MCV4U – St. Paul Catholic High School

PART I: Rates of Change and the Derivative

Unit 1: Introduction to Calculus

Lesson	Exp.	Topic	Homework/Evaluation
1	A1.2, A1.2,	Average vs. Instant Rate of Change	P29#4, 7, 9, 17
2	A1.3, A1.5 A1.6	Slope of a Tangent (Rationalizing Denominators)	P19#8-11c, 14, 17, 18, 24
3	B1.1, B2.2	Velocity as Rate of Change of Position	Worksheets
4 (3 days)	A1.4, A1.5	Limits; (Algebraic, Properties, Practice)	P37#1, 4acf, 5, 6, 10, 11, 12, 15 P45#4ace,6, 7-10ace,13-15 Worksheet
5		Quiz Lesson 1 – 5	
6	A3	Continuity	P51#1, 4, 5, 8, 10-15
7		Review	Extra Textbook

Unit 2: The Derivative

Date	Les.	Expt	Topic	Homework/Evaluation
	1	A2.1, A2.3,	The Derivative, Differentiability	P73#1, 4c, 5ad, 6ad, 7ab, 10, 14, 15, 17, 20
	2	A3.1, A3.2, A3.3, A3.4	Differentiation Rules (Power, Constant, Sum…)	P82#3, 5, 7, 8c, 9c, 10, 11, 13, 15, 17a, 27 (Read them all, try 5)
	3	A3.5	Product Rule, Power of a Function Rule	P91#5ace, 7a, 8a, 10, 12, 13
	4	A3.5, Optional	Quotient Rule	P97#3, 4ace, 6-8, 10, 13, 17
	5	A3.5	Chain Rule	P105#6, 7, 8ef, 11, 15, 18
	6		Review	
	7		Test	

Unit 3: Derivatives of Exponential and Trigonometric Functions

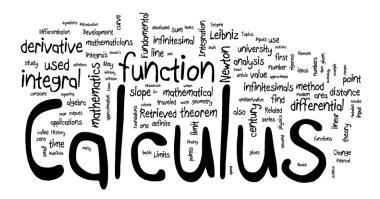| Date	Les.	Expt	Topic	Homework/Evaluation
	1	A2.5, A2.6, B2.2	Derivatives of Exponential Functions	P240#1ace, 2, 4, 6, 8 P232#2-3ace, 4, 6, 9, 10, 12
	2	A2.7, Optional	Derivatives of Natural Logarithmic Functions	Worksheets
	3	A2.4	Derivative of the Sine and Cosine Function	P256#1-3acegi, 4, 5ac, 8, 14
	4	A3.5	Other Trigonometric Derivatives	P257#9, p260#2a, 3, 4a, 5, 7, 10 QUIZ
	5		Review	
	6		Test	

PART 2: Derivatives, Applications and Curve Sketching

Unit 4: Applications and Optimization

Date	Expect	Topic	Homework/Evaluation
	B1.2, B1.3, B2.1, B2.3	Velocity, Acceleration and other Rates of Change	p127#3ae, 4, 8, 10-12, 15, 17
	B2.4, b2.5	Absolute Max/Minimums and Data Problems	p135#1-2oral, 3cf,4acf, 6,7,10, 14
(3 days)	B2.4	Optimization	p145#1-11, 19, 23 (odd); p151#1-19odd p245#4, 6, 14; p257#12, 13
	Optional	Implicit Differentiation & Simple Related Rates	Worksheets
		Review Assignment	Worksheets p. 156 # 1, 3, 6-8, 11, 13-17
		Test	

