TMAT 214 – Honors Calculus III
Calculus of Several Variables
Assignments

Fall Semester, 2008

Assignments are listed by the **date due**. A PDF version of this page is available for printing.

These are exercises designed to prepare you for the quizzes and the test. Your solutions will not be collected so that you may have free exchanges with other students about these exercises.

Conflicting Textbook Editions

There are two very similar but different editions of the textbook by J. Stewart: (a) *Multivariable Calculus*, ISBN 0-495-01163-0, and (b) *Multivariable Calculus Early Transcendentals*, ISBN 0-495-01172-X. It has been suggested to me that chapter numbers in the second of these are one less than the numbers of the corresponding chapters in the first, and, otherwise, things (apart from page numbers, which appear to be shifted by 36) are the same for Calculus III. The assignments given here are keyed to the first of the two versions.

Tue., Dec. 16:

Final Examination, 10:30 – 12:30, in ES 245

Exam Period Office Hours

Wed.	Dec. 10	2:30 – 4:00
Thurs.	Dec. 11	2:30 – 4:00
Fri.	Dec. 12	2:30 – 4:00
Mon.	Dec. 15	2:30 – 4:00

Thu., Dec. 4:

Last class meeting before the exam
Expect a quiz
Bring review questions
Review Sheet on Curve and Surface Integrals (also available as PDF)

Wed., Dec. 3:

Read: § 17.9

§ **17.7:** 47
§ **17.8:** 7, 15, 16, 19
§ **17.9:** 1, 7, 9, 25 – 27, 31

Tue., Dec. 2:

Expect a quiz
Read: § 17.8

§ **17.6:** 35, 47, 55
§ **17.7:** 22, 28, 35, 43
§ **17.8:** 1, 2, 5

Tue., Nov. 25:

Read: § 17.7

§ **17.5:** 19, 21, 31
§ **17.6:** 23, 26, 33, 37, 41
§ **17.7:** 4, 5, 15, 19, 25

Thu., Nov. 20:

    Read: §§ 17.5 – 17.6

        § 17.3: 15, 19, 27, 33
        § 17.4: 17, 21, 27
        § 17.5: 1, 5, 12, 15
        § 17.6: 3, 6, 19, 20

Wed., Nov. 19:

    Expect a quiz
    Read: §§ 17.3 – 17.4

        § 17.2: 15, 21, 33, 39, 43
        § 17.3: 3, 5, 7, 11
        § 17.4: 1, 3, 7, 9

Tue., Nov. 18:

    Read: § 17.2

        § 16.8: 35
        § 16.9: 24
        § 17.1: 25, 26, 28, 34
        § 17.2: 1 – 4, 7, 8, 14

Thu., Nov. 13:

    Hour Test

Wed., Nov. 12:

    Bring Questions for Review
    Read: § 17.1
    Exercises:

        § 16.8: 23, 27, 30
        § 16.9: 17(a), 21
        § 17.1: 11 – 14, 21 – 24

Tue., Nov. 11:

    Read: § 16.9
    Exercises:

        § 16.7: 21, 22, 25, 26
        § 16.8: 11, 15, 17, 19, 20, 21
        § 16.9: 1 – 3, 7, 10, 13

Thu., Nov. 6:

    Read: § 16.8
    Exercises:

        § 16.6: 22, 27, 31, 33, 39, 51
        § 16.7: 11, 15, 17, 18
        § 16.8: 1 – 10

Wed., Nov. 5:

    Read: § 16.7
    Exercises:

        § 16.6: 6 – 11, 13, 15, 17, 19
        § 16.7: 1 – 10

Tue., Nov. 4:

    Read: § 16.6
    Exercises:

        § 16.4: 21, 25, 29, 31, 35

§ 16.5: 15, 16, 27, 29
§ 16.6: 1 − 5

Thu., Oct. 30:

Read: § 16.5
Exercises:

§ 16.3: 24, 28, 43, 45
§ 16.4: 13, 15, 18
§ 16.5: 1, 5, 11

Wed., Oct. 29:

Read: § 16.4
Exercises:

§ 16.2: 35, 38
§ 16.3: 13, 17, 20, 21
§ 16.4: 7, 9, 11

Tue., Oct. 28:

Read: § 16.3
Exercises:

§ 16.2: 23, 27, 32
§ 16.3: 3, 5, 7 − 10, 19

Thu., Oct. 23:

Read: § 16.2
Exercises:

§ 15.8: 25, 26, 41, 45
§ 16.1: 17
§ 16.2: 3, 9, 17, 19

Wed., Oct. 22:

Read: § 16.1
Exercises:

§ 15.7: 51
§ 15.8: 12 − 14, 15, 19
§ 16.1: 1, 7, 13

Course Handout on *Extreme Values*[1] (also available as PDF[2])

Tue., Oct. 21:

Read: § 15.8
Exercises:

§ 15.6: 36, 39 − 41, 43, 48, 49, 57
§ 15.7: 31, 41, 43
§ 15.8: 3, 6, 11

Thu., Oct. 16:

Read: § 15.7
Exercises:

§ 15.5: 22, 25, 27, 32, 55
§ 15.6: 7, 10, 11, 19, 23, 27, 29
§ 15.7: 1, 6, 13

Wed., Oct. 15:

Read: § 15.6
Exercises:

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[1]URI: ../extremes.xhtml
[2]URI: ../extremes.pdf

§ 15.4: 37, 43
§ 15.5: 11 – 13, 15, 17
§ 15.6: 4 – 6

Tue., Oct. 14:

Read: § 15.5
Exercises:

§ 15.3: 57, 62, 65, 71, 72(a, c, e), 81, 88
§ 15.4: 28, 31, 33, 35
§ 15.5: 1 – 5, 7

Thu., Oct. 9:

University Recess: no class

Wed., Oct. 8:

Hour Test

Tue., Oct. 7:

Bring Questions for Review
Exercises:

§ 15.3: 41, 45, 46, 50, 51, 54
§ 15.4: 12, 15, 17, 18, 19, 21

Thu., Oct. 2:

Read: § 15.4
Exercises:

§ 15.2: 30, 35, 36
§ 15.3: 27 – 31, 33, 36, 37, 40
§ 15.4: 1, 3, 4, 11

Tue Sep 30 & Wed Oct 1

University Recess: no class

Thu., Sep. 25:

Read: § 15.3
Exercises:

§ 14.3: 45, 49, 53
§ 15.1: 55 – 60
§ 15.2: 18, 19, 21, 25
§ 15.3: 5, 15, 18, 21, 22, 24

Wed., Sep. 24:

Read: § 15.2
Exercises:

§ 14.3: 33, 41, 43
§ 14.4: 25, 33, 35, 37
§ 15.1: 13, 17, 18, 25, 27
§ 15.2: 1, 7, 9, 13, 15

Tue., Sep. 23:

Read: § 15.1
Exercises:

§ 14.3: 20, 22, 23, 25, 28
§ 14.4: 11, 13, 15, 19, 22
§ 15.1: 1 – 3, 6 – 8, 10

Thu., Sep. 18:

> **Read:** § 14.4
> **Exercises:**
>> **§ 14.2:** 32, 33, 35, 39, 45, 47, 49
>> **§ 14.3:** 12, 13, 15 − 17
>> **§ 14.4:** 4, 5, 7, 10
>
> **Note:** The handout[3] (also available as PDF[4]) on affine 3-folds in $\mathbf{R}^4$ is found here.

Wed., Sep. 17:

> **Exercises:**
>> **§ 14.1:** 26 − 28, 35, 41
>> **§ 14.2:** 3, 6, 19, 27, 31
>> **§ 14.3:** 7, 9, 11

Tue., Sep. 16:

> **Read:** § 14.3
> **Exercises:**
>> **§ 14.1:** 11, 17, 19 − 24
>> **§ 14.2:** 9, 13, 15, 21, 25
>> **§ 14.3:** 1, 3, 5

Thu., Sep. 11:

> **Read:** § 14.2
> **Exercises:**
>> **§ 13.5:** 38, 44, 48, 49 − 51, 55
>> **§ 13.6:** 21 − 28, 29, 31, 33
>> **§ 14.1:** 1, 2, 4, 6, 9

Wed., Sep. 10:

> **Read:** § 14.1
> **Exercises:**
>> **§ 13.4:** 33, 37, 43 − 45
>> **§ 13.5:** 15, 18, 19 − 21, 23, 26, 31
>> **§ 13.6:** 3, 5, 8
>> What is the equation of the curve bounding the plane region consisting of all points $(u - tu, t - tu)$ for $0 \le t, u \le 1$? Approach this as an exercise in Calculus I by seeking the maximum value, for each given x, of $y = t - tu$ subject to the condition $x = u - tu$, i.e., the maximum value of the function
>>
>> $$ y \;=\; \varphi(t) \;=\; t - t\frac{x}{1-t} \;, $$
>>
>> on the suitable interval of t values for the given x.

Tue., Sep. 9:

> **Read:** § 13.6
> **Exercises:**
>> **§ 13.3:** 26, 27, 29, 34, 35, 37
>> **§ 13.4:** 13, 16, 19, 28, 29
>> **§ 13.5:** 2, 4, 5, 7, 13

Thu., Sep. 4:

> **Read:** § 13.5
> **Exercises:**
>> **§ 13.2:** 36, 38 − 40

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[3]URI: fourfold.xhtml
[4]URI: fourfold.pdf

§ **13.3:** 11, 13, 19, 22, 25
§ **13.4:** 1, 3, 7, 9, 11, 18

Wed., Sep. 3:

Read: § 13.4
Exercises:

§ **13.1:** 23, 39
§ **13.2:** 19, 22, 25, 31
§ **13.3:** 1–3, 5, 7, 17, 23
What is the equation of the curve bounding the corkboard region (described during the first class)?

Tue., Sep. 2:

Read: § 13.3
Exercises:

§ **13.1:** 17, 19, 20, 21, 27
§ **13.2:** 3–5, 13, 15, 17

Thu., Aug. 28:

Read: §§ 13.1–13.2
Exercises:

§ **13.1:** 3, 4, 7, 9, 11, 13, 15

Wed., Aug. 27:

Problem of different textbook versions uncovered. No assignment.

Tue., Aug. 26:

First meeting: no assignment.