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Course Schedule for Calculus

This schedule and assignments are subject to revision. The section and chapter numbers in the reading and homework assignments are from Calculus, A New Horizon, 8th ed., by Anton, Bivens, and Davis.

Week of	Topics	Reading and Homework Assignments
September 6	Introduction to Calculus. Parametric Equations and Vector Valued Functions. Limits.	Section 1.8, problems 3, 5, 11, 15, 27; Section 2.1, problems 1 – 6, 9, 11, 13, 23
September 13	Limits.	Section 2.2, problems 1 a), c), e), g), 3, 5, 7, 9, 11, 15, 17, 21, 23, 25, 27, 29, 34, 35; Section 2.3, 2, 3, 5 b), e), and g), 11, 13, 15, 17, 19, 21, 22, 25, 30, 31, 33, 34, 61; Section 2.5, problems 1, 2, 5, 9a, 13, 15, 19, 21, 23, 25, 27, 28, 29, 35, 43, 49 (complete 4 iterations of the bisection method);
September 20	Limits. Test 1. Differentiation.	Section 2.6, problems 5, 7, 15a, c, 17, 21, 23, 25, 27, 33 (hint - multiply by the conjugate of the denominator), 39, 47, 49; Section 3.1, 1, 9a), 11a), 17; Section 3.2, problems 3, 5, 7 (find the equations for the tangent and normal lines), 9, 13, 15, 17, 23, 25, 27, 28, 37 (wrong answer in book, 37b), 43, 44;
September 27	Differentiation.	Section 3.3, problems 3, 5, 7, 9, 11, 13, 15, 19, 21, 22, 27, 29, 33, 37a) and c), 39; Section 3.4, 3, 5, 7, 9, 11, 13, 15, 19, 21, 23, 25; Section 3.5, problems 1, 3, 5, 7, 9, 11, 13, 21, 23, 27, 33;

October 4	Differentiation.	Section 3.6, problems 3, 4, 5, 7, 9, 13 (note - wrong answer in text), 15, 19, 25, 29, 37, 47, 51, 65; Section 3.8, problems 3, 5, 13, 19, 21, 23, 33, 37, 39, 41, 45, 47;
October 11	Test 2.	Section 4.1, problems 9, 13, 15, 17, 19, 21, 25, 27, 31, 43, 51; Section 1.5, problems 5, 7, 9, 10, 19, 39, 41; and section 2.6, 13, 19; and section 4.3, 35 – 38;
October 17	Derivatives of Logarithmic, Exponential, and Inverse Trig Functions.	Section 1.6, problems 11, 15, 19, 21, 29, 33 (note: let $u = e^{-x}$), 34, 37, 55; and section 2.3, 43, 47, 48, 49, 51, 57, 58, 63, 71, 75, 77 Section 4.2, problems 5, 7, 9, 11, 13, 15, 21, 27, 33, 37, 51; Section 4.3, problems 3, 5a) &c), 7, 9, 13, 15, 17, 19, 23, 25, 27, 31, 37, 39, 41, 43, 59;
October 25	Derivatives of Logarithmic, Exponential, and Inverse Trig Functions. Test 3. Applications of the Derivative.	Section 4.4, problems 1, 3, 5, 7, 11, 15, 19, 23, 25, 29, 33, 39, 47, 56, 58; Section 5.1, problems 3, 4, 5, 7, 9, 11, 23, 25, 31, 35, 63, 66, 69;
November 1	Applications of the Derivative.	Section 5.2, problems 1, 5, 7, 11, 15, 17, 19, 23, 27, 37, 49, 61, 71, 73, 77; Section 5.3, problems 7, 13, 29, 35 (on domain $[-\pi, \pi]$), 41, 57;
November 8	Applications of the Derivative. Test 4.	Section 3.7, problems 3, 7, 13, 14, 17, 23, 27, 31, 37, 43; Section 5.4, problems 7, 9, 13, 17, 23, 27, 33, 43, 51;
November 15	Applications of the Derivative.	Section 5.5, problems 9, 16, 19, 27, 35, 45, 56, supplementary worksheet; Section 5.7, problems 3, 5, 7, 9, 19, 21, 27, 35;
November 22	Applications of the Derivative.	Section 5.8, problems 3, 7, 9, 13 (wrong answer in back of book), 17, 23, 29, 35, 36;
November 29	Test 5. Integration	Section 6.1 (read only); Section 6.2, problems 1, 5, 9, 11, 13, 15, 21, 23, 25, 29, 41c), 47, 53 – 56 (sketch on slope field for 53 only – see handouts page for downloadable slopefield); Section 6.4, problems 5, 7, 11, 12, 17, 20, 23, 25, 27, 33, 47, 63, 71;

