Math 42 | Tufts University | Fall 2015

Department of Mathematics

Calculus III

Sections and Instructors: 01 (Block B) Dyer, **02** (Block C) O'Donnell, **03** (Block D) Taylor, **04** (Block E) Taylor, **05** (Block F) Gutierrez. **06** (Block H) Healy

Course Website

For written assignments, exam reviews, and announcements: `http://trunk.tufts.edu`

Textbook: *Calculus: Early Transcendentals, 2nd edition* **OR** *Multivariable Calculus, 2nd edition*, by William L. Briggs and Lyle Cochran, Bernard Gillett (Pearson), 2011. Note: there are two assignment lists to correspond to the first and second editions of the textbook. The Student's Solutions Manual is available for sale at the bookstore, but it is not required. The Complete Solutions Manual will be held in reserve at Tisch Library.

Exams: There will be two midterm exams and a final. They are all closed book and no calculators are allowed. The exam rooms will be announced in class.

Exam 1: **Monday, October 5, open block: 12:00 – 1:20 p.m., room TBA.**
Exam 2: **Monday, November 9, open block: 12:00 – 1:20 p.m., room TBA**.
Final Exam: **Wednesday, December 16, 8:30 – 10:30 a.m., room TBA**.

The full department policy on exams and grading can be found on the department website: `http://math.tufts.edu/`. Select *Exams and Grading Policy*. Students found violating this policy will receive an F in the course and be reported to the Dean of Students.

Student Accessibility Services: If you are requesting an accommodation due to a documented disability, you must register with the Student Accessibility Services at the beginning of the semester. To do so, call the Student Services Desk at 617-627-2000 to arrange an appointment with Linda Sullivan, Program Director of Student Accessibility Services.

Homework: Beginning with the 3rd assignment listed on the attached lecture schedule, homework will be collected in the following class. Homework is indicated in the right column of the syllabus on page 3 of this document.

Homework will be graded and returned. Each assignment is worth 10 points. Problems with an asterisk (*) will be graded more carefully. Answers alone are not adequate. You must show your work, just as you will be required to do on an exam. You are encouraged to collaborate with other students and to check your solutions using the solutions manuals or the back of the text. However, you must submit your own solutions in your own writing for each assignment. Late homework will not be accepted except in case of a documented illness or family emergency.

Homework will be collected using folders handed out in class. Please write clearly on your folder an identifier (something that you will recognize), the course and section number (e.g. 42-01), and your instructor's name. Feel free to use your name as your identifier, but the homework folders are handed off between instructor and grader in a way that does not ensure their confidentiality (usually by way of drawers in the lobby of Bromfield-Pearson Hall). Your educational record is privileged information under the federal Family Educational Rights and Privacy Act (FERPA), and using your name as identifier means that you opt out of being guaranteed the confidentiality of the information on and in your homework folder. If you choose an identifier rather than your name, you must inform your instructor immediately of your identifier, so that you get appropriate credit for your homework. Homework counts 5% of your grade.

Missing an exam: We do not give make-up exams under any circumstances for the midterm exams. You can receive an excused absence at the discretion of the department for genuine emergencies (illness on the day of the exam) or for unavoidable and unforeseen events of an extremely serious nature. To receive an excused absence you must have the appropriate documentation (a note from Health Services or from your dean) and you must also fill out an affidavit explaining why you missed the exam and pledging the honesty of your explanation. You will need to see Gail Kaufmann, Bromfield-Pearson room 110 to fill out this affidavit. If you miss a midterm exam and do not receive an excused absence it will be counted as a zero. A more detailed explanation of department policy on missed exams can be found on the department website.

Grades: Suppose that H is your homework score, L is the lower of your two midterm exam scores, T is your other midterm exam score, and F stands for your final exam score. Your course average is the larger of these two numbers:

$$.20L + .30T + .45F + .05H \quad \text{or} \quad .30L + .30T + .35F + .05H.$$

If you receive an excused absence on one of the two midterm exams, your course average would be the larger of these two numbers:

$$.30T + .65F + .05H \quad \text{or} \quad .40\ T + .55F + .05H.$$

The course average is converted into a letter grade according to the conversion chart given on the Mathematics Department website at `http://math.tufts.edu/`.

Learning Objectives: This course satisfies Learning Objective 1a as listed at
`http://ase.tufts.edu/faculty-committees/assessment/math.htm`.

