

**Analytic Geometry and Calculus A.**  
**Math 241 Sections 20-22, Fall 2008, University of Delaware.**

**Basic information:**

**Instructor:** Dorjsuren (Dorj) Badamdorj.  
**Office:** 432 Ewing Hall.  
**Email and Phone:** badamdor@math.udel.edu/302-831-0588.  
**Class Website:** <http://www.math.udel.edu/~badamdor/Math241F08.html>  
**Office Hours:** Monday and Wednesday 12 pm - 2 pm, or by arrangement.  
**Text Book:** Stewart, J., *Math241/242/243, University of Delaware*, custom UD version.  
**Lectures:** MWF 8:00 am - 8:50 am, 004 Kirkbride Hall.

**Discussion sessions:**

Section 20: TR 8:00 am - 8:50 am, 228 Purnell Hall  
Section 21: TR 9:00 am - 9:50 am, 326B Alison Hall  
Section 22: TR 10:00 am - 10:50 am, 205B Willard Hall

**Teaching Assistants:**

Sections 20 and 21: Wiseley Wong, 335 Ewing Hall. [wwong@math.udel.edu](mailto:wwong@math.udel.edu)/831-8678  
Section 22: Quan Deng, 335 Ewing Hall. [deng@math.udel.edu](mailto:deng@math.udel.edu)/831-8678

**Course Description:** The main topics of Calculus A involve the limits, continuity, differentiation and integration of functions of the one variable, including exponential and logarithm functions. Students successfully passing this course will be able to:

- understand limits of single variable functions and be able to compute them where they exists.
- determine continuity of function and compute the tangent and secant line, and other rates of changes.
- compute derivative of function by using the product rule, the quotient rule, the chain rule and the logarithmic differentiation.
- use the first and second order derivative tests.
- find the global and local extremals, and determine increasing and decreasing intervals.
- sketch the graph of function using information about its derivatives and limits; max/min, concavity and asymptotes.
- define definite and indefinite integral of functions and compute it.
- understand the Fundamental Theorem of Calculus.
- use differentiation and integration in some simple real life problems and solving differential equations modeling exponential growth and decay.

### Your resources:

- **Attendance:** Attending lectures and discussion sessions is crucial factor to succeed in this course. Missing classes will lead you to fall behind and it is very difficult to catch up. Attendance will be collected randomly in lectures and it will be counted toward your final grade as bonus (up to 2%).
- **Office Hours:** I maintain regular office hours and encourage you use them. This is a time that I have set-aside only for you. It is very useful that you come prepared with questions. If you need to see me at a time other than office hours, feel free to drop in or make an appointment.
- **Tutoring:** Tutoring is available at the Math Tutorial Site 106 Ewing Hall and at the Preparatory Mathematics Tutorial Lab in 101C Ewing Hall. Working with groups is a good way to tutor each other. Work in groups whenever possible.
- **Discussion Session:** In addition to the lectures, you are also registered for recitation sections. In these sections your teaching assistant (TA) will help you to solve problems and answer your questions. Also your TA will collect homework and give quizzes.
- **Class Website:** It is very helpful to check the class web page at least once a week. All handout materials, practice exams and announcements will be posted there.
- **Calculators and laptops:** You should have at least a scientific calculator. Even though, any calculating devices can be used in class but none of them will be allowed to be used in exams and quizzes.

### Exams and Quizzes:

There will be four exams (3 midterms and 1 final) and seven quizzes. The dates are listed on the tentative schedule. The midterm exams will be 50 minutes long and will take place during regular lecture sessions. The final exam will be comprehensive and the time and location will be determined by the university. Quizzes will be 15-20 minutes long and will be given on Thursdays in discussion sessions. *No make up exams and quizzes will be given without prior notification and a valid documented reason.*

### Homework:

Homework assignments are attached in this syllabus and due dates are listed on the tentative schedule. Homework assignments will be collected on Thursdays (except week of November 24) in discussion sessions. All homework must be stapled and should have included the following information on the front cover:

Name/Section Number  
Assignment Number/Date.

*Absolutely no late homework assignment will be collected.* If you must miss a due date because of a valid reason, you can return it to your TA before the due date. You can use a calculator on the homework, but you have to show your work.

**Student Conduct:**

All students must be honest and forthright in their academic studies. Though, I hope there never will be a need to address academic dishonesty, I will strongly enforce all provisions noted in the Academic Regulations for undergraduates. See

<http://www.udel.edu/stuguide/08-09/code.html#honesty>  
for further information.

**Grading:**

All exams, quizzes and homework assignments will be graded by numerical scores and averaged to your final grade.

Homework	12%
Quizzes	18%
Midterm Exams (each 15%)	45%
Final Exam	25%

Final letter grades will be assigned on the following percentages of your total point score:

[90,100] A, [88,90) A-,  
[84,88) B+, [80,84) B, [76,80) B- ,  
[73,76) C+, [70,73) C, [67,70) C- ,  
[63,67) D+, [59,63) D, [55, 59) D-, [0,55) F.

