Math 273 – Calculus of Functions of Several Variables

Term, Section	Fall 2014, Section 2
Time	Tue,Thu 1:25–2:15 pm
Location	VLIB 260
Credit hours	2
Prerequisites	C or better in Math 172 or Math 182
Instructor, Office	Bala Krishnamoorthy, VSCI 130L
Office Hours	Tue 3–4 pm, Wed 1–2 pm; Skype (ID: wsucomptopo)
Email	bkrishna@math.wsu.edu
Course web page	http://www.wsu.edu/~kbala/Math273.html
Book	Hass, Weir, Thomas —
	University Calculus: Early Transcendentals. 2nd Ed.
	Pearson, ISBN: 978-0-321-71739-9. Options to buy.

Description of the Course

This is **Calculus III**, and continues where Calculus II (Math 172) ended. We will cover most sections from Chapters 13, 14, and 15 (from the text). Topics include partial derivatives, multiple integrals, and integration in vector fields. Applications relevant to science and engineering will be emphasized. Some exposure will also be given to computer tools for exploring the concepts.

Organization and Grading

Homework: There will be around 13 homework assignments. Each assignment will be posted at least one week before the day on which it will be due (dates are given in the tentative schedule, but these dates might be subject to change). Discussion of homework problems with others is allowed, but each person should hand in his or her own written solutions. You must **provide justifications** for your work – answers without justification would get zero credit, even if they are correct.

It is very important to work sincerely on the homework problems if you want to do well in this course. Homework should be submitted **at the start of the lecture** on the day it is due. Late submissions are not allowed. If you have any genuine difficulties turning in homework on time, you could discuss it with the instructor well before the due date. The lectures will follow the material presented in the book, but the treatment may differ from that given in the text on a few occasions. You are encouraged **not to miss any of the lectures**. Following the material covered in class is very important to do well in the homework assignments and in the exams.

Exams: There will be **two** exams (Exams I and II) during the semester, and a comprehensive final exam. All exams will be closed-book. **Calculators will not be allowed** in exams. The total score for the course will be calculated using the following weights: homework - 35 %; Exams I, II - 20 % each; and Final exam - 25 %. The **two** lowest homework grades **from among those turned in** will be dropped .

Your overall grade for the course will be determined by your total score, based on the following scale: 93–100: A, 90–92.9: A−, 87–89.9: B+, 83–86.9: B, 80–82.9: B−, 77–79.9: C+, 73–76.9: C, 70–72.9: C−, 67–69.9: D+, 60–66.9: D, 0–59.9: F.

Software

Limited exposure to the use of computer packages such as Matlab and Mathematica will be introduced in this course. Matlab is available on most computers in the labs on campus, while a limited number of licenses for Mathematica are available on the computers in the Quantitative Skills Center (QSC, VUCB 102). As a free alternative to Matlab, one could use Octave, which accepts all Matlab code, and works in a similar fashion as well. Many Mathematica commands relevant for this class could be evaluated directly on Wolfram Alpha, a free web portal provided by the makers of Mathematica.

Academic Integrity: Academic integrity is the cornerstone of the university and will be strongly enforced in this course. Any student found in violation of the academic integrity policy will be given an F for the course and will be referred to the Office of Student Conduct. Discussion of homework problems with others is allowed in this course, and is also encouraged. But each person should hand in his or her own written solutions. For additional information about WSUs Academic Integrity policy/procedures please contact (360) 546-9781.

Students with Disabilities: Reasonable accommodations are available for students with documented disabilities through Disability Services. If there is a need for such accommodations, it is critical that you contact Disability Services as soon as possible. All accommodations must be approved through Disability Services, located in the Student Resource Center on the Lower Level of Student Services Center (their contact number is (360) 546- 9138).