MATH 42 FALL 2015 COURSE SYLLABUS - FIRST EDITION OF TEXT

Lecture	Section	Topic	Homework
1	11.1, 11.2	Intro. to Vectors	§11.2: 5, 7, 23, 29, 38*, 39, 47, 61*
2	11.3	Dot Products	§11.3: 3, 5, 11, 13, 15, 23*, 39, 41, 47*, 65
3	11.4	Cross Products	§11.4: 4, 11, 17, 21*, 29, 48*, 58
4	11.5	Lines and Curves	§11.5: 9, 13, 16*, 20, 26, 31*, 40, 44, 48, 49
5	11.6, 11.7	Vector Functions, Motion	§11.6: 7, 11, 14, 21, 45*, 51; §11.7: 8, 25, 29*, 31
6	11.8, 11.9, 12.1	Arc Length	§11.8: 7, 11, 22, 46*; §11.9: 9, 11, 14*, 73
7	12.1	Planes and Surfaces	§12.1: 11, 15*, 23, 25, 29*, 33, 35, 61
8	12.1	Quadric Surfaces	§12.1: 37, 41, 45*, 49, 53, 55, 57*, 63
9	12.2	Graphs	§12.2: 11, 13, 19, 27, 28, 31*, 34, 44*
10	12.4	Partial Derivatives	§12.4: 8, 12, 19, 21*, 32, 35, 62, 65*
11	12.5, 12.6	Chain Rule; Directional Deriv.	§12.5: 6, 8, 12, 19, 28*, 51*, 56; §12.6: 3, 7
12	Review		
Exam 1: Monday, October 5, 12:00–1:20 p.m. Covers up to 11 §12.5			
13	12.6	Gradients	§12.6: 9, 18, 23, 27*, 40, 49*, 64
14	12.7	Tangent Planes	§12.7: 9, 15, 24*, 27, 37, 50, 52*, 54
15	12.8	Max/Min Problems	§12.8: 4, 10, 15, 18*, 29*, 54
16	12.8	Max/Min Problems	§12.8: 36, 37*, 39, 52, 57*, 62
17	12.9	Lagrange Multipliers	§12.9: 4, 7, 11, 15*, 20, 22*, 25
18	13.2	Double Integrals	§13.1: 4, 5, 6, 16, 33*, 42*
19	13.2	Double Integrals	§13.2: 17, 21, 27, 43, 47*, 49*
20	13.3	Double Integrals (Polar)	§13.3: 11, 24, 31, 33*, 46*, 65
21	13.4	Triple Integrals	§13.4: 13, 15, 22, 23*, 25*
22	13.4	Triple Integrals	§13.4: 20, 33, 35, 37*, 46*, 51
23	13.5	Triple Integrals (Cylindrical)	§ 13.5: 13, 15, 18, 19*, 26, 27*, 31
24	13.5	Triple Integrals (Spherical)	§13.5: 37, 39, 40*, 45, 47*, 51, 53, 57
25	14.1,14.2	Vector Fields & Integrals	§14.1: 10, 11, 24, 25, 30*; §14.2: 11, 17, 27*, 31
26	14.2	Line Integrals	§14.2: 33*, 35, 39, 45*, 47, 49
27	Review		
Exam 2: Monday, November 9 12:00–1:20 p.m. Covers up to 26 §14.2			
28	14.3	Conservative Fields	§14.3: 3, 12, 14, 15, 19*, 23*
29	14.3	Conservative Fields	§14.3: 7, 27, 31, 33, 43*, 45, 48, 49, 51, 53*
30	14.4	Green's Theorem	§14.4: 11, 14*, 17, 21, 29, 32, 33*
31	14.4,14.5	Div and Curl	§14.4: 23, 26*, 41; §14.5: 9, 12, 16, 27, 33, 41, 49*
32	14.6	Parametric Surfaces	§14.6: 12, 13, 15, 17, 19*, 21, 23*
33	14.6	Surface Integrals	§14.6: 26, 27, 29, 32, 33, 35, 38, 39*, 41, 55*
34	14.6	Integrals of vector fields	§14.6: 43*, 46, 48, 61, 65*
35	14.7	Stokes' Theorem	§14.7: 4, 5, 7, 9*, 12*
36	14.7	Stokes' Theorem	§14.7: 14, 17, 20*, 22, 27*
37	14.8	Divergence Theorem	§14.8: 7, 9, 17, 19*, 20, 22*
38	14.8	Divergence Theorem	§14.8: 23, 25, 26*, 34, 37*
39	Review		
Final Exam: Wednesday, December 16 , 8:30–10:30 a.m. Cumulative			

Note: Problems with a star (*) are graded more carefully.

