Calculus I MA113

Text: Calculus third edition, by James Stewart, ISBN 0-534-21801-6.

Calendar: The calendar below gives the dates of exams and other important dates for the course. The list of problems below provide a guide to students and instructors as to the material to be covered. The problems marked by *'s are particularly interesting.

Wed, 15 Jan	Review and preview $\S1 \#77-82, \S2 \#3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25,$
	27*
Fri, 17 Jan	1.1 The tangent and velocity problems, $1.1 # 3, 5, 7$
Mon, 21 Jan	Martin Luther King, Jr. holiday
Wed, 22 Jan	1.2 The limit of a function, $1.2 # 1, 3, 5, 9, 11, 13, 15, 17, 19, 23, 25, 27$
	28, 29
Fri, 24 Jan	1.3 Calculating limits using the limit laws, $1.3 # 1$, 3, 5, 7, 13, 15, 17, 19, 27, 29, 33, 39, 59, 61, 75 [*] , 76 [*] , 78 [*]
Mon, 27 Jan	§1.3 Continued, §1.4 The rigorous definition of a limit (lightly).
Wed, 29 Jan	$1.5 Continuity, 1.5 \#1, 3, 9, 13, 15, 17, 31, 33, 37, 39, 45, 47, 49, 59^*, 60^*$
Fri, 31 Jan	1.6 Tangents, velocities and other rates of change, $1.6 # 1, 5, 7, 11, 13, 15, 17$
Mon 3 Feb	52 1 Derivatives 52 1 #1 3 5 7 11 13 15 23 31 33 34 35 37 39 44
	$45, 53, 55, 59^*, 60^*, 61^*$
Wed, 5 Feb	$\$2.2$ Differentiation formulas, $\$2.2 \ \#1-34$ (Learn to differentiate!), 37, 41.
,	43, 45, 47, 49, 55, 57, 63, 71, 74*, 76*.
	Last day to drop
Fri, 7 Feb	Review
Mon, 10 Feb	Review
Mon, 10 Feb Tue, 11 Feb	Review First exam, 7:30pm-9:30pm, room TBA
Tue, 11 Feb Wed, 12 Feb	Review First exam, 7:30pm-9:30pm, room TBA §2.3 Rates of change in the natural and social sciences, §2.3 #1, 3, 5, 7, 9,
Mon, 10 Feb Tue, 11 Feb Wed, 12 Feb	Review First exam, 7:30pm-9:30pm, room TBA §2.3 Rates of change in the natural and social sciences, §2.3 #1, 3, 5, 7, 9, 11, 13
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Mon, 10 Feb Tue, 11 Feb Wed, 12 Feb Fri, 14 Feb Mon, 17 Feb Wed, 19 Feb Fri, 21 Feb Mon, 24 Feb Wed, 26 Feb	Review First exam, 7:30pm-9:30pm, room TBA §2.3 Rates of change in the natural and social sciences, §2.3 #1, 3, 5, 7, 9, 11, 13 Appendix D, Trigonometry review #1, 3, 5, 7, 9, 11, 29, 31, 33, 35, 37, 43, 45, 47, 49, 53, 83*,85* §2.4 Derivatives of trigonometric functions, §2.4 #1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 33, 35, 37, 43, 45, 47, 53*, 55 §2.5 The chain rule, §2.5 1-47 (odds) 49, 51, 67, 69, 71*, 72*, 73* Implicit differentiation, §2.6 #1, 3, 5, 7, 9, 11, 21, 23, 25, 31, 35, 41, 43, 45 §2.7 Higher derivatives, §2.7 #1, 3, 5, 7, 9, 11, 13, 15, 23, 27, 31
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Mon, 10 Feb Tue, 11 Feb Wed, 12 Feb Fri, 14 Feb Mon, 17 Feb Wed, 19 Feb Fri, 21 Feb Mon, 24 Feb Wed, 26 Feb Fri, 28 Feb Mon, 3 Mar	$\begin{array}{l} Review\\ \hline First\ exam,\ 7:30pm-9:30pm,\ room\ TBA\\ \hline \\ \$2.3\ Rates\ of\ change\ in\ the\ natural\ and\ social\ sciences,\ \$2.3\ \#1,\ 3,\ 5,\ 7,\ 9,\ 11,\ 13\\ \hline \\ \ \\ \ \\ \ \\ \ \\ \ \\ \ \\ \ \\ \ \\ \ $
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Mon, 10 Feb Tue, 11 Feb Wed, 12 Feb Fri, 14 Feb Mon, 17 Feb Wed, 19 Feb Fri, 21 Feb Mon, 24 Feb Wed, 26 Feb Fri, 28 Feb Mon, 3 Mar Wed, 5 Mar Fri, 7 Mar	Review First exam, 7:30pm-9:30pm, room TBA §2.3 Rates of change in the natural and social sciences, §2.3 #1, 3, 5, 7, 9, 11, 13 Appendix D, Trigonometry review #1, 3, 5, 7, 9, 11, 29, 31, 33, 35, 37, 43, 45, 47, 49, 53, 83*,85* §2.4 Derivatives of trigonometric functions, §2.4 #1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 33, 35, 37, 43, 45, 47, 53*, 55 §2.5 The chain rule, §2.5 1-47 (odds) 49, 51, 67, 69, 71*, 72*, 73* Implicit differentiation, §2.6 #1, 3, 5, 7, 9, 11, 21, 23, 25, 31, 35, 41, 43, 45 §2.7 Higher derivatives, §2.7 #1, 3, 5, 7, 9, 11, 21, 23, 25, 31, 35, 41, 43, 45, §2.8 Related rates, §2.8 #1, 3, 5, 7, 9, 11, 13, 15, 23, 27, 31 Related rates, continued §2.9 Linear approximations , §2.9 #31, 33, 35, 37, 39, 41, 45, 47, 51*, 54 §2.10 Newton's method, §2.10 #1, 2, 3, 13, 23, 25, 31* Review
Mon, 10 Feb Tue, 11 Feb Wed, 12 Feb Fri, 14 Feb Mon, 17 Feb Wed, 19 Feb Fri, 21 Feb Mon, 24 Feb Wed, 26 Feb Fri, 28 Feb Mon, 3 Mar Wed, 5 Mar Fri, 7 Mar Mon, 10 Mar	Review First exam, 7:30pm-9:30pm, room TBA §2.3 Rates of change in the natural and social sciences, §2.3 #1, 3, 5, 7, 9, 11, 13 Appendix D, Trigonometry review #1, 3, 5, 7, 9, 11, 29, 31, 33, 35, 37, 43, 45, 47, 49, 53, 83*,85* §2.4 Derivatives of trigonometric functions, §2.4 #1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 33, 35, 37, 43, 45, 47, 53*, 55 §2.5 The chain rule, §2.5 1-47 (odds) 49, 51, 67, 69, 71*, 72*, 73* Implicit differentiation, §2.6 #1, 3, 5, 7, 9, 11, 21, 23, 25, 31, 35, 41, 43, 45 §2.7 Higher derivatives, §2.7 #1, 3, 5, 7, 9, 11, 21, 23, 25, 31, 35, 41, 43, 47, 49, 52*, 53 §2.8 Related rates, §2.8 #1, 3, 5, 7, 9, 11, 13, 15, 23, 27, 31 Related rates, continued §2.9 Linear approximations, §2.9 #31, 33, 35, 37, 39, 41, 45, 47, 51*, 54 §2.10 Newton's method, §2.10 #1, 2, 3, 13, 23, 25, 31* Review Review