December 6	Integration	Section 6.5, problems 5, 11, 13c) and d), 15b) and d), 17, 19, 21, 25, 29; Section 6.6, problems 1, 13, 19, 25, 29, 40, 51, 55, 59, 65, 67, 73; and Section 6.1, 13, 15;;
December 13	Integration.	Section 6.7, problems 1, 4, 5, 7, 9, 11, 13, 16, 27, 29, 45
December 20	Senior Research Presentations	
December 23 – 31	Winter Break	Have fun!
January 3	Integration.	Section 6.3, problems 5a) & c), 9, 13, 15, 17, 19, 25, 29; Section 6.8, problems 1, 7, 15, 21, 43, 51, 55, 60; Section 6.9, problems 3, 11, 13, 15, 17, 20, 21, 27
January 10	Test 6. Applications of Integration.	Section 7.1, problems 3, 5, 9, 10, 13, 15, 21, 31, 43; Section 7.2, problems 5, 7, 9, 11, 17, 19, 23, 29, 37, 43, 51;
January 17	Review. 1 st Semester Exam	
January 24	Home high school exams.	
January 31	Applications of Integration.	Section 7.3, problems 3, 5, 7, 9, 15, 24; Section 7.4, problems 3, 5, 9, 11, 13, 31; Section 7.5, problems 3, 7, 9, 19;
February 7	Applications of Integration. Test 7.	Section 7.6, problems 7, 9, 11, 17, 25, 27, 29; Section 7.7, problems 7, 9, 10, 15, 17, 19; Section 7.9 (worksheet);
February 14	Advanced Techniques of Integration	Section 8.1 (read only); Section 8.2, problems 1, 3, 7, 9, 11, 17, 23, 27, 31, 35, 41a), 43, 47, 49, 54; Section 8.3, problems 1, 3, 9, 11, 17, 19, 21 (simplify first using $\sin 2x = 2 \sin x \cos x$), 23, 31, 33, 37, 43, 53, 57;
February 21	Advanced Techniques of Integration.	Section 8.4, problems 3, 7, 9, 11, 17, 21, 37; Section 8.5, problems 1, 9, 10, 11, 13, 15, 18, 19;
February 28	Advanced Techniques of Integration.	Section 8.7, problems 5, 21, 23, 25, 27, 35, 37, 41 (use 4 subdivisions for the first 5 problems, complete the last 2 problems as assigned); Section 8.8, problems 1, 3, 5, 7, 11, 15, 21, 27, 41, 42, 52, 56, 63;

March 7	Test 8. Differential Equations.	Section 9.1, problems 3, 5, 7, 11 (integrating factor), 15, 17, 19, 21, 29, 31, 43, 44, 45, 49, 53 (note: for Toricelli's Law, $A(h)$ refers to the surface of the fluid in contact with air)
March 14	Differential Equations.	Section 9.2, problems 1, 5 (print out slope field from handout page), 9, 11a) & b), 13, 15, 19; Section 9.3, problems 1, 3, 5, 7, 9, 13, 19, 29, 31, 36, 37, (just just y_0 and L for 36 and 37), 39a), b), d), and e) (answer typo);
March 21	Test 9. Sequences and Series.	Section 10.1, problems 1, 5, 7, 9, 11, 13, 17, 21, 23, 25, 39, 48; Section 10.2, problems 5 (differentiation method is OK), 9, 10, 11, 13, 17, 21, 28;
March 28	Sequences and Series. Test 10.	Section 10.3, problems 1a), 2, 3, 5, 7 (hint: use partial fraction decomposition), 13, 19, 24, 26a), 27, 34;
April 4 - 8	Spring Break	Have Fun!
April 11	Sequences and Series	Section 10.4, problems 2a), 3, 5, 7, 9, 13, 15, 21, 23, 32; Section 10.5, problems 1, 5, 7, 9, 11, 13, 15, 17, 21, 23, 27, 29, 35, 39, 45;
April 18	Sequences and Series	Section 10.6, problems 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 22, 27, 33, 35, 37, 48, 54; Section 10.7, problems 3, 7 (e^{-x}), 11, 15, 16, (for 15 and 16, do not need to find n^{th} Maclaurin polynomial), 19, 21, 30, 36; Section 10.8, problems 1, 5, 7, 9, 13, 23, 25, 27, 32, 35, 39, 43, 48
April 25	Sequences and Series.	Section 10.9, problems 3, 5, 13, 23; Section 10.7 (do these with section 10.9 HW), problems 31, 38, 39, 41; Section 10.10, problems 2, 5, 6, 7a), 8a), 9, 11, 21, 25, 27, 29, 30, 34a) & b);
May 2	Sequences and Series. Test 10.	Section 11.1, problems 5, 9, 11, 18, 23, 27, 37, 45, 59a), 60;
May 9	Analytical Geometry	Section 11.2, problems 5, 7, 9 (hint: use chain rule to find the second derivative), 11, 13, 17, 19 (singular means nondifferentiable), 23, 25, 27, 33, 39, 43;

May 16	Analytical Geometry.	Section 11.3, problems 3, 5, 9, 11, 12, 13, 17, 29;
May 23	Test 11.	
May 30	Review. Exam.	