

Course Guide Calculus III: Fall 2025:

	Topic	My notes	Comments	Assignment Collected
M: 8-18	vectors, points, components	9 - 18		
T	dot products, angles, projections	18 - 28		
W	cross product	28 - 37		
TH	Lines and planes	38 - 50		
F	Curves and Surfaces	51 - 75		
M: 8-25	curvilinear coordinates	75 - 83		
T:	calculus of curves	89 - 101		Mission 1
W:	Arclength	101 - 105		
TH:	geometry of curves	105 - 115		
F:	3D motion	115 - 125		
M: 9-1	3D motion continued, possibly covering Kepler's Laws	125 - 130		
T:	Integration along a curve	130 - 134		
W:	Integration along a curve	130 - 134		
TH:	Further examples			
F:	MATH BATTLE I: an in-class group challenge			Mission 2
M: 9-8	Questions ?			
T:	TEST I		Covers Chapters 1 and 2 of my notes.	
W:	open sets and limits for several variables	137 - 142		
TH:	open sets and limits for several variables	143 - 148		
F:	directional derivatives & partial differentiation	149 - 157		
M: 9-15	directional derivatives via partial differentiation	158 - 162		
T:	gradient vector field, level curves, contour plots	162 - 169		
W:	partial diff. with three-variables & applications	170 - 179		
TH:	general concept of differentiation	180 - 192		Mission 3
F:	chain rules	192 - 205		
M: 9-22	tangent spaces & their equations	206 - 212		
T:	differentials and constrained partial diff.	212- 219		
W:	gradients in curvilinear coordinates	220 - 222		
TH:	Lagrange multipliers	231 - 245		
F:	Lagrange multipliers	231 - 245		Mission 4
M: 9-29	multivariate Taylor	246 - 251		
T:	second derivative test	252 - 257		
W	closed set test	258 – 262		
TH:	Further examples			
F:	MATH BATTLE II: an in-class group challenge			Mission 5
M: 10-6	Questions?			
T:	TEST II		Covers Chapters 3, 4, 5 of my notes	
W:	definition and basic multivariate integrals	265 - 270		
	FALL BREAK (10-9 and 10-10)			
M: 10-13	double integrals and TYPE I and II regions	270 - 285		
T:	double integrals and TYPE I and II regions	270 - 285		
W:	cartesian triple integrals	286 – 295		

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TH:	cartesian triple integrals	286 – 295		
F:	change of variables for double integrals	295 - 307		
M: 10-20	change of variables for triple integrals	308 - 319		
T:	change of variables for triple integrals	308 - 319		
W:	algebra and geometry of volume elements	320 - 322		
TH:	Further examples			
F:	MATH BATTLE III: an in-class group challenge			Mission 6
M: 10-27	Questions?			
T:	TEST III		Covers Chapter 6 of my notes	
W:	vector fields and the gradient operator	325 – 328		
TH:	vector fields and the gradient operator	325 – 328		
F:	On the calculation and properties of grad, curl and div	329 – 332		
M: 11-3	line integrals	332 – 335		
T:	conservative vector fields	335 – 338		
W:	Green's theorem	339 - 345		
TH:	Deformation thm, conservative vector fields	345 – 353		
F:	Surface integrals	354 – 364		
M: 11-10	Surface integrals	354 – 364		Mission 7
T/W/TH	Stokes' theorem	365 – 374		
F:	Gauss' Theorem	374 – 383		
M: 11-17	Gauss' Theorem	374 – 383		
T:	Theory of Potentials	384 – 400		
W:	Theory of Potentials	384 – 400		Mission 8
TH:	Calculus with Differential Forms part I	401 - 425		
F:	Calculus with Differential Forms part II	401 – 425		
	THANKSGIVING BREAK (11-24 to 11-28)			
M: 12-1	Calculus with Differential Forms part III	401 – 425		
T:	MATH BATTLE IV: an in-class group challenge			
W:	Questions ?			
TH:	TEST IV		Covers Chapter 7 of my notes	
F: 12-5	Something different			
	Final Exam is on Tuesday, December 9, 10:30-12:30		Comprehensive	

- ❖ Tests 1,2,3,4 = $4(120\text{pts}) = 480\text{pts}$, Final = 240pts , Missions = 100pts , (keep highest 7 scores), Math Battles 80pts , Surprise Attack Missions(SAM) 100pts (keep highest 10 scores).

Make-up policy: if an assignment is missed for legitimate reasons such as university approved excuse then weight may be added to Final Exam to replace those missed points. Generally late work is not accepted once the solution is posted. Notice there is built-in grace with both Missions and SAMs in that the lowest score(s) are dropped. In addition, I will replace scores for Tests 1, 2 & 3 with the Final Exam score if it is helpful. However, Test 4 is only replaced with extreme, university approved, circumstances.