

INSTRUCTOR: Janice Sklensky

OFFICE: SC 1306

OFFICE PHONE: x3973

E-MAIL: sklensky_janice@wheatoncollege.edu

COURSE WEBSITE – PUBLIC: <http://acunix.wheatonma.edu/jsklensk/home.html> - Math 236

Links to course policies, syllabus, homework, in-class problems, Maple guides, etc

COURSE WEBSITE – PRIVATE: the OnCourse page for this course

Consists of links to questionnaire, supplemental materials, study guides

MEETING TIMES: MWF 10:30-11:20, in SC 1314

OFFICE HOURS: Tentatively: M 2:30-3:20, Tu 2:30-4:20, W 12:30-1:20, F 11:30-12:20

and by appointment, when necessary.

COURSE MATERIALS: *Multivariable Calculus, 3rd edition*, by Smith and Minton. There is also an optional student solutions manual.

Also, *Maple* is available for you to use on your own computer if it's connected to the campus network and is running a sufficiently recent operating system. It's also available in SC 1314, SC 1349, the CS lab, and (I believe) the computers in the library, the Kollett Center, or the GIS lab.

OVERVIEW:

Calculus I and II focus on single-variable functions. The restriction to a single variable gave us the opportunity to come to grips with the concepts, but limited the applications. In this course, we study the calculus of functions whose outputs are vectors in 2 or 3 dimensions, or whose inputs are points in 2 or 3 (or n) dimensions, *or* whose inputs and outputs both live in more than one dimension. This allows us to move beyond curves in 2 dimensions, to curves that lie in 3 dimensions, or even to surfaces, making our models more realistic and, of course, more complicated. For more specifics, please see the syllabus.

This course is connected to Chem 355 and/or 356 (Physical Chemistry I and/or II).

COURSE STRUCTURE, GOALS AND EXPECTATIONS:

The main goal for this class is the obvious one – that you master the topics we develop. Secondary goals are that you continue to improve at communicating mathematical material and at reading technical text.

Math is a subject you can only learn by doing – observing me (and others) may give you a start, but it is certainly not enough. The course is therefore structured to give you repeated opportunities to work with the material, at increasing levels of depth and complexity.

The lecture format for classes was developed at a time when books were scarce – class consisted of the teacher dictating from the textbook and students copying it down. They then absorbed and mastered the material on their own. There is no longer any shortage of information – you can easily have your first exposure to the material occur outside of the classroom, and we can use class time to begin the absorption of the ideas (of course, mastery will usually occur through your efforts outside of the classroom).

Your initial exposure to the material should come through your reading of the text before each class. Class time will be devoted not to my presenting the information to you for the first time, but to me helping you to work your way to a deeper understanding of the material. Because more

and more studies indicate that students benefit immensely from an opportunity to both practice what they've learned and to discuss the concepts with fellow students, class itself will therefore often (but not always) combine lecture with opportunities for in-class work in small groups on introductory problems so that you may *do and discuss* what I've just shared. These efforts should help crystallize your understanding of the material, *or* to help you identify where some confusion is arising. This initial exposure is followed by more drill problems for each section to be completed daily on-line; you will get immediate feedback on these, so you will know right away whether you are understanding the basics. To deepen your grasp of the material, you will also have weekly problem sets consisting of a combination of more drill problems and conceptual questions. To encourage further mastery of the material, there will be two midterm exams and a final exam, all of which encourage you to look at the big picture and fit the material into its place within the course.

This structure not only aims to maximize your mastery of Multivariable Calculus, but also to help accomplish the secondary goals as well – improving reading of technical material through requiring you to read the text, and learning to more clearly communicate complicated ideas—verbally, through working with partners on in-class work; and in writing, through weekly problem sets.

The expectation for all classes taught at Wheaton is that you spend a minimum of 2 to 3 hours working outside of class for every hour in class. No matter what your experience has been in other classes, *plan to spend at least 6-9 hours per week working on this course outside of class!* Of course, some weeks you may spend more than 9 hours on this class, while others you may spend less.

