

Greg Langkamp - Seattle Central Community College
Math& 153 – Calc III: Multivariable (formerly Mat 126)
Course Syllabus Spring 2009

Contact Information

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Office: SAM 413 Hours: Daily 12-12:50 AM, or by appointment

Mathematica Proficiency Required: Students taking this course must be proficient with the Mathematica software program. Students who have little or no experience with Mathematica should register for CSC102Q. This 1-credit course begins the second week of the quarter and ends the 4th week of the quarter. Many sections of CSC102Q are being offered – please consult the SCCC website for section days, times, and openings.

Prerequisites: Calculus II (Math& 152 or Mat 125) with a 2.0 or better (at SCCC), or SCCC placement exam. You must meet the prerequisite to stay in this class, or to overload this class.

Waitlist Policy: After I take attendance for 2 days, I will know how many seats can be added to the course. Those students on the electronic waitlist who *attend the first 2 days* will have highest priority for being accepted into the course. (There is no guarantee that anyone will be signed into the course.) Students on the waitlist should be prepared to show proof of their prerequisites before I sign them in.

Classroom: These course sections meet daily in the new science and math (SAM) building. No food or drink is allowed in the classroom. Water bottles with tight lids can be kept in your book bag under the desks. Please keep the classroom clean--if you make a mess, clean it up!

Course Materials:

a) REQUIRED: Textbook: Stewart, *Calculus: Concepts and Contexts*, 3rd Edition, Thomson Brooks/Cole Publishers, 2005.

b) REQUIRED: Pencils and eraser, graph paper, small ruler with cm markings, protractor, and colored pencils.

Note: all work submitted for a grade must be done in pencil!!

c) REQUIRED: USB Flash drive (a.k.a. thumb drive) to store computer files.

d) REQUIRED: TI-83/84 graphing calculator. Some calculator models may not be allowed in this class because they are too powerful. These include, but are not limited to, the TI-89 and TI-92. Check with me ASAP!

e) OPTIONAL: *Student Solution Manual* and *Student Study Guide* to accompany Stewart text.

f) OPTIONAL: Print card for printing on the SCCC student network. Go to the computing center on the 3rd floor of the main building, or the library, to get a card.

Internet Access: This course requires that you access the internet several times each week. Students who do not have internet access at home will need to use computers in the SCCC computer labs, in a local library, etc. If you wish to print at SCCC, you will need a print card which is available at the library.

Calculators: It is also assumed that you have some experience using a graphing calculator. If not, then you should start learning and get help *immediately* in the 1st floor tutoring lab (SAM 100).

Renting Calculators: TI-83+ calculators are available to rent for \$20/quarter. You will need to pay \$20 to the school cashier (on the first floor of the main building), bring the receipt to me, and then fill out a contract. I will only rent you a calculator if you are enrolled in the class.

Workload for this course: You should expect to spend *on average* 2-3 hours per day for this course outside of class; this time will consist of reading your textbook, reading your class notes, doing homework problems from the textbook, studying for quizzes and exams, and preparing for special class days. On the first day of each week I will hand out a “Weekly Notes and Assignment” sheet.

Course Contents: This is the first course in multivariable calculus. Most of the material is in chapters 9-12 in the Stewart text. Below is an approximate week-by-week guide to the course.

Week	Topic
1	3-D coordinate systems, vectors, dot products
2	cross products, equations of lines and planes
3	functions and surfaces , cylindrical and spherical coordinates
4	exam #1 , vector functions, derivatives and integrals of vector functions
5	arc length, curvature, motion in space, functions of several variables
6	limits and continuity, partial derivatives, tangent planes
7	chain rule, directional derivatives and the gradient vector
8	exam #3 , maximum and minimum values
9	double integrals over rectangular regions, iterated integrals, double integrals – general
10	applications of double integrals, surface area
11	final exam

WAMAP: This course will make use of WAMAP, an online course-management program. There are two features of wamap that we will make use of: (1) in WAMAP I will post class announcements, grades, and documents to read or download. (2) WAMAP has an internal message system, which allows you and me to contact members of the class. WAMAP messaging is for class use only – not for other personal correspondence! I will register you in WAMAP for this course. More information will come during the first week.

