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**Mathematics Department**

**Math 2311-Calculus III**

**Course Outline 2nd Semester 2022-2023**

**Textbook:** G. Thomas, M. Weir and J. Hass, Thomas Calculus, 12th Edition, Addison Wisley.

**Course Material**

|  |  |  |
| --- | --- | --- |
| Chapter | Title | Sections |
| Ch.12 | Vectors and the geometry of the space | 12.1-12.6 |
| Ch.13 | Vector-valued functions | 13.1-13.4 |
| Ch.14 | Partial derivatives | 14.1-14.8 |
| Ch.15 | Multiple integrals | 15.1-15.5, 15.7, 15.8 |
| Ch.16 | Integration in vector fields  (If time allows) | 16.1-16.8 |

**Grading policy:**

Two Hour Exams 50%

Quizzes 10%

Final Exam 40%

**Homework Problems:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Section** | | **Page** | **Problems** |
| **Chapter 12** | | | |
| 12.1 | 663 | 8, 12, 14, 20, 26, 30, 32, 34, 36, 43, 56, 64, 65 | | | |
| 12.2 | 672 | 7, 10, 14, 15, 18, 22, 25, 33, 40, 41, 42 | | | |
| 12.3 | 680 | 5, 10, 17, 20, 31, 32, 33, 37, 45 | | | |
| 12.4 | 686 | 3, 16, 17, 20, 23, 27, 33, 34, 40, 45 | | | |
| 12.5 | 688 | 2, 6, 9, 20, 22, 25, 28, 32, 48, 54, 60, 62 | | | |
| 12.6 | 696 | 1-12 | | | |
| **Chapter 13** | | | |
| 13.1 | 713 | | 2, 4, 7, 10, 13, 17, 20, 22 |
| 13.2 | 720 | | 2, 5, 10, 12, 15,18 |
| 13.3 | 727 | | 4,7, 10, 11, 14, 15 |
| 13.4 | 733 | | 2, 4, 5, 9, 13,16 |
| **Chapter 14** | | | |
| 14.1 | 753 | | 2,6,12,16,18,23,40,45,50, 61,65, 68 |
| 14.2 | 761 | | 6,12,15,18,22, 28, 34,37,44, 48,50,55, 63 |
| 14.3 | 772 | | 8,12,16, 27,29,32,42,48,52,60,62,65,74,84, 91 |
| 14.4 | 782 | | 4,8, 9,12, 22,28, 36,43,45 |
| 14.5 | 790 | | 2,6,8,12,18, 20,28,29,31,35 |
| 14.6 | 799 | | 2,10,14,17,19,29,34, 38,40,48 |
| 14.7 | 808 | | 2,8,14,18,29, 34, 38,41,45,56 |
| 14.8 | 818 | | 1,5, 8,14,17,20,23,25 |
| **Chapter 15** | | | |
| 15.1 | 840 | | 4,10,14, 16, 20, 22, 24 |
| 15.2 | 847 | | 16, 18, 22, 24, 26, 35, 42,49, 54,58, 62 |
| 15.3 | 852 | | 4, 8,15,18, 21 |
| 15.4 | 857 | | 6, 9,14, 20, 24,28, 34,37,41,42 |
| 15.5 | 865 | | 5, 8,16, 21, 24,26,32,38, 42, 46 |
| 15.7 | 883 | | 2,8, 12,14,17,19, 25, 28, 32, 33, 37, 39, 46, 52,62 |
| 15.8 | 894 | | 5,9, 14, 22, 24 |
| **Chapter 16** | | | |
| 16.1 | 905 | | 1-8,10,14,18,21,24,30 |
| 16.2 | 917 | | 3,12,16,20,25,29,33,50 |
| 16.3 | 929 | | 6,10,14,22,28 |
| 16.4 | 940 | | 1,8,12,21,26 |
| 16.5 | 951 | | 2,8,12,23,26,30,38,46 |
| 16.6 | 960 | | 8,13,18,22,36 |
| 16.7 | 970 | | 2,8,16 |
| 16.8 | 981 | | 7,12,14 |