Math 112: College Algebra (II)
Fall 2010: MRC 418; MWF 8:00-8:50 a.m.
Professor: Timothy K. Tucek
Contact information: tktucek@viterbo.edu
Office hours: MRC377 MWF 9-11 a.m. or by appt.
Final Exam: Monday 12/13/2010 12:50-2:50 p.m.

Course Description: We will cover: exponential and logarithmic functions, systems of equations, matrices, conic sections, and other topics (Chapters 4-8). Not applicable toward mathematics major or minor sequence. Prerequisite: acceptable score on placement exam, grade of B-minus or better in one year of high school algebra, or grade of C or higher in Math 111.

Text: *College Algebra (Edition 2)*, by Ratti and McWaters(Pearson Education Inc., 2011)
Optional: Student's Solutions Manual for the text listed above. Although this is not required, I strongly recommend purchasing it (if of course the book store has it available).

Course Objectives:
1. Communication Skills
    - Produces both written and oral communication throughout course; particular attention is paid to the accurate and appropriate use of the language of algebra.
    - Uses technology to solve problems and is able to communicate solutions.
2. Thinking Skills
    - Improve one's ability to read and solve application problems by means of constructing appropriate algebraic models and applying algebraic techniques to find a solution.
    - Explores exponential and logarithmic functions, including applications of problems and the efficient and appropriate use of logarithms and their properties.
    - Learn the techniques of solving systems of equations and appropriately applying these processes to work problems.
    - Grasps conic sections while exploring mathematics in three dimensions.
    - Learns basic sequences and series and introductory statistics.
3. Life Values
    - Adheres to the Academic Honesty Policy.
4. Aesthetic Skills
    - Develops an appreciation for symmetry.
5. Cultural Skills
    - Understand how knowledge is developed and verified in mathematics.

Course Procedures:
Attendance: I do not take attendance; but I can assure you that regular attendance is very important to being successful in this course. I include a detailed schedule so that if you do have to miss a class you can keep up with the material, but it's not the same – you simply miss out on a key part of the learning process. It is also important that when you are in class you need to actively engage in what the class is doing. My course is run similarly to an open forum; you can ask questions at any time and I may call upon you at any time.

Blackboard: Because we meet three times per week I will make extensive use of Blackboard. I will store a copy of the syllabus there, under Course Documents. I will make occasional announcements through Blackboard. I post most of the course notes. I will also use blackboard to make available in-progress grades throughout the semester.

Homework: You will note that I have listed on the schedule below; some of the odd problems (the answers to the odd problems are in the back of the book). I encourage you to work as many problems as needed until you are comfortable with what you are doing. Like most mathematics courses, this course is all about solving problems and you just can't learn how to do them unless you do them! On occasion I will have assigned homework, which you will have to turn in to me for grading purposes. The homework will be announced during class. I will also give out practice exams which do not need to be turned in.

Academic Honesty: Cheating will not be tolerated. Exam questions and problems will be open-ended rather than multiple-choice. I generally ask you to show your work to receive full credit on a problem (where showing work is necessary). If I detect cheating on an exam you will be given a score of ZERO for that exam. I will also notify Viterbo University of any such behavior and further actions may come from Viterbo.

Exams: There will be 5 exams worth 100 points each. The comprehensive Final Exam will count for 200 points. You may use any calculator of your choosing for the exams.

Help: The learning center makes tutoring help available, including drop-in math. The Learning Center details are located on blackboard under Course Information. If you seek tutoring help, make sure that you do not rely on it to the extent that you aren't working problems on your own. The tutor won't be at your side during an exam. Also, I am here to help you; feel free to call or email me if you are having difficulty and we can set up a time to meet.

Grading: I generally use a typical scale: 90% for an A, 80% for a B, 70% for a C and 60% for a D. When it comes to the end of the semester, I may look at attendance/participation as well as the final exam in order to scale your grade upward for borderline cases. For example, if your overall percentage is 89% but you did well on the final exam and were an active participant in class discussions; you can probably expect an A.

Disability Statement: If you are a person with a disability and require any auxiliary aids, services or other accommodations for this class, please see me and/or Jane Eddy, the campus ADA coordinator (Learning Center, 796-3194), within ten days to discuss your needs. I want to include taking exams in the learning center under this category; you will need a written request from Jane Eddy before I will allow you to take exams there.

Disclaimer: I reserve the right to make adjustments to the schedule and the syllabus in general as we move through the course/semester.

