University of Ottawa Department of Mathematics and Statistics

MAT 1320 E Calculus I Fall 2015

INSTRUCTOR: Dr. Rachelle Mikkelborg

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OFFICE HOURS: Mondays 11:45-12:45 and Wednesdays 10:15-11:15. Other times may be arranged by appointment.

CLASSES: Monday 13:00-14:30 and Wednesday 11:30-13:00 in FSS2005.

CONTACT NOTES: If you have questions about the class or assignments:
1. Read the course website. 2. Ask your classmates or contact one of the TAs. 3. You are always welcome to discuss class content or assignments with me during office hours. No appointment needed during office hours.

DGD: During the DGDs, a TA will go over the class material with you and will solve some practice problems that are similar to those on assignments and exams. **Attendance is mandatory. The first DGD is Friday, September 11th (Review for the Diagnostic Test).** You will have registered for one of several equivalent DGDs:

- Discussion Group 1 Friday 08:30 - 10:00 FTX 137
- Discussion Group 2 Friday 10:00 - 11:30 SMD 221
- Discussion Group 3 Friday 11:30 - 13:00 MRT 251
- Discussion Group 4 Friday 13:00 - 14:30 LPR 285
- Discussion Group 5 Friday 14:30 - 16:00 KED B005

The TA will also hand back midterms. Prepare for the DGD by attempting all exercises from the previous week. You should ask the TA to go over the problems you found difficult. There will also be a Diagnostic Test and brief Quizzes given in the DGDs.

The list of exercises from the textbook, together with the assignment problems, provide excellent practice for the midterm tests and the final exam, which will consist of similar problems.

WEBPAGE: All information will be posted on Blackboard; please check it frequently.

TEXT: *Calculus: Early Transcendentals* by James Stewart, 7th Edition.

COURSE DESCRIPTION: Intuitive definition of limits; continuity, statement of intermediate value theorem. Quick review of basic derivative formulas: products, chain rule, exponentials, and trigonometric functions. Derivatives of quotients, logarithms, inverse trigonometric functions. Finite difference approximations of derivatives. Analysis of functions via the first and the second derivatives; statements of extreme and mean value theorems. L'Hospital's rule. Implicit differentiation, related rates, optimization, linear approximation, Newton s method. The definite integral and the fundamental theorem of calculus. Antiderivatives of elementary functions, techniques of integration (integration by parts, substitutions, partial fractions). Numerical integration: mid-point, trapezoidal rule and Simpson's rule; error analysis.

EVALUATION: Your course grade will be determined by the following formula

- **Midterm Tests:** There are two 80 minute midterm tests, written during the lecture period:
  - **Test 1:** Week 5: Wednesday, October 7th. Covers up to the end of week 4.
  - **Test 2:** Week 10: Wednesday, November 18th. Covers weeks 5 to 9 inclusively.
- **Final Examination:** The 3-hour final exam will be scheduled during the exam period (December 10th - 22nd). It will cover all of the material of this course.
- **Calculation of the final grade:** Assignments 10%, Diagnostic Test and Quizzes 10%, Midterm Tests $2 \times 15\%$, Final Exam 50%.
- **Note:** if your final exam mark is below 40%, then your final grade will be **F** regardless of other marks. Also, you must write at least one midterm test and most of the DGD quizzes to pass the course.

MIDTERM TEST PROCEDURES:

- If a midterm is missed for a valid reason, its percentage weight will be transferred to the final exam provided you notify your professor by email *before* the test is written and submit a proper justification (e.g. certificate from UO Health Services) when you return to class.
- Only Faculty-approved calculators are allowed during tests and during the final exam. These are basic non-programmable calculators (Texas Instruments TI-30 and TI-34, Casio FX-260 and Casio FX-300).
- Students may not enter after or leave before 20 minutes have passed from the beginning of the test.
- Students must present their student cards if asked.
- Any attempt at copying is treated as a case of academic fraud, as is the facilitation of copying by others. Students must take reasonable care to prevent others from copying their work.
- Any questions concerning marks or the marking must be submitted to the professor within two weeks after the test.

ASSIGNMENT PROCEDURES: Electronic Assignments will be completed using a web-based software called Maple TA.

- Your username is *your student number*.
- To get your password, go to
  http://www.mathstat.uottawa.ca/ugrad/MapleTA en.html
  and follow the instructions.
- Log on to the Maple TA website at
  http://place32.placementtester.com:8080/uottawa/login/login.do
- The first assignment is *How does Maple TA work?*. Please log in and complete this assignment to familiarize yourself with the system.
- Please note that server access will be slower during peak times (such as a few hours before the deadline) **- plan ahead and avoid frustration**.

Please note that one assignment mark will be dropped (lowest or missing grade) in the calculation of your final grade.

NEED HELP: Math Help Center Marion 021, Monday through Wednesday: 10:00-19:00; Thursday 10:00-17:00 and Friday 10:00-15:00. The help centre is open to all students in first year math.
http://www.mathstat.uottawa.ca/ugrad/help center en.html.

