

# Math 1A03/1ZA3 (Fall 2015) Course Outline

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## Course Home Page

- The course home page is NOT on Avenue to Learn. It is accessible from the link at the following web site:  
<http://ms.mcmaster.ca/childsa/1za3.html>

## Course Description

- Course Title:** Math 1A03/1ZA3 - Calculus for the Physical Sciences I/Engineering Mathematics I
- Class Times and Locations:** Check on [Mosaic](#).

### Math 1A03 Section 1 (C01) Instructor Information

- Name:** [David Duncan](#)
- email:** [duncand@math.mcmaster.ca](mailto:duncand@math.mcmaster.ca)
- Office Location:** HH/319
- Office Hours:** Tuesday and Wednesday 10:30am-11:30am

### Math 1A03 Section 2 (C02) Instructor Information

- Name:** [Federico Galetto](#)
- email:** [galetof@math.mcmaster.ca](mailto:galetof@math.mcmaster.ca)
- Office Location:** HH/407
- Office Hours:** Wednesday 1:30pm-4:00pm (or by appointment)

### Math 1ZA3 Section 1 (C01) Instructor Information

- Name:** [Chris McLean](#)
- email:** [mcleac3@math.mcmaster.ca](mailto:mcleac3@math.mcmaster.ca)
- Office Location:** BSB/B124
- Office Hours:** Tuesday, Thursday, and Friday 10:00am-11:30am

### Math 1ZA3 Section 2 (C02) Instructor Information

- Name:** [Aaron Childs](#)
- email:** [childsa@mcmaster.ca](mailto:childsa@mcmaster.ca)
- Office Location:** HH/213
- Office Hours:** Click [here](#)

### Math 1ZA3 Section 3 (C03) Instructor Information

- Name:** [Jean Pierre Gabardo](#)
- email:** [gabardo@mcmaster.ca](mailto:gabardo@mcmaster.ca)
- Office Location:** HH/309
- Office Hours:** Wednesday 2:00pm-3:00pm, Thursday 1:00pm-2:00pm, or by appointment (e-mail preferred)

## Textbook

- Required:**
  - Calculus, Early Transcendentals, 8th Edition*, James Stewart, Brooks/Cole.  
(Note: Older editions can be used, as long as you have access to the exercises in the 8th edition.)
- Optional:**
  - Calclabs with Maple for Single Variable Calculus
  - Calclabs with Maple for Multivariable Calculus  
(or Calclabs with Maple Custom Edition, which includes the sections that you will need from both of the above Calclabs manuals)

- Student Solutions Manual for Single Variable Calculus, Early Transcendentals
- Student Solutions Manual for Multivariable Calculus
- Maple 11 (or later) Software (earlier versions of Maple cannot be used)
- A copy of the textbook and solutions manual are available on reserve in Thode Library.

#### Material Covered

- All Sections covered in the [Suggested Problems](#)
- **Major Topics:** Continuity and differentiability, with emphasis on theory (intermediate value theorem, mean value theorem), practice (how to differentiate) and applications (curve sketching, optimization), theory and techniques of integration, with emphasis on practice (how to integrate) and applications.

#### Assignment Information

- There will be 6 online assignments. See the [calendar](#) for due dates.

#### Lab Information

- There will be 5 labs which will require the use of Maple (Version 11 or later) and will be completed electronically using our online system. See the [calendar](#) for due dates.
- You do not have to attend any scheduled lab times. But TAs will be available if you need help at the times given on the [Lab information page](#).
- All information about labs is available on the [Lab information page](#).