Wed, 12 Mar	3.1 Maximum and minimum values, 3.1 , $#1$, 3 , 5 , 7 , 9 , 11 , 13 , 15 , 21 , 29 , 3.1 , 21 , 29 , 3.1
	31, 33, 35, 37, 39, 45, 47, 49, 51, 62, 63, 67, 69
Fri, 14 Mar	3.2 The mean value theorem, $3.2 \# 1, 7, 17, 19, 21, 23^*, 24, 25, 27, 31, 33, 33, 33, 33, 33, 33, 33, 33, 33$
	35
	Last day to withdraw
17-21 Mar	Spring break
Mon, 24 Mar	3.3 Monotonic functions and the first derivative test, $3.3 # 1$, 3, 5, 7, 17,
	$23, 27, 31, 33, 35, 37, 39, 41, 43, 47^*, 49^*$
Wed, 26 Mar	3.4 Concavity and points of inflection, $3.4 # 1$, 3, 5, 7, 9, 13, 17, 21, 23,
	$25, 27, 31^*, 32, 35, 39^*, 40$
Fri, 28 Mar	3.5 Limits at infinity, horizontal asymptotes, $3.5 # 1, 3, 5, 7, 9, 11, 17, 19,$
	21, 23, 33, 41, 43, 53, 55, 61, 65, 66
Mon, 31 Mar	3.6 Curve sketching, 3.6 #1, 3, 5, 11, 13, 31, 35
	Sir Isaac Newton died, 31 March 1727
Wed, 2 Apr	3.8 Applied maximum and minimum problems, $3.8 # 1, 3, 5, 7, 9, 11, 13, 5, 7, 9, 11, 13$
	15, 17, 19, 21, 23, 29, 33, 35, 43, 44.
Fri, 4 Apr	§3.8, continued
Mon, 7 Apr	3.10 Anti-derivatives, $3.10 # 1$, 3, 5, 7, 15, 17, 19, 21, 23, 27, 37, 39, 43,
	$49, 55, 59^*, 63, 65, 67^*$
Wed, 9 Apr	$\S4.1$ Sigma notation, $\S4.1 \#1$, 3, 11, 13, 19, 21, 23, 37, 39, 41, 47 [*] , 53 [*] ,
	Mathematical induction, Appendix E $\#1, 7, 9$
Fri, 11 Apr	Review
Mon, 14 Apr	Review
Tue, 15 Apr	Third exam, 7:30pm-9:30pm, room TBA
Wed, 16 Apr	$4.2 Area, 4.2 \# 1, 3, 9, 11, 13, 23, 25^*, 26^*$
Fri, 18 Apr	§4.3 The definite integral, §4.3 #1, 3, 15, 16, 17, 23, 25, 27, 31, 33, 35, 39,
	41, 45, 47, 55, 57, 59
Mon, 21 Apr	4.4 The fundamental theorem of calculus, 4.4 #5, 7, 9, 17, 19, 21, 23, 25,
	$27, 29, 31, 41, 43, 45, 59, 61, 63, 65, 69, 71, 81, 82, 83a, b, c^*, 87, 89$
Wed, 23 Apr	\$4.5 The substition rule, $$4.5 #1$, 3, 5, 7, 9, 11, 39, 41, 43, 53, 55, 63, 65, 67
Fri, 25 Apr	5.1 Areas between curves, $5.1 \# 1, 5, 7, 9, 13, 15, 17, 19, 25, 29, 33, 45^*, 49$
Mon, 28 Apr	5.2 Volume, $5.2 # 1$, 3, 5, 7, 13, 15, 17, 19, 25, 27, 33, 35, 47, 49, 51, 52,
	61, 68
Wed, 30 Apr	Review
Fri, 1 May	Review
Thu, 8 May	Final exam, 6:00-8:00pm, room TBA