WSU Safety Measures: The University has developed a resource in support of our commitment to safety of students, faculty, staff, and visitors. The WSU Vancouver Campus Safety Plan, which can be found at http://www.vancouver.wsu.edu/safety-plan, contains a comprehensive listing of university policies, procedures, statistics, and information relating to campus safety, emergency management, and the health and welfare of the campus community. I ask that all faculty, staff, and students visit this web site as well as the WSU Vancouver Public Safety web site at http://admin.vancouver.wsu.edu/public-safety/public-safety to become familiar with the campus safety and emergency information provided.

Emergency Notification System: WSU has made an emergency notification system available for faculty, students, and staff. Please register at myWSU with emergency contact information (cell/email). In the event of a Building Evacuation, a map at each classroom entrance shows the evacuation point for each building. Please refer to it. Finally, in case of class cancellation campus-wide, please check local media, the WSU Vancouver web page and/or http://www.flashalert.net/. Each individual is expected to make the best decision for their personal circumstances, taking safety into account.

Weather policy: In case of bad weather please consult the website http://admin.vancouver. wsu.edu/public-safety/emergency-closure-suspended-operations-procedure.

Tentative Schedule for Math 273 (Fall 2014)

N.B.: Sections from the text relevant for each topic are given in parenthesis.

Week	Lec #	Date	Details
1	1	Tue, Aug 26	functions of several variables (13.1)
	2	Thu, Aug 28	limits and continuity (13.2), partial derivatives (13.3)
2	3	Tue, Sep 2	partial derivatives (13.3)
	4	Thu, Sep 4	the chain rule (13.4) [**HW 1 Due**]
3	5	Tue, Sep 9	the chain rule (13.4)
	6	Thu, Sep 11	directional derivatives and gradient vectors (13.5) [**HW 2 Due**]
4	7	Tue, Sep 16	directional derivatives and gradient vectors (13.5)
	8	Thu, Sep 18	tangent planes and differentials (13.6) [**HW 3 Due**]
5	9	Tue, Sep 23	tangent planes and differentials (13.6)
	10	Thu, Sep 25	extreme values and saddle points (13.7) [**HW 4 Due**]
6	11	Tue, Sep 30	extreme values and saddle points (13.7)
	12	Thu, Oct 2	**Exam I [HW 5 Due]**
7	13	Tue, Oct 7	double and iterated integrals over rectangles (14.1)
	14	Thu, Oct 9	double integrals over general regions (14.2) [**HW 6 Due**]
8	15	Tue, Oct 14	area by double integration (14.3)
	16	Thu, Oct 16	double integration in polar form (14.4) [**HW 7 Due**]
9	17	Tue, Oct 21	double integration in polar form (14.4)
	18	Thu, Oct 23	triple integrals in rectangular coordinates (14.5) [**HW 6 Due**]
10	19	Tue, Oct 28	triple integrals in rectangular coordinates (14.5)
	20	Thu, Oct 30	substitutions in multiple integrals (14.8) [**HW 8 Due**]
11	21	Tue, Nov 4	substitutions in multiple integrals (14.8)
	22	Thu, Nov 6	line integrals (15.1) [**HW 9 Due**]
12		Tue, Nov 11	*No class - Veterans Day*
	23	Thu, Nov 13	**Exam II [HW 10 Due]**
13	24	Tue, Nov 18	vector fields: work, circulation, flux (15.2)
	25	Thu, Nov 20	vector fields: work, circulation, flux (15.2) [**HW 11 Due**]
		Tue, Nov 25	*No class - thanksgiving*
		Thu, Nov 27	*No class - thanksgiving*
14	26	Tue, Dec 2	path independence, conservative fields, potential functions (15.3)
	27	Thu, Dec 4	Green's theorem in plane (15.4) [**HW 12 Due**]
15	28	Tue, Dec 9	Green's theorem in plane (15.4)
	29	Thu, Dec 11	surface integrals, Stokes' theorem (15.5-6)[**HW 13 Due**]
16		Tue, Dec 16	**Final Exam**, 2-4 PM