

# Course Syllabus

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**Course Prefix, Number, and Title:**

Math 123, Calculus I, D01

**Credits:**

4 credits

**University Name:**

Dakota State University

**Academic Term/Year:**

Spring 2020

**Last date to Drop and receive 100% refund:**

January 22<sup>nd</sup>, 2020

**Last date to Withdraw and earn a grade of 'W':**

April 6<sup>th</sup>, 2020

**Course Meeting Time and Location:**

MTWF 3-3:50 PM, Habeger Science Center, Room 113

**Instructor Information:****Name:**

Hannah Altmann

**Office:**

HSC 146L

**Phone Number(s):**

605-256-5213

**Email Address:**

[hannah.altmann@dsu.edu](mailto:hannah.altmann@dsu.edu)

**Office Hours:**

MWF 10-11, Tu 1-2, and MTWF 2-3, or by appointment

**Approved Course Description:****Catalog Description:**

The study of limits, continuity, derivatives, applications of the derivative, antiderivatives, the definite and indefinite integral, and the fundamental theorem of calculus.

**Prerequisites:****Course Prerequisite(s):**

MATH 115 or MATH 120 or determined by Board of Regents placement policy

## Technology Skills:

This course will make use of Desire2Learn (D2L), WebAssign, Mathematica, and other appropriate tools.

## Course Materials:

### Required Textbook(s):

WebAssign Access Code | ISBN: 9781337771498  
Course ID: dsu 4174 5560

### Required Supplementary Materials:

A graphing calculator (e.g., TI-83, TI-83+, TI-84, TI-84+, or TI-86) will be very useful, but not necessary. You will need at least a scientific calculator to complete this course. For class demonstrations, I will use either a TI-83 or Desmos online graphing calculator ([www.desmos.com](http://www.desmos.com)). If you have another model, check to make sure it is suitable for this course. Cell phone calculators or those with internet capabilities are not allowed on exams.

## Student Support:

### DSU Knowledge Base:

The DSU Knowledge Base contains links and resources to help students by providing information about the following topics: User Accounts & Passwords, Academic Tools & Resources, Software & Apps Support, WiFi & Network Access, Campus Emergency Alert System, Campus Printing, IT Security & Safe Computing, and the Support Desk (which is there to help both on and off-campus students). The Knowledge Base can be accessed through the link below:

- [DSU Knowledge Base](#)

### D2L Support for Students:

The D2L Support for Students site is designed to provide DSU students a D2L support resource center that contains user guides, tutorials, and tips for using the D2L learning environment. The D2L Support for Students site can be accessed through the link below:

- [DSU D2L Support Resources for Students](#)

## Course Delivery and Instructional Methods:

Lectures will be given to introduce each topic. Class time will also include student work on activities to practice and reinforce ideas introduced in class.

## Classroom Policies:

### Attendance and Make-up Policy:

Attending class is strongly encouraged; moreover, being an active participant in class activities is essential for success in this and any mathematics course. If you are frequently late to class or absent, I will raise a flag on Starfish which will notify your advisors and the Student Success Center of my concerns. Attendance during exam days is required, make-ups are not allowed. You must contact your instructor *prior* to a scheduled exam time if you have a university approved excusable conflict.

### Accessibility Statement:

Dakota State University strives to ensure that physical resources, as well as information and communication technologies, are accessible to users in order to provide equal access to all. If

you encounter any accessibility issues, you are encouraged to immediately contact the instructor of the course and Dakota State University's ADA Office, which will work to resolve the issue as quickly as possible.

DSU's ADA Office is located in the Learning Engagement Center and can be contacted by calling 605-256-5121 or emailing [dsu-ada@dsu.edu](mailto:dsu-ada@dsu.edu). Students seeking ADA accommodations (such as non-standard note taking or extended time and/or a quiet space taking exams and quizzes) can log into the DSU portal to access <https://portal.sdbor.edu/dsu-student/student-resources/disability-services/Pages/default.aspx/> for additional information and the link to the Disability Services Request Form. You will need to provide documentation of your disability and the ADA Coordinator must confirm the need before officially authorizing accommodations.