MATH 42 FALL 2015 COURSE SYLLABUS - SECOND EDITION OF TEXT

Lecture	Section	Topic	Homework
1	11.1, 11.2	Intro. to Vectors	§11.2: 5, 7, 23, 31, 44*, 45, 55, 75*
2	11.3	Dot Products	§11.3: 3, 5, 11, 19, 21, 29*, 49, 51, 57*, 75
3	11.4	Cross Products	§11.4: 4, 11, 15, 19*, 23, 56*, 66
4	11.5	Lines and Curves	§11.5: 11, 13, 16*, 28, 34, 39*, 58, 62, 66, 67
5	11.6, 11.7	Vector Functions, Motion	§11.6: 9, 13, 18, 27, 55*, 51; §11.7: 10, 33, 37*, 41
6	11.8, 11.9, 12.1	Arc Length	§11.8: 11, 15, 26, 62*, 43, 45, 48*, 65
7	12.1	Planes and Surfaces	§12.1: 11, 17*, 29, 31, 35*, 43, 45, 71
8	12.1	Quadric Surfaces	§12.1: 47, 51, 55*, 59, 63, 65, 67*, 69
9	12.2	Graphs	§12.2: 11, 15, 21, 29, 32, 35*, 38, 48*
10	12.4	Partial Derivatives	§12.4: 14, 22, 33, 35*, 46, 49, 78, 81*
11	12.5, 12.6	Chain Rule; Directional Deriv.	§12.5: 6, 10, 14, 23, 32*, 55*, 60; §12.6: 3, 7
12	Review		
Exam 1: Monday, October 5, 12:00–1:20 p.m. Covers up to §12.5			
13	12.6	Gradients	§12.6: 9, 24, 29, 33*, 45, 55*, 70
14	12.7	Tangent Planes	§12.7: 11, 17, 28*, 31, 41, 54, 56*, 58
15	12.8	Max/Min Problems	§12.8: 4, 10, 19, 22*, 35*, 62
16	12.8	Max/Min Problems	§12.8: 42, 43*, 45, 60, 65*, 70
17	12.9	Lagrange Multipliers	§12.9: 4, 7, 15, 23*, 28, 30*, 33
18	13.2	Double Integrals	§13.1: 4, 7, 8, 22, 41*, 50*
19	13.2	Double Integrals	§13.2: 23, 29, 35, 57, 61*, 63*
20	13.3	Double Integrals (Polar)	§13.3: 11, 28, 35, 37*, 50*, 71
21	13.4	Triple Integrals	§13.4: 13, 15, 22, 23*, 25*
22	13.4	Triple Integrals	§13.4: 20, 33, 39, 41*, 50*, 55
23	13.5	Triple Integrals (Cylindrical)	§ 13.5: 13, 15, 18, 19*, 26, 27*, 31
24	13.5	Triple Integrals (Spherical)	§13.5: 37, 39, 40*, 45, 47*, 51, 53, 57
25	14.1,14.2	Vector Fields & Integrals	§14.1: 10, 11, 24, 25, 34*; §14.2: 11, 17, 27*, 31
26	14.2	Line Integrals	§14.2: 33*, 35, 39, 45*, 47, 49
27	Review		
Exam 2: Monday, November 9 12:00–1:20 p.m. Covers up to §14.2			
28	14.3	Conservative Fields	§14.3: 3, 12, 14, 15, 19*, 23*
29	14.3	Conservative Fields	§14.3: 7, 27, 31, 33, 43*, 45, 48, 49, 51, 53*
30	14.4	Green's Theorem	§14.4: 11, 14*, 17, 21, 29, 32, 33*
31	14.4,14.5	Div and Curl	§14.4: 23, 26*, 41; §14.5: 9, 12, 16, 27, 33, 41, 51*
32	14.6	Parametric Surfaces	§14.6: 12, 13, 15, 17, 19*, 21, 23*
33	14.6	Surface Integrals	§14.6: 26, 27, 29, 32, 33, 35, 38, 39*, 41, 55*
34	14.6	Integrals of vector fields	§14.6: 43*, 46, 48, 61, 65*
35	14.7	Stokes' Theorem	§14.7: 4, 5, 7, 9*, 12*
36	14.7	Stokes' Theorem	§14.7: 14, 17, 20*, 22, 27*
37	14.8	Divergence Theorem	§14.8: 7, 9, 17, 19*, 20, 22*
38	14.8	Divergence Theorem	§14.8: 23, 25, 26*, 34, 37*
39	Review		
Final Exam: Wednesday, December 16 , 8:30–10:30 a.m. Cumulative			