IS THIS THE RIGHT MATH COURSE FOR YOU?

This class is intended for any who want to take it, are ready and willing to put some time and thought into the course, and have had a solid grounding in both Differential and Integral Calculus. Calculus BC is definitely sufficient preparation; Calculus AB can be sufficient preparation as well, but isn't always – if you took AB Calc in high school, come talk to me about whether this is a good choice for you.

CLASSROOM ETIQUETTE:

I would like to provide a classroom atmosphere with minimal distractions for both you and me, in which all students feel comfortable asking a question or contributing to a discussion. I therefore ask that you show both me and fellow classmates respect when it is their turn to speak.

This not only means that I ask that you not talk or whisper while someone else is speaking, but that you refrain from:

- texting
- using a computer except during designated times. If you have accommodations that encourage taking notes using a computer please do let me know, and get the accommodations letter to me as quickly as possible.

Please ask me questions when you do not understand something. I know it can be uncomfortable, but I can guarantee you that 95% of the time, if you have a question, so does at least one other person in the class.

When we are reviewing material you've seen before, please be considerate of those who have *not*

previously seen it, by saving comments or questions on material we haven't yet gotten to for after class or during my office hours – doing otherwise makes other students nervous!

DAILY ASSIGNMENTS:

This class moves quickly, and in order to stay caught up, you will need to have practiced the material from one day's class at least a bit before we move on to the next day's material. To this end, you will have daily on-line assignments consisting of small number of problems, due at 8am every Monday, Wednesday, and Friday. These assignments will remind you of recent vocabulary and basic ideas; doing them online allows you to receive instant feedback.

These assignments are done through a system called *WeBWorK*. You will find links to WeBWorK on my public webpage, OnCourse, and the syllabus.

Late daily assignments will not be accepted
(except in extreme circumstances).
I will drop the lowest two daily scores at the end of the term.

WEEKLY PROBLEM SETS:

In addition to the short daily assignments, you will have more extensive and more conceptual weekly homework assignments. Some of the problems may be submitted through WeBWorK, others will be handwritten.

Problem Sets will be due every Wednesday at the beginning of class. While they are only due once a week, they represent a week's worth of learning, and you should therefore work on them throughout the week. Because the weekly problem sets will only cover through Friday's material, and the purpose of the daily assignments is to ensure familiarity with the material for the most recent class, on most Wednesdays you will have both a daily assignment due and weekly problem set due, so please plan your time accordingly.

Please be aware: the combination of daily WeBWorK assignments and weekly problem sets done both through WeBWorK and in the traditional handwritten way do **not** combine to be more homework than I have assigned in the past, before WeBWorK. I have split my usual homework assignments between them. WebWork is helpful for giving you instant feedback; written problems are helpful both for giving you partial credit and also for giving you weekly practice at organizing your thoughts in a forum where the presentation of your work counts as much as the final result does (which is more reflective of the real world). Dividing the weekly homework between WeBWorK and Problem Sets should have the additional benefit of allowing me to return the handwritten Problem Sets more quickly than I have been able to in the past.

For more details on the homework assignments, see the links *A Description of Multivariable Homework Assignments* and *General Guidelines for Problem Set Presentation* on the public course web page.

The assignments will be posted online; you will find them through links toward the bottom of the public course web page.

Late weekly problem sets will have points deducted!

If turned in on Wednesday after class but before 4:00pm, then I will deduct 0-10% depending on the situation. I will deduct 10%-20% for problem sets turned in after 4:00pm Wednesday and before

9:00 am Thursday. Problem sets turned in between 9:00am Thursday and 10:30 am Friday will lose between 20% and 30%. I will not accept any problem sets after 10:30 am of the Friday immediately following the original due date, except in extreme circumstances.

(Whenever you *do* find yourself in unusual circumstances, please do let me know. I can often be flexible, but in those situations where I can not, I can make a note of your situation on my grade sheet, to remind me at the end of the semester.)