#### Test Information

- Only the McMaster standard calculator Casio fx-991 is allowed on the tests and exam
- Some sample tests are available on the [Suggested Problems](#) pages
- **Tentative Dates** (subject to change):  
**Test #1:** Evening of Monday October 19th (75 minutes)  
**Test #2:** Evening of Monday November 16th (75 minutes)
- Check the [Announcements](#) part of the course web site for room and time information, and for instructions on what to do if you have a conflict with the test time

#### Course Evaluation

6 Assignments - 2% each  
 5 Labs - 2% each  
 2 Tests - 19% each  
 Final Exam - 40%

#### Notes:

- At the end of the course the grades may be adjusted, but this can only increase your grade and will be done uniformly. We will use the grade equivalence chart published in the Undergraduate Calendar to convert between percentages and letter grades.
- The instructor and university reserve the right to modify elements of the course during the term. The university may change the dates and deadlines for any or all courses in extreme circumstances. If either type of modification becomes necessary, reasonable notice and communication with the students will be given with explanation and the opportunity to comment on changes. It is the responsibility of the student to check their McMaster email and course websites weekly during the term and to note any changes.

#### Missed Work Policy

- If you are absent from the university for a minor medical reason, lasting fewer than 3 days, you may report your absence, once per term, without documentation, using the [McMaster Student Absence Form](#). Absences for a longer duration or for other reasons must be reported to your Faculty/Program office, with documentation, and relief from term work may not necessarily be granted. When using the MSAF, report your absence to [childs@mcmaster.ca](mailto:childs@mcmaster.ca). Please note that the MSAF may not be used for term work worth 25% or more, nor can it be used for the final examination. For more information look [here](#).
- If your MSAF form was received then the word "note" will appear in place of your mark on the online system. This will show up within one week after you filled out the MSAF form. If you don't see the word "note" in place of your mark for the missed work one week after filling out the MSAF form, then send an email to [Dr. Childs](#) telling him the date that you filled out the MSAF form. If you do see the word "note" in place of your mark, then no follow-up is required.
- The percentage for a missed test will be added to your final exam.
- The percentage for a missed assignment or lab will be distributed among your remaining assignments or labs.

**Academic Dishonesty** Academic dishonesty consists of misrepresentation by deception or by other fraudulent means and can result in serious consequences, e.g. the grade of zero on an assignment, loss of credit with a notation on the transcript (notation reads: "Grade of F assigned for academic dishonesty"), and/or suspension or expulsion from the university. It is your responsibility to understand what constitutes academic dishonesty. For information on the various kinds of academic dishonesty please refer to the Academic Integrity Policy, specifically Appendix 3, located at <http://www.mcmaster.ca/policy/Students-AcademicStudies/AcademicIntegrity.pdf> The following illustrates only three forms of academic dishonesty: 1. Plagiarism, e.g. the submission of work that is not one's own or for which other credit has been obtained. 2. Improper collaboration in group work. 3. Copying or using unauthorized aids in tests and examinations.

## Math 1A03/1ZA3 Course Calendar

<b>Week 1: September 8-11, 2015</b>	
<b>DO ASSIGNMENT #0</b>	
Lecture 1	Introduction Appendix D Review of Trigonometry
Lecture 2	Appendix D Review of Trigonometry (Continued) 1.5 (1.6 in 7 <sup>th</sup> Ed.) Inverse Functions and Logarithms
Lecture 3	1.5 (1.6 in 7 <sup>th</sup> Ed.) Inverse Functions and Logarithms (Continued)
<b>Week 2: September 14-18, 2015</b>	
<b>TUTORIALS START THIS WEEK</b>	
<b>ASSIGNMENT #1 DUE DATE:</b> 11:59pm on Thursday September 17 <sup>th</sup>	
Lecture 4	2.5 Continuity and Review of Limits
Lecture 5	2.5 Intermediate Value Theorem
Lecture 6	2.7 Derivatives and Rates of Change
<b>Week 3: September 21-25, 2015</b>	
<b>LABS START THIS WEEK</b>	
<b>MAPLE LAB #1 Due Date:</b> 11:59pm on Thursday September 24 <sup>th</sup>	
Lecture 7	2.8 The Derivative as a Function
Lecture 8	3.1 Derivatives of Polynomials and Exponential Functions 3.2 The Product and Quotient Rule 3.3 Derivatives of Trigonometric Functions
Lecture 9	4.8 Newton's Method
<b>Week 4: September 28 - October 2, 2015</b>	
<b>ASSIGNMENT #2 DUE DATE:</b> 11:59pm on Thursday October 1 <sup>st</sup>	
Lecture 10	3.4 The Chain Rule 3.5 Implicit Differentiation
Lecture 11	3.5 Implicit Differentiation (Note: Do Exercise 77(a) in 3.5, or state the result in class) 3.6 Derivatives of Logarithmic Functions
Lecture 12	3.11 Hyperbolic Functions
<b>Week 5: October 5-9, 2015</b>	
<b>MAPLE LAB #2 Due Date:</b> 11:59pm on Thursday October 8 <sup>th</sup>	
Lecture 13	4.1 Maximum and Minimum Values
Lecture 14	4.2 Mean Value Theorem
Lecture 15	4.3 How Derivatives Affect the Shape of a Graph
<b>Week 6: October 12-16, 2015 - READING WEEK</b>	