### **Academic Honesty Statement:**

Cheating and other forms of academic dishonesty run contrary to the purpose of higher education and will not be tolerated in this course. Please be advised that, when the instructor suspects plagiarism, the Internet and other standard means of plagiarism detection will be used to resolve the instructor's concerns. The South Dakota Board of Regents Student Academic Misconduct Policy can be found here: [SDBOR Policy 2.33](#).

All forms of academic dishonesty will result in a grade of 0 for the assignment, project, quiz, or exam in question. In addition, I will forward evidence of cheating to the Academic Integrity Board on campus for their consideration. Students found guilty of a second offense of academic dishonesty in this class will also receive a course grade of F.

### **Freedom in Learning Statement:**

Students are responsible for learning the content of any course of study in which they are enrolled. Under Board of Regents and University policy, student academic performance shall be evaluated solely on an academic basis and students should be free to take reasoned exception to the data or views offered in any course of study. It has always been the policy of Dakota State University to allow students to appeal the decisions of faculty, administrative, and staff members and the decisions of institutional committees. Students who believe that an academic evaluation is unrelated to academic standards but is related instead to judgment of their personal opinion or conduct should contact the dean of the college which offers the class to initiate a review of the evaluation.

### **University Policy Regarding the Use of Tablets in the Classroom:**

The Tablet PC platform has been adopted across the DSU campus for all students and faculty, and tablet usage has been integrated into all DSU classes to enhance the learning environment. Tablet usage for course-related activities, note taking, and research is allowed and encouraged by DSU instructors. However, inappropriate and distracting use will not be tolerated in the classroom. Instructors set policy for individual classes and are responsible for informing students of class-specific expectations relative to Tablet PC usage. Failure to follow the instructor's guidelines will hinder academic performance and may lead to disciplinary actions. Continued abuse may lead to increased tablet restrictions for the entire class. Because tablet technology is an integral part of this course, it is the student's responsibility to ensure that his/her Tablet PC is operational prior to the beginning of each class period.

### **Technology:**

During class, cell phones must be put away and set to silent mode, and headphones must be removed from ears. Computers should be turned off and set aside unless using for a class

related activity. To avoid distracting the learning process of your classmates, using your computer for other purposes is not allowed.

## **Communication and Feedback:**

### **Preferred Email Contact Method:**

Please send all email communications to my hannah.altmann@dsu.edu account. Please do not send me e-mail through D2L.

### **Email Response Time:**

I will return all email communications within 24 hours on week days. Response time may vary on weekends and holidays.

### **Feedback on Assignments:**

For written assessments (homework or exams) I will try to return graded work within one week of receiving the assessment. If I expect a delay, I will notify you.

### **Requirements for Course Interaction:**

Dakota State University is committed to providing an engaging atmosphere of learning that is representative of a variety of perspectives. In addition to discovering and learning mathematical theory through engaging activities, homework, and projects, you will have the opportunity to explore applications of mathematics in a variety of applications and extensions. These activities have been designed to encourage individual and group exploration as well as provide a friendly space for you to communicate your mathematical ideas. Moreover, you are encouraged to not only take advantage of these opportunities in your own work, but also, learn from the information and ideas shared by other students.

### **Desire to Learn (D2L):**

Class announcements, homework assignments, and other resources will be posted on the class D2L page. It is your responsibility to check D2L frequently.

### **Starfish Early Alert Tool:**

As your professor, I am personally committed to supporting your academic success in this course. For that reason, if you demonstrate any academic performance or behavioral problems which may impede your success, I will personally discuss those issues with you and attempt to help you resolve the issue. I may also refer your case to the Student Success Center using Starfish, which is an online student success program that allows me to “flag” various performance updates, concerns, and referrals. If you receive a flag from me in Starfish, please see me or seek assistance and support from your advisor or the Student Success Center.