SUGGESTED EXERCISES:

§1.1 p19 # 1, 3, 7, 9, 13, 15, 23, 25, 31, 33, 35, 37, 45, 47, 49
§1.2 p33 # 1, 3, 9, 15
App D pA32 # 1, 3, 7, 11, 23, 27, 29, 31, 49, 51, 65, 69
§1.3 p42 # 3, 29, 31, 33, 35, 41, 43, 45, 51, 57
§1.5 p57 # 1, 3, 17, 19, 21, 23
§1.6 p69 # 1, 3, 7, 11, 15, 17, 21, 23, 25, 29, 33, 35, 37, 39, 41, 51, 53, 63, 65, 67, 69, 71
§2.1 p86 # 3, 5
§2.2 p96 # 5, 7, 11, 23, 29, 31, 33
§2.3 p106 # 1, 11, 13, 19, 21, 23, 25, 27, 31, 41
§2.5 p127 # 17, 19, 21, 35, 37, 39, 45
§2.6 p140 # 3, 7, 9, 15, 17, 19, 23, 25, 29, 31, 33, 41, 43, 45
§2.7 p150 # 5, 7, 13, 15, 23, 27, 29, 31, 43
§2.8 p162 # 3, 13, 25, 27, 29, 37, 39, 43, 45 §3.1 p181 # 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 43, 47, 49, 51, 53, 61
§3.2 p189 # 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 41, 43, 45, 47, 51, 55, 59
§3.3 p197 # 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 29, 31, 33, 35, 37, 51, 53
§3.4 p205 # 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, 43, 45, 47, 51, 53, 59, 61, 63, 69, 71, 75, 79
§3.5 p215 # 5, 7, 9, 11, 13, 15, 17, 19, 25, 27, 29, 31, 37, 43, 49, 51, 53, 55, 57, 59, 71, 75, 77
§3.6 p223 # 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 31, 33, 37, 39, 41, 43, 45, 47, 49, 51
§3.9 p248 # 1, 3, 5, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 39, 41
§3.10 p255 # 1, 3, 5, 7, 9, 23, 25, 31
§4.1 p281 # 3, 5, 9, 11, 29, 31, 33, 35, 37, 39, 41, 43, 47, 49, 51, 53, 55, 57, 59, 61, 69
§4.2 p288 # 1, 5, 7, 9, 11, 19
§4.3 p297 # 1, 5, 7, 9, 11, 13, 15, 17, 19, 21, 25, 27, 33, 35, 37, 39, 41, 43, 45, 49, 67
§4.4 p307 # 7, 9, 11, 13, 15, 19, 23, 25, 29, 33, 39, 41, 45, 47, 49, 51, 55, 57, 61
§4.5 p317 # 1, 3, 9, 13, 15, 19, 37, 39, 41, 43, 45, 51
§4.7 p331 # 7, 9, 13, 15, 19, 33, 35, 37, 43, 49
§4.8 p342 # 7, 11, 13, 15
§4.9 p348 # 3, 7, 11, 15, 17, 25, 27, 29, 33, 35, 37, 39, 41, 45, 47, 51, 59, 61, 63, 65
§5.1 p369 # 3, 5, 13, 15
§5.2 p382 # 5, 7, 11, 17, 19, 21, 25, 33, 35, 37, 39, 43, 49, 71
§5.3 p394 # 3, 5, 7, 11, 13, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 41, 43, 57
§5.4 p403 # 1, 3, 5, 7, 9, 11, 13, 15, 17, 21, 23, 27, 29, 31, 33, 37, 39, 41, 43, 45, 53, 57, 59, 61, 63
§5.5 p413 # 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 39, 41, 43, 45, 47, 53, 55, 57, 59, 61, 63, 65, 67, 69, 71, 73, 79
§7.1 p468 # 1, 3, 5, 7, 9, 11, 13, 15, 17, 23, 27, 33, 37, 39, 41, 51, 53
§7.2 p476 # 1, 3, 7, 11, 19, 21, 23, 27, 29, 41, 43, 47
§7.3 p483 # 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 25, 27
§7.4 p492 # 7, 9, 11, 15, 19, 21, 23, 27, 29, 39, 41, 43, 47
§7.5 p499 # 1 81 (do as many of the odd-numbered questions as you can (but not # 53))
S 7.7 p516 # 1, 5, 7, 9, 15, 35

WEEKLY SCHEDULE:

Week 1:		Wed. Sept. 9 §1.1, 1.2, 1.3
Week 2:	Mon. Sept. 14 §1.5, 1.6, App D	Wed. Sept. 16 §2.1, 2.2, 2.3
Week 3:	Mon. Sept. 21 §2.5, 2.6	Wed. Sept. 23 §2.7, 2.8
Week 4:	Mon. Sept. 28 §3.1, 3,2	Wed. Sept. 30 §3.3, 3.4
Week 5:	Mon. Oct. 5 §3.5, 3.6	Wed. Oct. 7 **Test 1** Covers §1.1-3.4
Week 6:	Mon. Oct. 12 no classes	Wed. Oct. 14 §3.9, 3.10
Week 7:	Mon. Oct. 19 §4.9	Wed. Oct. 21 §5.1, 5.2
Week 8:	Mon. Nov. 2 §5.3, 5.4	Wed. Nov. 4 §5.5
Week 9:	Mon. Nov. 9 §7.1, 7.2	Wed. Nov. 11 §7.2, 7.3
Week 10:	Mon. Nov. 16 §7.4, 7.5	Wed. Nov. 18 **Test 2** Covers §3.5-7.3
Week 11:	Mon. Nov. 23 §7.7	Wed. Nov. 25 §4.1, 4.2
Week 12:	Mon. Nov. 30 §4.3, 4.4	Wed. Dec. 2 §4.5
Week 13:	Mon. Dec. 7 §4.7, 4.8	Wed. Dec. 9 Review

Some sessional dates:
Sept. 9 Classes Begin
Oct. 12 Thanksgiving Day
Oct. 26-30 Study Break (no classes)
Nov. 20 Last day to withdrawl
Dec. 9 Classes End (Monday Schedule)
Dec. 10-22 Examination Period