

**Course Outline**  
**ARTSSCI 1D06 Calculus**  
**2019–2020**

**Instructor**

Hans Boden (office: Hamilton Hall 313, extension 23428)  
Email: [boden@mcmaster.ca](mailto:boden@mcmaster.ca)

**Office Hours**

9:30–10:30 on Tuesdays, 10:30–11:30 on Wednesdays, and by appointment

**Lectures**

Monday 12:30–1:20, Tuesday 1:30–2:20, Thursday 12:30–1:20 in HSC/1A4;  
Wednesday 12:30–1:20 in KTH B132 (Fall) and BSB 120 (Winter)

**Course Webpage:** [www.math.mcmaster.ca/~boden/ArtsSci1D06.html](http://www.math.mcmaster.ca/~boden/ArtsSci1D06.html)

**Teaching Assistants**

- Jessie Cartoon ([cartoonj@mcmaster.ca](mailto:cartoonj@mcmaster.ca)) [Friday, 9:30-10:20 in JHE/329],
- Robert Kurdyak ([kurdyakr@mcmaster.ca](mailto:kurdyakr@mcmaster.ca)) [Friday, 3:30-4:20 in KTH/B101]
- Janelle Treash ([treashj@mcmaster.ca](mailto:treashj@mcmaster.ca)) [Friday, 12:30-1:20 in KTH/B101]

**TA Office Hours:** Wednesdays 3:30—4:30PM, LRW/3038, Seminar Room

**Textbook:** J. Stewart, *Calculus: Early Transcendentals*, (8<sup>th</sup> edition), by J. Stewart, Nelson Education Ltd. There is also an optional student study guide which may be helpful but is not required. You may use an older edition of the textbook, but you will be responsible for making the appropriate translation of section and problem numbers

**Course structure:** There are three lectures, one extra lecture, and one tutorial per week. The lectures will cover the required material for the course, and the extra lecture will be used for supplementary material as appropriate.

**Course Objective:** Primary goal is to learn the techniques and applications of the differential and integral calculus. A secondary goal is to develop problem-solving skills and communication skills.

**Topics covered (2019/20)**

- Basics of functions
- Trigonometric functions and inverse trigonometric functions
- Transcendental functions (exponential, logarithm), and inverse functions
- Limits and continuity
- Theory and computation of derivatives
- Applications of differentiation
- Analyzing and graphing functions using derivatives

- Exponential growth and decay
- Antiderivatives
- Definite integral and area
- Techniques of integration and applications
- Area and volume
- Differential equations and applications
- Parametric and polar curves
- Sequences and series
- Vectors and equations of lines
- Dot product and cross product
- Vectors functions and arc length
- Functions of several variables
- Partial derivatives, directional derivatives, and Lagrange multipliers

### Homework Assignments and Quizzes

- Assignments will be given in class and posted on the course webpage
- Solutions will be posted (in a downloadable form) on the course webpage
- After assignments are marked, they will be passed back to you in tutorial
- Standard McMaster calculator Casio fx 991MS+ may be used on assignments and quizzes.
- The dates for the Fall semester quizzes are: **September 20, October 4, October 25, November 15, and November 29.**
- The dates for the Fall semester assignments are: **September 13, September 27, October 11, November 8, and November 22.**
- You are required to write well-organized and readable solutions to homework assignments and quizzes. It is not sufficient to just write down the answer with no explanation! For full marks, you must justify all steps in the solution, including referring to any definitions, rules and/or known properties that are used.
- **Late assignments will not be accepted**

### Tests

- There will be one test each semester. In the Fall semester the test will be on **October 30, 2019.** In the Winter semester, the test will be on **March 4, 2020.**
- Details will be given in class and posted on the course web page
- Standard McMaster calculator Casio fx 991MS+ may be used during tests

### Project

Done in Winter term, details of the project will be discussed in Fall term after reading week and will also appear on the course webpage. The due date for the project is Tuesday, February 11, 2020.

### Mid-year Examination / Final Examination

- As scheduled by the Registrar

- Details (e.g., material that will be covered, examination locations, etc.) will be given in class and posted on the course web page
- Standard McMaster calculator Casio fx 991MS+ may be used during tests

**Course Evaluation (for the mid-year mark, in December 2019):**

20% Homework/quizzes  
 30% Test 1  
 50% Mid-year Exam

**Course Evaluation (for the final mark, in April 2020):**

20% Homework/quizzes  
 20% Tests 1 & 2  
 10% Project  
 20% Mid-year Exam  
 30% Final Exam