## **Student Learning Outcomes:**

### **Regent General Education Goal #5:**

*Students will understand and apply fundamental mathematical processes and reasoning.*

### **Student Learning Outcomes:**

*As a result of taking this course students will*

- a. use mathematical symbols and mathematical structure to model and solve real world problems, and*
- b. demonstrate appropriate communication skills related to mathematical terms and concepts.*

## Learning Objectives by Unit:

### Unit 1-2 – Limits and Derivatives

#### Limits:

- Students will demonstrate the ability to work with limits, including limit laws and indeterminate forms.

#### Derivatives:

- Students will be able to find a derivative by computing a limit.
- Students will know derivatives of common functions.

### Unit 3-4 – Differentiation Rules and Applications

#### Differentiation Rules:

- Students will master the rules of differentiation, including the product and quotient rules, the power rule, and the chain rule.
- Students will develop special techniques of differentiation, including implicit differentiation, logarithmic differentiation, and approximate differentiation.

#### Applications of Differentiation:

- Students will complete applications of derivatives to other fields.

### Unit 5 – Integrals

#### Integrals:

- Students will compute areas under curves to develop the concept of an integral.
- Students will know and apply the Fundamental Theorem of Calculus.
- Students will evaluate certain classes of integrals, i.e., compute antiderivatives of basic forms.
- Students will evaluate definite and indefinite integrals using the substitution rule.

## Evaluation Procedures:

### Assessments:

#### WebAssign:

There will be homework problems assigned using WebAssign. These problems are designed to give you practice with basic concepts and methods as well as provide immediate feedback on your understanding of the material. Be advised that the pace for this course is quite fast, so it is crucial you stay up to date on the online portion of the course. There will be a homework set for every section we cover in class. WebAssign homework is due an hour before class starts on its due date. See WebAssign for exact due dates. Two WebAssign homework extensions will be granted.

I will spend time during the first-class period going over WebAssign and some of its features, if you have any concerns or problems with the software do not hesitate to let me know. WebAssign can be accessed at <http://www.webassign.net>. You will need to register with WebAssign and enroll in our class with the course ID: dsu 4174 5560.

#### Handwritten Homework:

Each assignment will be posted on D2L at least one week prior to its due date. These are due at the beginning of class on the date specified. Your lowest homework score will be dropped. It is important in mathematics to be able to clearly explain your thought process in solutions, and the homework will allow me to give you feedback on your entire solution (not just the final answer, which is all WebAssign cares about for the

most part). Late handwritten homework may be submitted up until the start of the next class after the due date. However, a 25% penalty will be applied.

### Exams:

There will be three regular exams and one cumulative final exam. Make-up exams will only be allowed under extreme circumstances. The three regular exams and final exam are paper and pencil exams.

### Performance Standards and Grading Policy:

Breakdown of scores for the course:	Percentages
WebAssign Homework	20%
Handwritten Homework	30%
Exams (3 regular exams, 1 Final)	50%

Grades will be assigned per the following rule (grades are rounded to the nearest percentage point)

Letter Grade	Percentages
A	90 – 100%
B	80 – 89%
C	70 – 79%
D	60 – 69%
F	0 – 59%

### Student Verification Statement and Proctoring Policy:

Federal law requires that universities verify the identity of students when course materials and/or course assessment activities are conducted either partially or entirely online. A student's Desire2Learn (D2L) login and password are intended to provide the student with secure access to course materials and are also intended to help the university meet this federal mandate. Some DSU Faculty also require the use of a proctor for exams in distance-delivered (Internet) courses and this requirement provides a second level of student identity verification. Students are responsible for any proctoring fees, if applicable. Finally, an instructor who uses web conferencing technology may require students to use a webcam during exams, as another means of student identity verification through voice and visual recognition.

### Succeeding in Math 123:

Learning is a social and active adventure. We learn by actively thinking, discussing, writing, and doing! There are several strategies you can use to study/succeed in this course.

#### Talk!:

Research about learning shows that the act of talking through an idea improves understanding. Not only does working with fellow classmates allow you to practice communicating your mathematical reasoning, but peers are often able to provide additional insight and explanation to problems and difficult concepts. In some cases, since the concepts are also new to your classmates, they may be better at explaining a concept than I am! If possible, I encourage you to organize a group of classmates to work and study with.

