Calculus 1 (22M:025 SCA)

eVersion and updates posted at: http://www.math.uiowa.edu/~stroyan/Syllabi/ Open cells on the eVersion for details.

- **Fall 2009 Prof.: Keith Stroyan, eMail: keith-stroyan@uiowa.edu**

Office: 325 M Mac Lean Hall Phone: 335-0789 Website:http://www.math.uiowa.edu/~stroyan/
Office hours will be posted at: http://www.math.uiowa.edu/~stroyan/KDSSched.htm

- **Main Text: *Calculus: The Language of Change 3rd Ed* by Keith Stroyan**

Text available at Zephyr copies 124 E. Washington St.

- **Class Locations & Times (details in eCell)**
- **Goals & Objectives**

The goal of this course is to make you proficient users of beginning calculus. See the text for more details.

- **Grading**

Your grade (including + and - grades) will be based on several kinds of work designed to measure your progress toward that goal as follows. Your grades can be viewed on your "ICON" account accessible from (http://icon.uiowa.edu/) or links on my website http://www.math.uiowa.edu/~stroyan/

We expect you to attend lecture and Lab and complete written and electronic homework on time. We will NOT accept late work without written medical excuses or the like.

- **Weekly Written Homework 20%**

We will drop the 4 lowest homeworks. Written work will include print-outs of some simple programming problems.

Homework is listed below each lecture in the Weekly Syllabus section below. It is due for discussion at the discussion section immediately following that lecture and will be collected after you have had a chance to discuss it - usually at the beginning of the next discussion section.

- **Projects 20%**
- **Exam #1: 20%**
- **Exam #2: 20%**
- **Final Exam: 20%**

- **Help Hours - in room 310 Mac Lean Hall**

Tutors will be available in room 310 MLH and in my personal office hours. The schedules will be posted at: http://www.-math.uiowa.edu/~stroyan/KDSSched.htm

General University Business

The administrative home of this course is the College of Liberal Arts and Sciences. College policies are at: http://www.math.uiowa.edu/~stroyan/CollegePolicies.html

Administrative Home Links (open this eSection for links to the details)

Accommodations for Disabilities

A student seeking academic accommodations first must register with Student Disability Services and then meet with a SDS counselor who determines eligibility for services. A student approved for accommodations should meet privately with the course instructor to arrange particular accommodations. See http://www.uiowa.edu/~sds/ I will also try to accomodate less formal special situations. Speak with me privately about these matters.

Harrassment

Harassment or threats subvert the mission of the University, damage the well-being of students, faculty, and staff, and impede our ability to learn. Sexual harrassment in particular will not be tolerated.

Academic Fraud (cheating)

Plagiarism and other activities that result in a student presenting work that is not his or her own are academic fraud. Academic fraud is reported to the departmental DEO and then to the Associate Dean for Academic Programs and Services in the College of Liberal Arts and Sciences. www.clas.uiowa.edu/students/academic_handbook/ix.shtml

The T.A.s in the Math Lab and I will do everything we can to help you do well in this course by honest methods, but cheating will be dealt with in the harshest way allowed by University regulation. **Don't Do It**

Suggestions or Complaints about Faculty or T.A.s

I welcome student suggestions aimed at making the course better.

Students have the right to make complaints and should first visit with the instructor, then with the course supervisor if appropriate and next with the departmental DEO. All complaints must be made within six months of the incident. See: http://www.clas.uiowa.edu/students/academic_handbook/ix.shtml#5

The chain of command in this course is: Prof. Stroyan, then the Math Department's Executive Officer, Yi Li.

Reacting Safely to Severe Weather (details in this eSection)

Weekly Syllabus (details and assignments in weekly eSections)

Week #1: 23-29 Aug - Rate of Change

Tue: Linear Approximation of Change: Chapter 1

Exercise set 1.3 Ex.1 = Ex1.3.1, 2, 7, 8; Ex.1.4.3

- **Thu: Change in Epidemics: Chapter 2**

Ex2.1.1, 2; Ex.2.2.1; PROBLEM 2.4.1 p.37

Week #2: 30 Aug - 5 Sep - Herd Immunity (eSubmit first draft by Fri 11 Sep)

- **Tue: Epidemics Continued**

Additional help with *Mathematica*: Open *Mathematica* on a lab machine and then follow along with:
http://www.wolfram.com/broadcast/screencasts/handsonstart/

- **Thu: The Herd Immunity Project**

Week #3: 6-12 Sep - Local Linearity and Derivatives

- **Tue: Finish first drafts**

No other problems assigned.

- **Thu: Start rules of derivatives**

Basic formulas Sect 6.1 Ex.1, 2, 3 Sect 6.2 Ex. 1, Prob. 6.2

Week #4: 13 - 19 Sep - Rules of Calculus

- **Tue: Product Rule**

Sect 6.3 Ex. 1, 2, 3, 4 Prob. 6.6, 6.7

- **Thu: Chain Rule**

Sect 6.4 Ex. 1, 2, 3, 4

- **Thu: Natural Log and exponential**

Sect. 6.5 Ex 1, Prob. 6.8, 6.10 Sect. 6.6 Ex 1, 2

Week #5: 20-26 Sep - Related Rates & Implicit Derivatives

- **Tue:**

Exercise Set 6.7 (Quiz on Thurs from parts of Ex.1, Ex. 1 not collected.)
Ex. 2, 5, 6 Ex Set 6.8 Ex. 1, 2, 3; Prob 6.11

- **Thu: Quiz on exercises like 6.7.1**

Prob. 6.14 Ex. Set 7.2 Ex.2, Ex Set 7.3 Ex.1, Ex. 7.4.1, 2, 3;

Week #6: 27 Sep - 3 Oct - Natural Log and Exponential

- **Tue:**

Ex.4.1.3; Prob. 4.1; Prob. 4.2; Ex.5.4.1, 2, 3, 4, 5

- **Thu:**

Ex. 8.2.1, 2, 3, 4; Prob. 8.1, Prob. 8.5 Ex 8.3.1, 3, 4

- **Week #7: 4-10 Oct - Shapes of Graphs and Derivatives**
- **Tue: First Derivatives and Shapes of Graphs**

Ex. 9.1.1, 2, 4; Ex. Set 9.2; Ex. 9.3.1, 2, (c), (h), (i)

- **Thu: Second Derivatives and Shapes of Graphs**

Ex. 9.4.1, 2 (c), (h), (i); Ex. 8.3.3, 4; Ex.9.5.2

- **Week #8: 11-17 Oct - Review & Exam#1**
- **Tue:**

Review for exam

- **Thu: Exam #1 - in class**

- **Week #9: 18-24 Oct - Max-min**
- **Week #10: 25-31 Oct - Projects**
- **Week #11: 1 - 7 Nov - Basic Integration**
- **Week #12: 8 -14 Nov - Symbolic Integration**
- **Week #13: 15-21 Nov**
- **Thanksgiving Break 22-28 Nov**
- **Week #14: 29 Nov - 5 Dec - Review & Exam #2**
- **Week #15: 6 - 12 Dec - Finish Integration, Review for Final**
- **Final Exam - 4:30 pm Thu 15 Dec 09**