

**Syllabus for MTH 232 — Calculus IV**  
**DEPARTMENT OF MATHEMATICS AND STATISTICS, WRIGHT STATE UNIVERSITY**

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**Text:** James Stewart, *Calculus: Concepts and Contexts*, 3<sup>rd</sup> Edition

Section‡	Time†	Sample Homework Assignment
<b>Chapter 11: Partial Derivatives</b>	<b>3 wk</b>	
11.1 Functions of Several Variables	1.5	2, 8, 9, 10, 11, <b>16, 18, 26, 33, 35</b>
<i>11.2 Limits and Continuity (optional)</i>	<i>1.5</i>	<b>3, 9, 10, 13, 31</b>
11.3 Partial Derivatives	1.5	2, 4, 8, 10, 18, 20, 24, 37, 42, 47, 56, 64, 72, 75
11.4 Tangent Planes and Linear Approximations	1.5	2, 4, 10, 12, 15, 16, 20, 22, 26, 30, 34, 36
11.5 The Chain Rule	1.5	2, 4, 6, 9, 12, 14, 18, 21, 26, 30, 32, 36, 37, 45
11.6 Directional Derivatives and the Gradient Vector	2.0	1, 6, 10, 12, 14, 20, 30, 33bd, 35, 42, 46, 48
11.7 Maximum and Minimum Values	2.0	1b, 2b, 4, <b>6, 12, 16</b> , 20, 25, 30, <b>32</b> , 34, 39
<i>11.8 Lagrange Multipliers (optional)</i>	<i>0</i>	<i>3, 5, 6, 11, 12, 14, 18, 20, 31</i>
<b>Chapter 12: Multiple Integrals</b>	<b>3 wk</b>	
12.1 Double Integrals over Rectangles	1.0	2, 4, 6, 9, 12, <b>15</b>
12.2 Iterated Integrals	1.5	1, 4, 6, 8, 14, 20, 22, 23, 27, <b>29</b>
12.3 Double Integrals over General Regions	2.0	2, 10, 16, 18, 20, 21, 24, <b>31</b> , 34, 38, 40, 52
12.4 Double Integrals in Polar Coordinates	2.0	3, 4, 6, 10, 12, 14, 15, 20, 24, 26, 27, 30
12.5 Applications of Double Integrals ( <i>Probability and Expected Values optional</i> )	2.0	2, 6, 10, 12, <b>19</b> , (21, 24, 26)
12.6 Surface Area	2.0	2, 4, 6, 8, 10, <b>16</b> , 22, 28
12.7 Triple Integrals	2.0	1, 4, 8, 12, 16, <b>22</b> , 26, 32, 34, <b>40</b>
12.8 Triple Integrals in Cylindrical and Spherical Coordinates	2.5	2, 4, 5, 6, 9, 12, 16, 18, 24, 28, 32, 34, 35
<i>12.9 Change of Variables in Multiple Integrals (optional)</i>	<i>0</i>	<i>1, 4, 8, 9, 12, 13, 18, 22, 23</i>
<b>Chapter 13: Vector Calculus</b>	<b>3 wk</b>	
13.1 Vector Fields	1	3, 6, 8, 11, 18, 21, 24, <b>27, 28</b>
13.2 Line Integrals	2	3, 8, 12, 16, 20, 22, 28, 34, 36, 40
13.3 The Fundamental Theorem for Line Integrals	1.5	2, 6, 7, 11, 14, 18, 20, 24, 33, 34
13.4 Green's Theorem	2	4, 8, 10, 12, 14, 18, 20, 21
13.5 Curl and Divergence	2.5	4, 6, 7, 8, 10, 12, 15, 18, 20, 23, 27, 29, 36
13.6 Surface Integrals	2	6, 8, 20, 21, 24, 27, <b>28</b> , 36, 38, 39
13.7 Stokes' Theorem	2	1, 2, 6, 8, 10, 15, 19, 20
13.8 The Divergence Theorem	2	2, 5, 11, 13, 23, 26, 28, 29
<i>13.9 Summary</i>	<i>0</i>	

‡ Sections listed in *italics* are optional. You are intended to use the computer on problems listed in **boldface**.

† For the instructor: Time for sections represents suggested number of fifty-minute classroom “hours”, based on 5 hours per week. The suggested hours for required sections add to 41.5 out of the 50 nominally available. The remaining hours can be used for optional sections, projects, exams, review, etc.