Note: Problems with a star (*) are graded more carefully.

MATH 42 FALL 2015 COURSE SCHEDULE

Lecture	Blocks B, F, H	Block C	Block D	Block E
1	Tu 9/8	Tu 9/8	Tu 9/8	W 9/9
2	Th 9/10	W 9/9	Th 9/10	F 9/11
3	F 9/11	F 9/11	M 9/14	M 9/14
4	Tu 9/15	Tu 9/15	Tu 9/15	W 9/16
5	Th 9/17	W 9/16	Th 9/17	F 9/18
6	F 9/18	F 9/18	M 9/21	M 9/21
7	Tu 9/22	Tu 9/22	Tu 9/22	W 9/23
8	Th 9/24	W 9/23	Th 9/24	F 9/25
9	F 9/25	F 9/25	M 9/28	M 9/28
10	Tu 9/29	T 9/29	T 9/29	W 9/30
11	Th 10/1	W 9/30	Th 10/1	F 10/2
12	F 10/2	F 10/2	M 10/5	M 10/5
Exam 1: Monday, October 5, 12:00–1:20 p.m.				
Covers up to Lecture 11, §12.5				
13	Tu 10/6	Tu 10/6	Tu 10/6	W 10/7
14	Th 10/8	W 10/7	Th 10/8	F 10/9
15	F 10/9	F 10/9	M 10/12	M 10/12
16	Tu 10/13	Tu 10/13	Tu 10/13	W 10/14
17	Th 10/15	W 10/14	Th 10/15	F 10/16
18	F 10/16	F 10/16	M 10/18	M 10/19
19	Tu 10/20	Tu 10/20	Tu 10/20	W 10/21
20	Th 10/22	W 10/21	Th 10/22	F 10/23
21	F 10/23	F 10/23	M 10/26	M 10/26
22	Tu 10/27	Tu 10/27	Tu 10/27	W 10/28
23	Th 10/29	W 10/28	Th 10/29	F 10/30
24	F 10/30	F 10/30	M 11/2	M 11/2
25	Tu 11/3	Tu 11/3	Tu 11/3	W 11/4
26	Th 11/5	W 11/4	Th 11/5	F 11/6
27	F 11/6	F 11/6	M 11/9	M 11/9
Exam 2: Monday, November 9, 12:00–1:20 p.m.				
Covers up to Lecture 26, §14.2				
28	Th 11/12	Tu 11/10	Th 11/12	Tu 11/10
29	F 11/13	F 11/13	M 11/16	F 11/13
30	Tu 11/17	W 11/18	Th 11/19	M 11/16
31	Th 11/19	W 11/18	Th 11/19	W 11/18
32	F 11/20	F 11/20	M 11/23	F 11/20
33	Tu 11/24	Tu 11/24	T 11/24	M 11/23
34	Tu 21/1	Tu 12/1	M 11/30	M 11/30
35	Th 12/3	W 12/2	Tu 12/1	W 12/2
36	F 12/4	F 12/4	Th 12/3	F 12/4
37	Tu 12/8	Tu 12/8	M 12/7	M 12/7
38	Th 12/10	W 12/9	Tu 12/8	W 12/9
39	F 12/11	F 12/11	Th 12/10	F 12/11
Final Exam: Wednesday December 16 , 8:30–10:30 a.m.				
Cumulative				

The list of sections and topics corresponding to each lecture is on the preceding page.

Important Dates:
Tuesday September 22: Last day to add.
Tuesday October 13: Last day for sophomores, juniors and seniors to drop.
Tuesday November 17: Last day for first year students to drop.
Friday December 11: Last day of classes and last day to drop with a W.