

Math 100: Single Variable Calculus I

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Drop-in Classroom support for Math 100:

Mondays 10 am - 4 pm (Mark)
Tuesdays 10 am - 7:30 pm (Mark)
Wednesdays 12 pm - 7:30 pm (Mark)
Thursdays 5 pm - 8 pm (Tim)
Fridays 10 am - 12 pm (Mark)

Course Description

This is a first course in calculus. The topics include limits and continuity; the derivatives of elementary and trigonometric functions; applications of the derivative in solving problems and graphing; integration of elementary and trigonometric functions; and applications of integration. Also covered are the Mean Value Theorem and the first and second fundamental theorems of calculus.

Prerequisites

Either MATH 070, or 65% or better in either Principles of Math 12, Pre-calculus 12, or MATH 060.

Transferability

British Columbia: [BC Transfer Guide: Math 100](#)

Alaska: UAF Math 200 (3), UAS Math 200 (3).

Delivery methods/format

This is an online self-study course offering, with face-to-face support available.

The student will be provided with a syllabus, a set of pencast (video) lectures, and a list of problems to work on.

Solutions to all the assigned problems are available online.

Tutorial assistance with the problems or to provide capsule summaries of the topics is available in the Drop-in classroom during the hours shown above.

Tests (5 × 10%)

There will be a test on each chapter that is covered, i.e. on each of chapters 1 through 5. Each test will consist of ten questions to be attempted in one hour. A sample test for each chapter is available that may be used as a study aid in preparing for the actual test.

Final Exam (50%)

There will be a final examination which will cover the entire course. It can be taken anytime after the last chapter test has been written.

Evaluation

10% Chapter 1 test. Deadline: February 27th.

10% Chapter 2 test. Deadline: March 20th.

10% Chapter 3 test. Deadline: April 17th.

10% Chapter 4 test. Deadline: May 8th.

10% Chapter 5 test. Deadline: May 22nd.

50% Final examination. Deadline: May 29th.

Schedule

The course's components must be completed by the following deadlines. You may complete them more quickly than this (and some students have!), but **not** more slowly.

Chapter 1 test: February 27th.

Chapter 2 test: March 20th.

Chapter 3 test: April 17th.

Chapter 4 test: May 8th.

Chapter 5 test: May 22nd.

Final examination: May 29th.

Required textbook:

Anton, Howard, Irl Bivens and Stephen Davis. *Calculus: Single Variable (Late transcendentals)*. Ninth edition. New York: Wiley, 2009. ISBN: 978-0-470-18347-2.

Additional Equipment and Supplies

You will require a *scientific* calculator for this course. Note that you will *not* be allowed to use a *graphing* calculator on any of the tests, so I advise you not to become dependent on one while doing your homework.

Topics and Assigned Problems

Chapter 0: Before calculus

0.2: 5, 9, 11, 13, 15, 17.

0.3: 17, 19, 29.

Chapter 1: Limits and Continuity

1.2: 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29.

1.3: 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 33, 35.

1.5: 11, 13, 15, 17, 21, 29, 31, 35, 47, 49, 51.

1.6: 1, 3, 5, 7, 11, 12, 13, 17, 19, 21, 23, 25, 27, 29, 33b), 45, 47.

Chapter 2: The Derivative

2.1: 13, 17, 18.

2.2: 9, 11, 13, 15, 17, 19, 23, 25, 26, 46a), 47.

2.3: odd 1-11, 15, 16, 29-32, 38, 41, 43, 45, 47, 49, 50, 58, 61, 67.

2.4: odd 5-21, 29, 31, 32, 35.

2.5: 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 29, 31, 32, 33.

2.6: odd 7-13, 17, 21-33, 37-45, 57, 61, 72, 15, 19, 35.

2.7: 5, 7, 9, 11, 19, 40.

2.8: 10, 11, 20, 24, 26, 29, 30, 32, 33, 37, 44, 46.

2.9: 19, 24, 25, 45, 47, 51, 53, 56, 60, 61.

Chapter 3: Applications of the Derivative

3.1: 15, 23, 19, 36, 49 a) and b), 49 c).

3.2: 7, 11, 25, 37, 39, 45, 49, 55, 57.

3.3: 5, 9, 13, 20, 21, 31, 35, 37, 39, 42, 48, 49.

3.5: 1, 6, 11, 14, 37, 38, 43, 44, 49, 52, 53, 59.

3.7: 3, 7, 11, 17, 23, 25, 27, 31.

Chapter 4: Integration

4.2: 9, 13, 14, 15, 17, 19, 21, 23, 25, 27, 29, 39, 47, 63, 68.

4.3: 11, 15, odd 21-31, 34, 35, 36.

4.4: odd 3-19.

4.6: 11, 13, 15, 17, 19, 21.

4.9: 1, 14, 15, 19, odd 21-33.

Chapter 5: Applications of Integration

5.1: 9, 10, 13, 16, 17, 19, 30.

5.2: 1, 3, 7, 10, 14, 17, 27, 39, 51, 52, 56.

5.3: 1, 2, 3, 6, 14.

5.4: 3, 4, 5, 6, 7, 8.

5.5: 1, 3, 5, 7, 9, 11.

5.6: 7, 14, 16, 17, 18, 19, 22, 23, 24.