Tentative Schedule

Aug. 30 — Introduction and review of earlier chapters
Homework for Sept 1.
- Read Chapter 4.1
- Review Chapters 1-3 (I assume that you understand concepts in these Chapters)

Sept. 1 — Chapter 4.1 Exponential Functions
Homework:
- Read Chapter 4.2
- Problems: p. 413 #1-6 all; 7-45, 55-83 odd

Sept. 3 — Chapter 4.2 The Natural Exponential Function
Homework:
- Read Chapter 4.3
- Problems: p. 425 #1-6 all; 7-51 odd

Sept. 6 — NO CLASS: Labor Day

Sept. 8 — Chapter 4.3 Logarithmic Functions
Homework:
- Read Chapter 4.4
- Problems: p. 440 #1-6 all; 7-61, 83-105 odd

Sept. 10 — Chapter 4.4 Rules of Logarithms
Homework:
- Read Chapter 4.5
- Problems: p. 453 #1-6 all; 7-85 odd

Sept. 13	Chapter 4.5 Exponential and Logarithmic Equations and Inequalities Homework: Work on Practice Exam #1! Problems: p. 467 #1-6 all; 7-75 odd; 89, 99, 103
Sept. 15	Review
Sept. 17	Exam #1 (Chapter 4) Homework: Read Chapter 5.1
Sept. 20	Chapter 5.1 Systems of Linear Equations in Two Variables Homework: Read Chapter 5.2 Problems: p. 487 #1-6 all; 7-71 odd; 87, 95
Sept. 22	Chapter 5.2 Systems of Linear Equations in Three Variables Homework: Read Chapter 5.3 Problems: p. 501 #1-6 all; 7-49 odd; 51, 57
Sept. 24	Chapter 5.3 Systems of Nonlinear Equations Homework: Read Chapter 5.4 Problems: p. 509 #1-6 all; 7-53 odd; 57, 59
Sept. 27	Chapter 5.4 Systems of Inequalities Homework: Read Chapter 5.5 Problems: p. 520 #1-6 all; 7-33, 45-57, 65-69 odd;
Sept. 29	Chapter 5.5 Linear Programming Homework: Read Chapter 5.6 Problems: p. 529 #1-6 all; 13-23 odd; 31, 37
Oct. 1	Chapter 5.6 Partial Fraction Decompositions Homework: Work on Practice Exam #2! Problems: p. 541 #1-6 all; 7-47 odd; 53, 55
Oct. 4	Review
Oct. 6	Exam #2 (Chapter 5) Homework: Read Chapter 6.1
Oct. 8	Chapter 6.1 Matrices and Systems of Equations Homework: Problems: p. 562 #1-32 all;

Oct. 11	Chapter 6.1 Matrices and Systems of Equations Homework: Read Chapter 6.2 Problems: p. 562 #33-89 odd;
Oct. 13	Chapter 6.2 Matrix Algebra Homework: Read Chapter 6.3 Problems: p. 576 #1-6 all; 7-49 odd;
Oct. 15	Chapter 6.3 Matrix Inverse Homework: Read Chapter 6.4 Problems: p. 590 #1-6 all; 7-57 odd;
Oct. 18	Chapter 6.4 Determinant's and Cramer's Rule Homework: Work on Practice Exam #3! Problems: p. 602 #1-6 all; 7-45 odd; 69, 71
Oct. 20	Computer Lab: To be determined.
Oct. 22	NO CLASS: Mid Semester Break
Oct. 25	Review
Oct. 27	Exam #3 (Chapter 6) Homework: Read Chapters 7.1 and 7.2
Oct. 29	Chapter 7.1 Conic Sections Chapter 7.2 The Parabola Homework: Read Chapter 7.3 Problems: p. 622 #1-6 all; 7-63 odd;
Nov. 1	Chapter 7.3 The Ellipse Homework: Read Chapter 7.4 Problems: p. 633 #1-6 all; 7-55 odd; 61
Nov. 3	Chapter 7.4 The Hyperbola Homework: Work on Practice Exam #4! Problems: p. 648 #1-6 all; 7-39 odd;
Nov. 5	Computer Lab: To be determined.
Nov. 8	Review
Nov. 10	Exam #4 (Chapter 7) Homework: Read Chapter 8.1

Nov. 12	Chapter 8.1Sequences and Series Homework: Read Chapter 8.2 Problems: p. 667 #1-6 all; 7-49, 57-83 odd;
Nov. 15	Chapter 8.2 Arithmetic Sequences and Partial Sums Homework: Read Chapter 8.3 Problems: p. 675 #1-6 all; 7-55 odd; 59, 63
Nov. 17	Chapter 8.3 Geometric Sequences and Series Homework: Read Chapter 8.4 Problems: p. 684 #1-6 all; 7-83 odd;
Nov. 19	Chapter 8.4 Mathematical Induction Homework: Read Chapter 8.5 Problems: p. 692 #1-6 all; 7-35 odd;
Nov. 22	Chapter 8.5 The Binomial Theorem Homework: Read Chapter 8.6 Problems: p. 699 #1-6 all; 7-51 odd;
Nov. 24	NO CLASS: Thanksgiving
Nov. 26	NO CLASS: Thanksgiving
Nov. 29	Chapter 8.6 Counting Principles Homework: Read Chapter 8.7 Problems: p. 709 #1-6 all; 7-39 odd;
Dec. 1	Chapter 8.7 Probability Homework: Problems: p. 719 #1-6 all; 7-55 odd;
Dec. 3	Chapter 8.7 Probability Select Topics.
Dec. 6	Review
Dec. 8	Exam #5 (Chapter 8)
Dec. 10	Final Exam Review