

Fall 2003      Calculus      Libsci 4102

Instructor: Frank Timmes    ftimmes@artic.edu    312 345 3793    Room 609, 112 S. Michigan

Coordinates: Fridays 1–4pm between 29Aug–12Dec in room 620 at 112 South Michigan

Office Hours: Before, during, or after class

Texts: Calculus by Paul Foerster  
You must bring a calculator to class.

Web: <http://flash.uchicago.edu/~fxt>  
Click on "Teaching". Click on "Calculus"

Course: In designing this course, I had in mind two groups of students: liberal art majors who are taking a mathematics course not required by the Higher Powers, and students of the visual arts who would like to learn mathematical methods of recognizing and classifying relationships of change.

This won't be a traditional theorem, proof, trivial-example class led by the instructor. I subscribe to the idea that one learns mathematics by doing mathematics, and I hope that what I've designed is an opportunity to realize the joy of figuring things out for yourself. About half of each class will be devoted to you playing with calculus.

Homework: Assigned each Friday, due the following Friday, and returned the Friday after that. Late homework will not be accepted.

Quizzes: There will be five quizzes, one at the end of each chapter.

Passing: There are 12 homeworks and 5 quizzes in this course.  
To pass this class you must receive credit for 11 homeworks and pass 4 quizzes.  
If you do only 10 homeworks you will not pass this class.  
If you pass only 3 quizzes you will not pass this class.

## Schedule for Fall 2003 Calculus

Class 01 29Aug

- What is calculus?

Reading for next class: Section 1.1 to 1.3

Class 02 05Sep

- Rates and Areas

Homework #1: Page 5 #2; Page 10 q1-q10, #13, #14, #15-24, #25; Page 16 q1-q10, #6, #9

Reading for next class: Section 1.4 to 1.7

Class 03 12Sep

- Trapezoid rule and Limits

Homework #1 Due.

Homework #2: Page 21 q1-q10 #2, #9, #10; Page 28 q1-q10, #11, #12, #13

Reading for next class: Section 2.1 to 2.4

Class 04 19Sep Quiz on Chapter 1

- Limits and Continuity

Homework #2 Due.

Homework #3: Page 44 q1-q10, #8; Page 49 q1-q10, #1, #21 Page 56 q1-q10, #1-4, #53, #59

Reading for next class: Section 2.5 to 2.7

Class 05 26Sep

- Between Zero and Infinity

Homework #3 Due.

Homework #4: Page 64 q1-q10, #1-5;

Page 68 q1-q10, #1-2

Page 71 R0, R1

Reading for next class: Section 3.2 to 3.4

Class 06 03Oct Quiz on Chapter 2

- Derivatives of polynomials

Homework #4 Due.

Homework #5: Page 81 q1-q10, #1-5;

Page 87 q1-q10, #1

Page 96 #1-18

Reading for next class: Section 3.5 to 3.7

Class 07 10Oct

- Sinusoid derivatives and the Chain rule

Homework #5 Due.

Homework #6: Page 102 q1-q10, #1-3;

Page 109 #1-22

Reading for next class: Section 3.8 to 3.10 and 4.2

Class 08 17Oct

- Product Rule

Homework #6 Due.

Homework #7: Page 115 q1-q10, #1;

Page 121 q1-q10 #1-16

Page 134 #1-22

Reading for next class: Sections 4.3 to 4.5

Class 09 24Oct Quiz on Chapter 3

- Quotient rule and derivatives of Inverses

Homework #7 Due.

Homework #8: Page 138 #1-20;

Page 143 q1-q10 #1-10

Page 151 q1-10

Reading for next class: Section 4.6 to 4.8

Class 10 31Oct

- Parametric and Implicit derivatives

Homework #8 Due.

Homework #9: Page 157 #1-12;

Page 163 q1-q10 #1, #4

Page 170 #1-12

Reading for next class: Section 5.2 to 5.4

Class 11 07Nov Quiz on Chapter 4

- Indefinite Integrals

Homework #9 Due.

Homework #10: Page 182 #1-12;

Page 188 #7-24

Page 193 #1-20

Reading for next class: Section 5.5 to 5.6

Class 12 14Nov

- Riemann sums

Homework #10 Due.

Homework #11: Page 200 #1-6;

Page 208 q1-q10, #1-2; #11

Reading for next class: Section 5.7 to 5.10

Class 13 21Nov No Class, Critique Week

Class 14 28Nov No Class, Thanksgiving Break

Class 15 05Dec

- Fundamental Theorem of calculus

Homework #11 Due.

Homework #12: Page 217 q1-q10, #1-3;

Page 224 #1-20

Reading for next class: None

Class 16 12Dec Quiz on Chapter 5

Homework #12 Due.