**Homework Assignments:**

Number	Problems
1	<b>Appendix B:</b> 15, 33, 35, 60 <b>Appendix D:</b> 32, 44, 61, 64, 70 <b>1.1:</b> 31, 39, 44 <b>1.3:</b> 2, 3, 29, 35, 38, 41, 46, 51
2	<b>1.5:</b> 8, 11, 16, 17 <b>1.6:</b> 13, 17, 20, 22, 25 <b>2.1:</b> 2,4,5 <b>2.2:</b> 6, 9, 14, 27, 29, 40
3	<b>2.3:</b> 1, 5, 8, 15, 21, 30, 35, 36, 38, 41, 48 <b>2.5:</b> 4, 11, 16, 19, 25, 34, 41, 42, 46, 47, 50 <b>2.6:</b> 4, 14, 19, 23, 27
4	<b>2.7:</b> 5, 8, 14, 26, 30, 34, 36, 42, 43 <b>2.8:</b> 2, 3, 24, 26, 34 <b>3.1:</b> 23, 32, 54, 65, 68, 77
5	<b>3.2:</b> 4, 12, 24, 29, 32, 41, 42, 48 <b>3.3:</b> 10, 15, 24, 33, 41, 45 <b>3.4:</b> 10, 23, 25, 42, 45, 49, 52, 62, 71 <b>3.5:</b> 3, 4, 12, 15, 22, 26, 27, 33, 47, 50, 53
6	<b>3.6:</b> 2, 5, 10, 15, 19, 24, 27, 33, 39, 46, 50 <b>3.9:</b> 3, 8, 14, 18, 25, 27, 36, 42
7	<b>3.10:</b> 1, 2, 8, 13, 18, 28, 35 <b>3.11:</b> 20, 30, 31, 35, 45, 49, 51 <b>4.1:</b> 4, 23, 27, 35, 42, 44, 49, 58, 61 <b>4.2:</b> 3, 6, 14, 17, 18, 23, 27, 31
8	<b>4.3:</b> 1, 8, 11, 12, 13, 16, 18, 21, 38, 42, 43, 49, 51 <b>4.7:</b> 5, 8, 12, 28, 38, 40, 44, 55, 65, 67, 72
9	<b>4.9:</b> 3, 10, 16, 17, 22, 23, 28, 33, 39, 44, 50 <b>5.1:</b> 2, 3, 10, 11, 14, 18, 19, 21 <b>5.2:</b> 3, 9, 12, 19, 22, 25, 28, 31, 34, 37, 41, 43, 49, 50, 54, 59
10	<b>5.3:</b> 9, 13, 18, 21, 33, 37, 41, 45, 55, 64, 68, 73 <b>5.4:</b> 4, 11, 13, 16, 31, 32, 43, 51 <b>5.5:</b> 4, 12, 14, 26, 35, 43, 59, 67

**Tentative schedule :**

Week of	Topics	Activities
Sep 1	Preliminary Review. Read: Appendices <b>B</b> and <b>D</b> . Sections <b>1.1-1.3</b> .	
Sep 8	Inverse functions. Exponential and Logarithm functions. Read: Sections <b>1.5-1.6</b> . and <b>2.1</b> .	Due Homework 1.
Sep 15	The Limit of a function and Continuity. Read: Sections <b>2.2-2.3</b> and <b>2.5</b> .	Due Homework 2. Quiz 1. ( <b>1.3</b> and <b>1.5-1.6</b> .)
Sep 22	Limit at infinity. Derivatives and Rate of Change Read: Sections <b>2.6-2.8</b> .	Due Homework 3. Quiz 2. ( <b>2.3</b> and <b>2.5</b> )
Sep 29	Review. Derivatives of a Standard functions. Read: Section <b>3.1</b> .	<b>Exam 1. Wednesday October 1.</b> Chapters <b>1</b> and <b>2</b> .
Oct 6	Differentiation Rules. Read: Sections <b>3.2-3.5</b> .	Due Homework 4.
Oct 13	The logarithmic differentiation and The Related Rates. Read: Sections <b>3.6</b> and <b>3.9</b> .	Due Homework 5. Quiz 3. ( <b>3.1-3.5</b> .)
Oct 20	Linear Approximations. Hyperbolic functions. Review. Read: Section <b>3.10-3.11</b> .	Due Homework 6. Quiz 4. ( <b>3.6</b> and <b>3.9</b> )
Oct 27	Maximum and minimum values. MVT. Read: Sections <b>4.1-4.2</b> .	<b>Exam 2. Monday October 27.</b> Chapter <b>3</b> .
Nov 3	First and second derivative test. Optimization problems. Read: Sections <b>4.3</b> and <b>4.7</b> .	Due Homework 7. Quiz 5. ( <b>4.1-4.2</b> .)
Nov 10	Antiderivative and the definite integral. Read: Sections <b>4.9</b> and <b>5.1-5.2</b> .	Due Homework 8. Quiz 6. ( <b>4.3</b> and <b>4.7</b> .)
Nov 17	FTC. Review. Read: Section <b>5.3</b>	<b>Exam 3. Friday November 21.</b> Chapter <b>4</b> and <b>5.1-5.2</b> .
Nov 24	The indefinite integral and the substitution rule. Read: Sections <b>5.4-5.5</b> .	Due Homework 9.
Dec 1	Models for Population Growth. Read: Sections <b>3.8</b> . and <b>9.3-9.4</b>	Due Homework 10. Quiz 7. ( <b>5.3-5.5</b> .)
Dec 8	Review.	

**Important Dates:**

September 16.	Last day to drop without record or fee.
October 28.	Last day to drop without academic penalty.
October 1, October 27, November 21.	Midterm Exams.
November 28.	Holiday no-class.