Unit 5: Curve Sketching

Date	Expect	Topic	Homework/Evaluation
	B1.4, B1.5, B2.4	Increasing and Decreasing Functions Maximums and Minimums	p169#1ac, 4ac,10 p179# 3ab, 4ab, 7ef, 9-11
	A1.4	Asymptotes	p193#6ac, 7c, 9ac, 11-14
	B1.2,B1.3, B1.4	Concavity and Points of Inflection	p205#4ac, 5, 6, 9, 10, 12
(2 Days)	B1.1, B1.4, B1.5, B2.2	Full Sketching, Sketching Derivatives	p213#4acej, 11
(3 Days)		Poster/Presentation Assignment	Worksheets
		Review	p. 216 #1, 3ac, 4, 5cd, 7, 10bdf, 11, 15, 16, 17, 18
		Test	

PART III: Geometry and Algebra of Vectors

Unit 6: Representing Vectors

Date	Lesson	Expt	Topic	Homework/Evaluation
		C1.1, C1.2, C1.3, C2.1, C2.2	Vectors (6.1)	P280#5, 6, 9, 10, 11
		C2.1, C2.2, C2.3	Vector Addition & Scalar Multiple (6.2, 6.3)	P290# 4, 5, 7, 9, 12, 14, 15 P299#5, 7, 15, 16, 17
		C1.3, C2.2, C2.3	Properties of Vectors (6.4)	P306#6, 7, 8, 9, 11,
(2 days)		C1.4	Vectors in 3-Space (6.5, 6.6, 6.7)	Quiz: Lessons 1-3 P316#5, 9, 10-11a, 15, 17 P325#3, 6, 7, 9, 14, 15 P333#3, 5 –7a, 8, 13, 14
		Readiness for University	Linear Combinations and Spanning Sets (6.8)	*p341# 8, 9, 13
		C1.1, C2.3	Forces and Velocity (7.1, 7.2)	P362#1-4oral, 5, 6, 8, 10, 11, 12, 15, 18 P369#4, 6, 9, 11, 13
		C2.4, C2.5	Dot Product (7.3, 7.4)	Quiz: Lessons 4-5 P3771,2,4oral, 6-7ace, 9, 11, 15, P387#6-7a, 9a, 10, 12, 16
		C2.4	Projections (7.5)	P399#5, 7, 11, 12, 15
		C2.6, C2.7	Cross Product (7.6)	P407#4ace, 5, 7, 8, 12, 13
		C2.8	Vector Applications (7.7)	P414#3, 5, 7
(3 days)			Review Activity	Quiz: Lessons 6-9 Worksheets
			TEST	

Unit 7: Representing Lines and Planes

Date	Lesson	Expt	Topic	Homework/Evaluation
	1	C4.1, C4.2	Equation of a Line in 2-Space (8.1, 8.2) *(Vector, Parametric, and Cartesian or Scalar)*	P433#4, 5, 7, 9, 11-14 P443#4, 5, 9, 10ace, 12
	2	C4.2	Equations of a Line in 3-Space (8.3) *(Vector, Parametric, and Symmetric)*	P449#4, 5acf, 6, 7, 10c, 13
	3	C4.3	Equation of a Plane *(Vector and Parametric)* (8.4)	P459#5, 6, 9, 11, 12, 14, 15
	4	C4.4, C4.5, C4.6,	Equation of a Plane *(Cartesian or Scalar)* (8.5)	P468#5, 6, 9oral, 11, 12, 14, 15, 17
	5	C4.5, C4.7	Intersecting 2 Lines and Line with a Plane (9.1)	P496#3, 4a, 5a, 7, 9, 11, 13, 15
	6	C4.4, C4.7	Systems of Equations (9.2)	P507#1, 3, 5a, 9, 12ace, 14, 15
	7	C4.4, C4.7	Intersecting Two Planes (9.3)	P516#3, 4, 6ace, 8, 10, 11, 12
	8	C4.4, C4.7	Intersecting Three Planes (9.4)	P530#1-6oral, 8, 9, 11, 14, 15
	9	C4.4, C4.5, C4.6, C4.7	Distances in 3-Space (9.5, 9.6)	P540#4, 5, 6 p550#2, 3, 5, 6
	10		Review	
	11		TEST	