**Schedule for Fall Term:**

Sept 3-6: Stewart Chapter 1

Sept 9-13: Stewart Chapter 2; Assignment 1 due Friday September 13

Sept 16-20: Stewart Chapters 2 & 3; **Quiz 1** on Friday September 20

Sept 23-27: Stewart Chapter 3; Assignment 2 due Friday September 27

Sept 30-Oct 4: Stewart Chapter 3; **Quiz 2** on Friday October 4

Oct 7-11: Stewart Chapters 3 & 4; Assignment 3 due Friday October 11

*Oct 14-18: Midterm Recess*

Oct 21-25: Stewart Chapter 4; **Quiz 3** Friday October 25

Oct 28-Nov 1: Stewart Chapters 4 & 5; **Test 1** on Wednesday October 30

Nov 4-8: Stewart Chapter 5; Assignment 4 due Friday November 8

Nov 11-15: Stewart Chapters 5 & 6; **Quiz 4** on Friday November 15

Nov 18-22: Stewart Chapter 6; Assignment 5 due Friday November 22

Nov 25-29: Stewart Chapters 6 & 7; **Quiz 5** on Friday November 29

Dec 2-4: Stewart Chapter 7; Review

**Mid-year Exam** during exam period (December 6 – 19)

**Schedule for Winter Term:**

Jan 6-10: Stewart Chapter 7

Jan 13-17: Stewart Chapters 7 & 8; Assignment 6 due Friday January 17

Jan 20-24: Stewart Chapter 9; **Quiz 6** on Friday January 24

Jan 27-Jan 31: Stewart Chapters 9 & 10; Assignment 7 due Friday January 31

Feb 3-7: Stewart Chapter 10; **Quiz 7** on Friday February 7

Feb 10-14: Stewart Chapter 11; **Project** due Tuesday February; 11 Assignment 8 due Friday February 14

*Feb 17-21: Midterm Recess*

Feb 24-Feb 28: Stewart Chapter 11; **Quiz 8** on Friday February 28

March 2-6: Stewart Chapter 11 & 12; **Test 2** on Wednesday March 4

March 9-13: Stewart Chapters 12 & 13; Assignment 9 due Friday March 13

March 16-20: Stewart Chapters 13 & 14; **Quiz 9** on Friday March 20

March 23-27: Stewart Chapter 14; Assignment 10 due Friday March 27

March 30-Apr 3: Stewart Chapter 14; **Quiz 10** on Friday April 3

April 6-7: Review

**Final Exam** during exam period (April 13 – 28)

### **McMaster Student Absence Form (MSAF)**

In the event of an absence, students should review and follow the Academic Regulations in the Undergraduate Calendar “Requests for Relief for Missed Academic Term Work.” Please consult the MSAF statement on our website (<https://artsci.mcmaster.ca/forms-requests/>) and direct any questions or concerns to Shelley Anderson or Madeline Van Impe in the Arts & Science Program Office.

### **Academic Accommodation of Students with Disabilities**

Students who require academic accommodation must contact [Student Accessibility Services \(SAS\)](#) to make arrangements with a Program Coordinator. SAS can be contacted by phone 905-525-9140 ext. 28652 or email [sas@mcmaster.ca](mailto:sas@mcmaster.ca). For further information, consult McMaster University’s [Academic Accommodation of Students with Disabilities](#) policy.

### **Academic Accommodation for Religious, Indigenous, or Spiritual Observances (RISO)**

Students requiring academic accommodation based on religious, indigenous, or spiritual observances should follow the procedures set out in the RISO policy. Students requiring a RISO accommodation should submit their request to their Faculty Office (i.e. to Shelley Anderson or Madeline Van Impe in the Arts & Science Program Office) normally within 10 working days of the beginning of term in which they anticipate a need for accommodation or to the Registrar's Office prior to their examinations. Students should also contact their instructors as soon as possible to make alternative arrangements for classes, assignments, and tests.

### **McMaster Policy on Academic Integrity**

You are expected to exhibit honesty and use ethical behaviour in all aspects of the learning process. Academic credentials you earn are rooted in principles of honesty and academic integrity. Academic dishonesty is to knowingly act or fail to act in a way that results or could

result in unearned academic credit or advantage. This behaviour 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 types of academic dishonesty, please refer to the [Academic Integrity Policy](http://www.mcmaster.ca/academicintegrity), located at: <http://www.mcmaster.ca/academicintegrity>.

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.

### **Please Note**

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 (e.g., severe weather, labour disruptions, etc.). Changes will be communicated through regular McMaster communication channels, such as McMaster Daily News, A2L, and/or McMaster email. It is the responsibility of students to check **their McMaster email** and course websites regularly during the term and to note any changes. Announcements will be made in class and by using the course email distribution list.