#### Test Yourself:

Take time after each class and ask yourself:

- What was the 'big topic' for this class session?

- What do I need to know to understand the concept, question, problem, or technique?
- What concepts can I 'put into my own words' that makes sense to me? Can I verify that my understanding is accurate?
- How does the new information/topic/technique relate to what we have already learned in the course? How do these topics 'fit' together? Is there a previous section that this session built on?

### Use Resources:

There are number of resources available that can help you learn in this course.

- Office Hours. Do not hesitate to come to my office during office hours, or make an appointment, to discuss homework and project problems or any aspect of the course. I enjoy working with my students during office hours. Ideally, I run office hours where groups of students work with each other, and I move between groups of students assisting when needed.
- Fellow Classmates. As mentioned above, I strongly encourage you to form a study group with some of your classmates. Also, make use of the course discussion pages on D2L to chat with classmates.
- Tutors. Tutoring hours can be found in your My DSU Portal under Tutoring.

### Stay Organized:

- Use a virtual or physical notebook/binder to organize course materials.
- Take notes during class and while your complete homework.
- Check your e-mail and D2L frequently for course announcements.
- Be aware of deadlines (do not wait until the last minute to work on an assignment/project)

### Be Prepared:

- Review the previous day's notes before class and ask about any topics you are still struggling with!
- Read the section in the e-text before class.

## Tentative Course Outline and Schedule:

The schedule below is *tentative*. Topics and dates are subject to change based on student learning.

Week	Date	Topics, Tests, and Notable Dates	Handwritten Homework	Reference/Section
1	Jan 13-17	Syllabus, Tangent and Velocity Problems, the Limit of a Function, Limit Laws		2.1-2.3
2	Jan 20-24	<b>No Class 1/20</b> , Limit Laws, Definition of a Limit, Continuity	Homework 1 due 1/22	2.3-2.5
3	Jan 27-31	Continuity, Infinite Limits	Homework 2 due 1/31	2.5-2.6
4	Feb 3-7	Derivatives and Rates of Change, the Derivative as a Function		2.7-2.8
5	Feb 10-14	Derivatives of Polynomials and Exponential Functions, <b>Exam One 2/12</b> , the Product and Quotient Rules	Homework 3 due 2/10	3.1-3.2
6	Feb 17-21	<b>No Class 2/17</b> , the Product and Quotient Rules, the Chain Rule		3.2-3.4

Week	Date	Topics, Tests, and Notable Dates	Handwritten Homework	Reference/Section
7	Feb 24-28	The Chain Rule, Implicit Differentiation	Homework 4 due 2/24	3.4-3.5
8	Mar 2-6	Logarithmic Differentiation, Related Rates	Homework 5 due 3/6	3.6, 3.9
9	Mar 9-13	<b>No Classes Spring Break</b>		
10	Mar 16-20	Linear Approximations and Differentials, <b>Exam Two 3/18</b> , Maximum and Minimum Values		3.10, 4.1
11	Mar 23-27	Maximum and Minimum Values, The Mean Value Theorem, How Derivatives Affect the Shape of a Graph and Curve Sketching	Homework 6 due 3/27	4.1-4.3, 4.5
12	Mar 30-Apr 3	How Derivatives Affect the Shape of a Graph and Curve Sketching, L'Hospital's Rule, Optimization	Homework 7 due 4/3	4.3-4.5, 4.7
13	Apr 6-10	Optimization, <b>No Class 4/10</b> , Newton's Method		4.7-4.8
14	Apr 13-17	Newton's Method, Antiderivatives, Areas and Distances	Homework 8 due 4/13	4.8, 4.9, 5.1
15	Apr 20-24	The Definite Integral, <b>Exam Three 4/22</b> , The Fundamental Theorem of Calculus	Homework 9 due 4/20	5.2-5.3
16	Apr 27-May 1	The Fundamental Theorem of Calculus, Indefinite Integrals, The Substitution Rule	Homework 10 due 4/29	5.3-5.5
17	May 4-8	<b>Final Exam 5/4 3:30-5:30 p.m.</b>		

The instructor reserves the right to amend this syllabus.