Teaching/Learning format: I believe the best way for students to learn is to do the math, rather than listen to a teacher tell them how to do the math. As a teacher, I pursue this by keeping lecturing to a minimum, and having students work in groups on relevant problems. The benefit of group work is that students are actively engaged in the learning process, and feel more comfortable asking questions and suggesting strategies in the company of peers. (I know that I didn't like to shout out questions in front of the class.) I strongly support this classroom structure.

So what should you expect in class? Each day will vary somewhat, but in general, I'll take a few questions regarding the past night's homework. I then may lecture a little (but sometimes I don't) and then you'll be turned loose to work in groups on several problems. The only way that a group can work is for all students to attend. Since we sometimes start group activities immediately, it is unacceptable to arrive late to class. (I understand that there are occasional, unexpected crisis that prevent this.) Remember what a wise student once said: "Coming to class every day makes studying at home much easier."

Your success in this class depends on your active participation in the group process. Many of you have experience with this mode of learning from previous math courses at SCCC. If not, try it, don't fight it. Most students enjoy the chance to work with others, learn more, and make a few friends.

Textbook homework: For each section in the textbook I will assign a sample of homework problems. The odd-numbered problems have answers in the back of the text and worked-out solutions in the Student Solution Manual. Each Monday I will collect homework from several of the sections, to be announced in advance.

- Your homework will be graded on (1) effort in working out solutions to all the assigned problems, and on (2) mathematical correctness of a sample of the problems that are submitted. The total number of points each week is 10.
- When submitting your homework, make sure that all sections are placed in order and stapled together.
- For each section, keep all problems in order. Write problem numbers clearly so that they are easy to find.
- Writing on both sides of the paper is fine, but do not crowd your work. **Write in pencil only!! Do not submit papers that have been ripped out of a spiral notebook (not "frilly" edges!)**
- Stay on top of the homework! Doing homework pays off -- I often base quiz and exam problems on text homework.

Grading (subject to some modifications):

- Weekly Homework (drop lowest)..... 10 points each
- In-class worksheets (no makeups)..... 2-3 points each
- Quizzes (drop lowest).....20 points each (sometimes w/ group)
- Projects (1 or 2 of them)..... 15-20 points each
- Hourly exams (2 of them)..... 100 points each
- Final exam..... 150 points

Grades will be computed according to the formula: $Grade \approx 0.073(\text{percentage correct}) - 2.96$.
 The table below shows the minimum percentage that you need to get a particular grade in the course.

Grade	min %	Grade	min %	Grade	min %	Grade	min %
4.0	95.00%	3.1	82.73%	2.2	70.45%	1.3	58.18%
3.9	93.64%	3.0	81.36%	2.1	69.09%	1.2	56.82%
3.8	92.27%	2.9	80.00%	2.0	67.73%	1.1	55.45%
3.7	90.91%	2.8	78.64%	1.9	66.36%	1.0	54.09%
3.6	89.55%	2.7	77.27%	1.8	65.00%	0.9	52.73%
3.5	88.18%	2.6	75.91%	1.7	63.64%	0.8	51.36%
3.4	86.82%	2.5	74.55%	1.6	62.27%	0.7	50.00%
3.3	85.45%	2.4	73.18%	1.5	60.91%		
3.2	84.09%	2.3	71.82%	1.4	59.55%		

Further course policies

In general, by signing up for this course you are expected to attend every day and be present for quizzes, exams, and class problems. If you need to be absent during the quarter for any reason (work, home issues, illness, vacation, childcare, etc) your absence may lower your grade.

Late homework is not accepted. No make-up quizzes are allowed. I will drop your lowest homework grade and lowest quiz grade to accommodate for unplanned emergencies in which you cannot submit the work on time.

If you are absent on the day of an exam, YOU MUST CONTACT ME BEFORE CLASS BEGINS!! I will try to schedule a make-up exam, providing that you have been attending class regularly and you can take the make-up at a reasonably convenient time.

Electronic devices: All cell phones, pagers, and other such electronic equipment are to be turned off during class.

Special Accommodations : Students with documented disabilities who need course accommodations, have emergency medical information or require special arrangements for building evacuation should contact the instructor within the first week of class.

Final Exam: Thursday, June 18, 8-10am, same classroom

Final Note: Information in this syllabus may be modified during the quarter.