Mathematics 1210-001

Spring, 2016

Instructor: Prof. Nick Korevaar

Class Time and Place: 9:40 a.m. – 10:30 a.m.
Mondays, Tuesdays, Wednesdays, and Fridays
MWF in WEB L112, T in WEB L110
***Note: Each of you is also signed up for a lab session that is considered mandatory. In addition there will be SI problem sessions, TBA.*

Office Hours: Tuesdays and Wednesdays 10:50 – 11:50 a.m.,
Thursdays 12:00 – 1:00 p.m.,
or by appointment

Office Location: LCB 204
E-mail address korevaar@math.utah.edu
Class Web Page: http://www.math.utah.edu/~korevaar/1210spring16

Text: (1) *Calculus with Differential Equations*, 9th edition,
by Varberg, Purcell and Rigdon. ISBN: 0-13-230633-6
(2) My class notes which will be posted on my website. After the first week you will need to print those out and bring them to class, because I'll refer to them regularly. (Please note: You can print them in the Math Computer Lab for no cost.)

Course Information: Math1210, Calculus 1 is a 4-credit semester course.

Prerequisite: At least a C grade in Math1050 (College Algebra) AND Math1060 (Trigonometry) OR in Math1080 (Precalculus) or an Accuplacer score of 95 on the College Level Math test or at least a 3 on the AB Calculus AP exam.

Course Description: Functions and their graphs, differentiation of polynomial, rational and trigonometric functions. Velocity and acceleration, geometric applications of the derivative, minimization and maximization problems, the indefinite integral, and an introduction to differential equations; the definite integral and the Fundamental Theorem of Calculus.

Expected Learning Outcomes:

Upon successful completion of this course, a student should be able to:

- Take limits of algebraic and trigonometric expressions of the form 0/0 (that simplify), non-zero number over 0, including limits that go to (positive or negative) infinity, limits that don't exist and limits that are finite.
- Use the limit definitions of derivative and definite integral for polynomial, rational and some trigonometric functions; understand definition of continuity.

- Differentiate all polynomial, rational, radical, and trigonometric functions and compositions of those functions; perform implicit differentiation and compute higher order derivatives.
- Use differentiation to find stationary, singular and inflection points, as well as domain and limit information to determine vertical and horizontal asymptotes, and then use all of that information to sketch the graph of a curve, $y = f(x)$.
- Apply differentiation to optimization and related rates problems.
- Compute indefinite and definite integrals, using the power rule and basic u-substitution and the Fundamental Theorems of Calculus.
- Apply the definite integral to compute area between two curves, volumes of solids of revolutions, arc length, surface area for surfaces of revolution and center of mass.

Tutoring Lab: T. Benny Rushing Mathematics Student Center (adjacent to JWB and LCB), Room 155
M - Th 8 a.m. - 8 p.m. and F 8 a.m. - 6 p.m.
(opens Wednesday) (closed Saturdays, Sundays and holidays)
They are also offering group tutoring sessions. If you're interested, inquire at the Tutoring Lab. http://www.math.utah.edu/ugrad/tutoring.html

Private Tutoring: University Tutoring Services, 330 SSB
(they offer inexpensive tutoring). There is also a list of tutors at the Math Department office in JWB233.

Computer Lab: also in the T. Benny Rushing Mathematics Student Center, Room 155C.
M - Th 8 a.m. - 8 p.m. and F 8 a.m.- 6 p.m.
Link to computer lab is http://www.math.utah.edu/ugrad/lab.html

Grading: The grades will be calculated as follows:
Weekly Quizzes 8%
Weekly WebWork on-line homework 12%
Weekly "Lab" homework 15% - attendance is 3%, work is 12%
Midterm 15%
Midterm 15%
Midterm 10%
Comprehensive Final Exam 25%
(Note: There will be 3 midterms. Your lowest midterm score will count for 10% of your grade and your top two midterm scores will each count for 15% of your final grade.)
We will use CANVAS to record your scores, as they become available.

