework and projects, including Maple worksheets, will form a category worth 12% of the grade. Quizzes will determine 10% of your grade. The remaining 23% of the grade will be determined by the final exam. At the end of the course, your cumulative average (AVE) will be computed as follows.

$$\begin{aligned} E &= \text{Exam average} \\ F &= \text{Final exam percentage} \\ W &= \text{WebAssign average} \\ Q &= \text{Quiz average} \\ H &= \text{Project and other homework average} \\ \text{AVE} &= .40E + .23F + .15W + .10Q + .12H \end{aligned}$$

During the semester, averages will be posted and (somewhat) regularly updated on ANGEL.

Letter grades will be assigned as follows based on a student's final percentage:

$$\begin{aligned} 93 \text{ and above} &= A; & 90-92 &= A-; & 87-89 &= B+; & 83-86 &= B; & 80-82 &= B-; \\ 77-79 &= C+; & 73-76 &= C; & 70-72 &= C-; & 67-69 &= D+; & 63-66 &= D; & 60-62 &= D-; & \text{below } 60 &= F \end{aligned}$$

The instructor reserves the right to lower the grade ranges. The grade ranges will not be raised.

Attendance Policy. We will follow the SUNY Fredonia attendance policy. (See <http://www.fredonia.edu/catalog/3833.htm> in the 2011–2012 University Catalog.) Attendance is crucial to success in this course. You probably won't be able to pass the course if you do not attend regularly. Learning calculus is a cumulative experience. If you miss class even once, you might have difficulty catching up. If you must be absent, please notify the instructor beforehand. An attendance sheet will be passed around each time the class meets. **It is your responsibility to sign this sheet** each period in order for your attendance to be official.

Work missed during an absence can be made up if the absence is determined by the instructor to be an *excused absence*. Your absence will be excused if you are participating in a university-sponsored program, exercising religious beliefs, hospitalized, or attending the funeral of a relative. *Other absences due to unavoidable circumstances may also be excused at the discretion of the instructor.* Appropriate documentation related to an absence, provided to the instructor in a timely manner, will greatly aid your case for getting that absence excused.

Special Accommodations. Reasonable accommodations are available to students with documented disabilities at SUNY Fredonia. Students who might require instructional and/or examination accommodations should contact the office of Disability Support Services for Students (DSS), located on the 4th Floor of the Reed Library (716-673-3270 or disability.services@fredonia.edu). The DSS coordinator will review documentation and determine accommodations on a case-by-case basis. DSS will notify the instructor with an accommodation letter which verifies that you have registered with the DSS office and which describes any accommodations approved for you. After you have met with the DSS coordinator, please contact the instructor to discuss any needed accommodations. See also www.fredonia.edu/tlc/DSS/dss.htm .

Withdrawal Policy. The student schedule changes policy for this course will be that of the University. (See <http://www.fredonia.edu/catalog/3826.htm> and <http://www.fredonia.edu/catalog/3849.htm> in the 2011–2012 University Catalog.) **IT IS YOUR RESPONSIBILITY TO KNOW AND COMPLY WITH ALL DEADLINES.** The last day to DROP this course is **Friday, August 26**. The last day to WITHDRAW from this course is **Friday, October 28**. The last day to completely withdraw from the university is **Monday, November 28**.

Academic Integrity. Each student is expected to “support and abide by all provisions of the ... Academic Integrity Policy” (<http://www.fredonia.edu/catalog/4442.htm>, 2011–2012 University Catalog). While we will follow this policy, more details are given below regarding the conduct that is expected in this class. Please ask if at any time it is unclear whether some action is or is not allowed.

No collaboration is allowed on exams, but you are encouraged to work together on homework and in learning the material. While working with another person or in study groups is permitted, **all final work submitted for individual assignments must be your own**. The principle here is simple: *Under no circumstances and in no way should you ever copy any part of anyone else’s work and present it as your own*. Whether discussing hand-in homework with a group, comparing solutions with a friend, or getting help from a tutor, do not take any notes from the discussion away with you—in other words, you can share your thoughts (including, for instance, on paper or a board), but you must walk away with only your understanding. In particular, write solutions up on your own.

In cases where work appears to be copied, I will invite the students involved to my office to explain the relevant material and the situation to me. A student who cannot explain his or her work adequately or who fails to present an explanation will lose points or receive a grade of zero on the assignment in question. Furthermore, a required report of the violation will be sent to the Dean of the College of Arts and Sciences. Ultimately, *in order to be successful in learning the material and preparing for the examinations, you need to try to work out assigned problems yourself as much as possible*.

SUNY Fredonia Counseling Center. LoGrasso Hall; Phone: 673-3424;
www.fredonia.edu/counseling — Services are free and confidential.

Daily schedule. An *approximate* daily schedule for this course is available online at <http://www.fredonia.edu/faculty/math/JonathanCox/calculus3/sch223f11.pdf> .

Any changes to this syllabus will be communicated in class by the instructor.