PROJECT:

One (individual) project will be due this term; you will choose between two options – reading a book aimed at a general audience on math or on a mathematician and writing a report on it, *or* creating a picture using only Maple and functions. This project will be due Friday 4/26/13 at 3:30 pm.

Late projects will have points deducted

If turned in anytime between 3:30pm Friday afternoon and 9:00am Monday morning, I will deduct 0-20%, depending on the situation. I will then deduct an additional 10% each succeeding 24 hour period, and will not accept any projects more than one week late.

EXAMS:

During the semester, I will give two midterm exams to make sure that you are putting together the concepts and skills we have covered. The primary emphasis of these exams will be for you to show me how well you've mastered the underlying mathematical ideas; they will cover very little basic computational material.

You will have three hours for each midterm exam (although the midterm exams will be shorter in length than the final exam). These midterms will be given on Thursday evenings (to give you some time after turning in your problem set Wednesday for the concepts to coalesce). The dates are fairly firmly scheduled, and are listed on the course syllabus.

The term will culminate in a cumulative final. It will continue to emphasize concepts, and will assume a higher level of mastery than the midterms. Please remember that finals can not be rescheduled, and make your travel plans accordingly.

Notify me several days in advance if you can not make the scheduled time for either of the midterm exams, so that we can work out a mutually agreeable alternative time.

If you notify me only a day or two before a midterm, or miss any exam (midterm or final) without notifying me in advance, then I reserve the right not give you a make-up exam, if you do not have a suitably compelling reason.

I will not give any student more than one make-up exam during the semester.

ATTENDANCE:

Clearly, missing class is not a wise idea. If you **do** miss class, you are responsible for the material that was covered. *Warning:* – I can only keep one day's worth of events in my head and may not remember something important, so ask your friends as well as me.

EVALUATION

I expect to use the weights below, although I reserve the right to change my mind if the semester does not go as expected.

Daily Assignments	16%	Two Midterm Exams	35%
Individual Project	8%	Comprehensive Final Exam	25%
Problem Sets	16%		

If you question the fairness of any grade, please feel free to bring it to me, but please do so **within a week** of receiving it.

HONOR CODE

You are expected to abide by the Honor Code in all your work at Wheaton.

Below, I detail how the Honor Code relates to the various assignments and exams in this course.

- As part of the honor code, you are required to write

I have abided by the Wheaton College Honor Code in this work

followed by your signature, on all written assignments. If, upon consideration, you do not feel you can truthfully write and sign the pledge, please come speak to me immediately.

- **If you see a violation of the Honor Code occurring that relates to this course, you are bound by the Honor Code to report it.** If you do not feel comfortable reporting it to me, the chair of the department or Dean Kuszaj are other resources.
- **For all assignments:** You may discuss the *ideas* with classmates, and you may use references that help you figure out how to do a problem on your own, but you may not use any references (people, other people's projects or assignments, books, the web) which either give you the answer or lead you directly to the solution.
- **When you use references** (as described above), you *must* cite them. For instance, if you work with friends on a problem set, or if you get help from a tutor, write something like *Worked with Joe Friend on this assignment* or *Worked with Jane Tutor on Problems 3 and 7*.
- **For all assignments:** While you may discuss the ideas with classmates, you must actually do the work and write up the final results on your own, in your own words. As in any other class, *in your own words* does *not* mean taking some one else's assignment and just making small changes.
- **Projects:** The work you do, and the work you turn in to me, must all be your own work. If you are reading a book, it must be a book you have *not* read before.
- **Exams:** You may not use any notes, books, **or colleagues** as reference during the exams, except for whatever references I explicitly state are allowed. Do not assume that I have implicitly allowed some reference. During the exam, you may not look at anybody's exam or "cheat sheet" (if I allow one) or *textbook* (if I allow open-book) until after all exams have been returned. You may not use a calculator or computer unless I specify that you may, and if I do so specify you must again conform to whatever conditions I specify.