Weekly Quizzes: On every Friday that is not a midterm exam day, there will be a 10-minute quiz at the end of class. This quiz will cover one or two key ideas from the week's material. You will be able to work in groups on these quizzes. Your two lowest quiz scores will be dropped, **so there will be no make-up quizzes except for University-sanctioned absences.**

WebWork Homework: Starting with the first week, there will be an on-line WebWork homework assignment due each Friday at 5:00 p.m. After the first week these assignments will become available on the Friday of the preceding week. The WebWork homework problems will concentrate on basic concepts and skills. The advantage of this automated homework system is that you will get multiple chances to enter the correct answer, and will know immediately whether or not your answer is correct.

Lab Assignments: There will be a total of 11 weekly assignments, given out in the lab sessions and due at the start of the following week's lab session. The weekly assignment will relate to the material presented that week in class. Questions will be similar to text examples, class examples, WebWork problems or conceptual and applied problems. These questions will often address more big-picture and integrative learning than your other work, and may involve multiple steps and concepts at once. **I will drop your lowest two lab scores to create a buffer for any types of problems throughout the semester.**

Midterms: There will be three one-hour midterm exams throughout the semester, and the dates are fixed, according to the course outline/schedule. They will be in our usual classroom, and be from 9:35 a.m-10:35 a.m. There will be no re-takes of exams. You may take an alternate exam if you talk to me about it first and explain the emergent, extenuating circumstances that make it necessary. It is 100% your responsibility to communicate with me as soon as is possible, before the exam occurs (or as soon as possible). Talking to me *after* the problem will be sufficient reason for me to allow you to get a zero on that test.

Final Exam: The final exam for this class is comprehensive and it will occur in our classroom and at University-scheduled time: Monday, May 2nd, from 8:00 to 10:00 a.m. I'll reserve our classroom starting at 7:00 a.m. that day, in case you would like some extra time for the final exam.

Online Grades: I will put your grades online on Canvas. You can get there easily from the main University of Utah website www.utah.edu. To log in, you use the same student id and password that you use for Campus Information System. I do my best to update the grades on a regular basis and keep everything accurate. However, I would advise you to check your grades often to make sure there were no data entry mistakes. I'm always happy to correct any mistakes I've made. You just need to let me know about them.

Calculators: You may find it helpful to have a graphing calculator for your own personal use. However, if I allow calculators on exams or quizzes, I will only allow scientific calculators (no graphing or programmable calculators will be allowed ever). Most of the time, you will not have use of a calculator on exams. This will be discussed more in class.

Grading Scale: I curve grades as necessary. The final grade distribution in my classes tends to be close to Departmental averages for Math 1210, although one has to allow for different student cohorts in different classes. I will show the grade distributions for each midterm and discuss the curves. Historically, about 50% of the students who enter Math 1210 receive grades of A or B; 20% receive some sort of C grade; and the remaining 30% either receive lower grades or withdraw from the course. One reason we are trying the lab format in Math 1210 (and other classes) is that we would like to help our students be more successful than they have been historically.

ADA Statement: The University of Utah seeks to provide equal access to its programs, services and activities for people with disabilities. If you will need accommodations in the class, reasonable prior notice needs to be given to the Center for Disability Services (CDS), 162 Olpin Union Building, 581-5020 (V/TDD). CDS will work with you and me to make arrangements for accommodations. All information in this course can be made available in alternative format with prior notification to CDS.

Student Responsibilities: All students are expected to maintain professional behavior in the classroom setting, according to the Student Code, spelled out in the Student Handbook. You have specific rights in the classroom as detailed in Article III of the Code. The Code also specifies proscribed conduct (Article XI) that involves cheating on tests, collusion, fraud, theft, etc. Students should read the Code carefully and know you are responsible for the content. According to Faculty Rules and Regulations, it is the faculty responsibility to enforce responsible classroom behaviors, beginning with verbal warnings and progressing to dismissal from class and a failing grade. Students have the right to appeal such action to the Student Behavior Committee.
http://regulations.utah.edu/academics/6-400.php

Qualifier: It is always possible that circumstances will cause me to modify some of the information on this syllabus. If that happens I will make an announcement in class and send an email to the class through CIS.