<b>Week 7: October 19-23, 2015</b>	
<b>TEST 1:</b> Evening of Monday October 19 <sup>th</sup>	
Lecture 16	4.4 Indeterminate Forms and L'Hospital's Rule
Lecture 17	4.5 Summary of Curve Sketching
Lecture 18	4.5 Summary of Curve Sketching (Continued)
<b>Week 8: October 26-30, 2015</b>	
<b>ASSIGNMENT #3 DUE DATE:</b> 11:59pm on Thursday October 29 <sup>th</sup>	
Lecture 19	4.7 Optimization Problems
Lecture 20	4.9/5.4 Antiderivatives Introduce indefinite integral notation from Section 5.4 while doing 4.9
Lecture 21	Appendix E (Omit Mathematical Induction)
<b>Week 9: November 2-6, 2015</b>	
<b>MAPLE LAB #3 Due Date:</b> 11:59pm on Thursday November 5 <sup>th</sup>	
Lecture 22	5.1 Area and Distance
Lecture 23	5.2 The Definite Integral
Lecture 24	5.3 Fundamental Theorem of Calculus
<b>Week 10: November 9-13, 2015</b>	
<b>ASSIGNMENT #4 DUE DATE:</b> 11:59pm on Thursday November 12 <sup>th</sup>	
Lecture 25	5.5 The Substitution Rule
Lecture 26	6.1 Areas Between Curves
Lecture 27	6.2 Volumes
<b>Week 11: November 16-20, 2015</b>	
<b>Test 2:</b> Evening of Monday November 16 <sup>th</sup>	
<b>MAPLE LAB #4 Due Date:</b> 11:59pm on Thursday November 19 <sup>th</sup>	
Lecture 28	6.2 Volumes (Continued) 6.4 Work
Lecture 29	6.5 Average Value of a Function 7.1 Integration by Parts
Lecture 30	7.1 Integration by Parts (Continued)
<b>Week 12: November 23-27, 2015</b>	
<b>MAPLE LAB #5 Due Date:</b> 11:59pm on Thursday November 26 <sup>th</sup>	
Lecture 31	7.2 Trigonometric Integrals
Lecture 32	7.3 Trigonometric Substitution
Lecture 33	7.4 Integration of Rational Functions by Partial Fractions (omit rationalizing substitutions)

**Week 13: November 30 to December 4, 2015**

**ASSIGNMENT #5 DUE DATE:** 11:59pm on Thursday December 3<sup>rd</sup>

Lecture 34	7.4 Integration of Rational Functions by Partial Fractions (Continued)
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Lecture 35	8.1 Arc Length
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Lecture 36	7.5 Integration Strategy
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**Week 14: December 7-8, 2015**

(Classes end on Dec. 8)

**ASSIGNMENT #6 DUE DATE:** 11:59pm on Thursday December 10<sup>th</sup>

Lecture 37	Review
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