Math 100 Introduction to Multivariable Calculus (L2)

Instructor: Jian-shi Li (Office: Room 3460. E-mail: matom).
Office hour: Open. Come at any time
Textbook: H. Anton, *Calculus*, 7*th* ed. (Wiley, 2002).
Grade Scheme: $\max(.3T + .2H + .5E,\ .15T + .1H + .75E)$ where T, H, E stand for the midterm, homework and final exam, respectively.
TA: Mr. Cheng Jian-Jun (email: macjx)
Homework Due Date: next week tutorial time after each assignment.

Course Content & Tentative Homework Assignments:

Ch. 12 (Week 1-2) Three-dimensional space, $\mathbb{R}^3$; Vectors, lines, planes, quadric surfaces in 3-space; Rectangular, cylindrical and spherical coordinates.

HW set 1: Ex 12.1 #32,42; Ex 12.2 #30,38,52; Ex 12.3 #6,24(b),28; Ex 12.4 #30,32

HW set 2: Ex 12.5 #16,46; Ex 12.6 #22,26,50; Ex 12.7 #24,26,28; Ex 12.8 #18,28

Ch. 13 (§13.4-.7 omitted)(Week 3) Vector-valued functions; Change of parameters, arc length.

HW set 3: Ex 13.1 #22(a),32; Ex 13.2 # 28,38; Ex 13.3 #24,32

Ch. 14 (Week 4-7) Partial derivatives; Chain rules; Total differentials; Directional derivatives, gradient; Maxima and minima, Lagrange multipliers.

HW set 4: Ex 14.1 #20,52; Ex 14.2 #26,32; Ex 14.3 #14, 38

HW set 5: Ex 14.4 #12,42; Ex 14.5 #6,34; Ex 14.6 # 20,52

HW set 6: Ex 14.7 #8,30; Ex 14.8 #12,44; Ex 14.9 #16,18

——————— Midterm Test ———————

Ch. 15 (§15.6 and .8 omitted)(Week 8-10) Double integrals; Triple integrals.

HW set 7: Ex 15.1 #16,20; Ex 15.2 #22,34,48,58; Ex 15.3 #10,34

HW set 8: Ex 15.4 #16,40,44; Ex 15.5 #10,16; Ex 15.7 #6,10,20

Ch. 16 (Week 11-14) Line integrals; Surface integrals; Conservative vector fields; Green's theorem; The divergence theorem; Stoke's theorem.

HW set 9: Ex 16.1 #8,14; Ex 16.2 #4, 36; Ex 16.3 #10,16; Ex 16.4 #2,8

HW set 10: Ex 16.5 #2,28; Ex 16.6 #8,14; Ex 16.7 #6,14,20; Ex 16.8 #6,10