MATH 1314 — College Algebra

Department of Mathematics and Statistics
Texas A&M University Corpus Christi
Spring 2013

GENERAL INFORMATION:

Professor: Jeffrey S. Fant
Times & Places: Section 001: CI 222 - MWF @ 9:00-9:50am
Section 002: CI 222 - MWF @ 11:00-11:50am
Office: Center for Instruction (CI) 312
Phone: 825-3628, voice-mail available at all times
Campus E-mail: jeffrey.fant@tamucc.edu
Professor’s Website: http://www.sci.tamucc.edu/~sfant
ALEKS Website: http://www.aleks.com
Office Hours: MW 10:00-11:00am,
Other times by appointment only.

COURSE DESCRIPTION:

This course continues the development of Intermediate Algebra. A review of properties linear equations and inequalities is included. Topics include quadratic equations, inequalities, Cartesian plane and graphs, functions and graphs, logarithms and exponential functions and equations, polynomial equations and systems of equations.

COURSE PREREQUISITES:

Intermediate Algebra (MATH 0399), or placement into College Algebra [ACT Math requires minimum score of 18 or SAT Math requires minimum score of 450 or Local Placement Test requires minimum score of 615]. See catalog for more details.

MATERIALS:

ALEKS: A valid Student Access Code for ALEKS is required for this course for one semester (18 weeks). There are two sides of ALEKS: academic and private. Students in this course MUST have an access code for the academic side of ALEKS. On the academic side, ALEKS will ask for a course code where the private side will not. I will provide students with the correct course code for my sections. ALEKS (Assessment and LEarning in Knowledge Spaces) is a self-paced, web-based artificially intelligent assessment and learning system. This can be purchased at the university bookstore or online from the ALEKS website. A student computer laboratory account for TAMU-CC is required to access ALEKS from the classroom computer labs.

Textbook: This is a computer-based course and we will not use a textbook. While there is no required book for this course, it is highly recommended students have access to a basic College Algebra textbook as a reference for study. The textbook used at this university for the lecture-based College Algebra sections is a very good textbook and would make an excellent reference as would many other books found in the library.

Calculator: ALEKS has a built-in calculator tool and there is also a graphing calculator tool available on the computers in the classroom lab. Many students prefer to use a tangible calculator and the Texas Instruments TI-83/84/89 or similar graphing calculator is the most common type used at this university. This is a recommended but optional item.

COLLEGE ALGEBRA STUDENT LEARNING OUTCOMES:

This course is designed to enable students to: (1) Solve linear equations in one variable; (2) Solve formulae for indicated variables; (3) Solve linear equation applications and problems involving linear modeling; (4) Solve equations using the quadratic formula; (5) Solve problems involving quadratic modeling; (6) Solve equations with rational expressions; (7) Solve equations with radical expressions; (8) Solve equations with absolute value expressions; (9) Solve polynomial inequalities; (10) Solve rational inequalities; (11) Solve absolute value inequalities; (12) Find radius, center, domain and range of the circle and graph it; (13) Solve applied problems using distance and midpoint formulas; (14) Decide whether a relation defines a function; (15) Find domain and range of a function from its graph; (16) Find domain of the function from the equation; (17) Determine values for which a function is increasing, decreasing and/or constant; (18) Graph linear functions; (19) Find slope given a description of the line; (20) Given a linear equation, find slope and sketch the graph; (21) Find and interpret rate of change; (22) Find composition of functions; (23) Analyze graphs of functions using transformations; (24) Graph quadratic functions and find vertex, axis of symmetry, domain and range; (25) Solve problems about quadratic models; (26) Decide whether a function is one-to-one;
(27) Determine whether functions are inverses of each other; (28) Use graph to find inverse function values; (29) Use the change-of-base theorem; (30) Use the product, quotient and power properties of logarithms; (31) Solve exponential equations; (32) Solve logarithmic equations; (33) Use exponential expressions and functions to model and solve real world situations; (34) Use logarithmic expressions and functions to model and solve real world situations; (35) Set up and solve systems of two equations by substitution, elimination, graphing and Cramer's rule; (36) Set up and solve systems of three equations by various methods.

**INSTRUCTIONAL METHODS & ACTIVITIES:**

**ALEKS** (Assessment and LEarning in Knowledge Spaces) uses adaptive questioning to quickly and accurately determine what a student knows and does not know in a course of study. ALEKS is a self-paced computer directed learning system which provides individualized instruction for students based on the topics he or she is most ready to learn. As a student works through a course, ALEKS periodically assesses the student to ensure that topics learned are also retained. ALEKS is comprehensive in its topic coverage and avoids multiple-choice questions. ALEKS provides the advantages of one-on-one instruction, 24/7, from virtually any web-based computer. In short, ALEKS is a “learn by doing” system of study. Students will be required to perform extensive work online using ALEKS **outside the classroom**.

Students should keep their own written notes in an organized (by topic/objective/date) notebook. This notebook will be very helpful for daily work, assessments and study for exams. Intermediate Objectives will be assigned for guidance and pacing, and it is the responsibility of each student to make sure they study and master the topics by the dates indicated. Class time will normally be spent using the computers and working on ALEKS. Students may work in small groups (apart from assessments and exams) and will make use of graphing calculators in solving problems. Students will have access to a graphing calculator tool on the computer (in the classroom labs) for all activities where graphing calculators are required. In class, students have the opportunity to ask questions and seek help on topics and the professor can provide additional explanation of concepts, error analysis and help with ALEKS.

**EVALUATION & GRADE ASSIGNMENT:**

Student mastery of skills and learning outcomes will be evaluated through ALEKS and a comprehensive final exam. Your course grade will be a weighted average computed solely from the elements listed below in the specified proportions:

- **ALEKS Combination Score** .......................................................... 56%
- **Comprehensive Midterm Exam** .................................................. 22%
- **Comprehensive Final Exam** ...................................................... 22%

Course grades will be a numerical value between 0 and 100 rounded to the nearest whole number. Letter grades will be assigned according to the following scale: A ≡ (course grade ≥ 90); B ≡ (80 ≤ course grade < 90); C ≡ (70 ≤ course grade < 80); D ≡ (60 ≤ course grade < 70); F ≡ (course grade < 60). No special options, assignments, or alternative grading schemes will be considered for individual students. Failure to complete assignments, assessments and/or exams may result in a zero or a failing grade being assigned for that item. Due to privacy policies, grades cannot be given out or discussed by phone or email—**NO EXCEPTIONS.** Students must see the professor personally to obtain/discuss this information.

**ALEKS:** It is expected that each student spend a minimum of 5 to 6 hours per week (~75 hours for the semester) working in ALEKS. Studies show that the average student needs at least this amount of instructional time to master all the topics assigned in the time allowed for the semester when studying at a reasonable pace (mastery of about 3 topics per hour of instruction)…this does however depend upon the student’s background, study habits, etc. Students that fall behind in hours usually fall behind in topics mastered and thus increase their probability of having to repeat the course. Students should be prepared to spend as much time as required on ALEKS both inside and outside of class to keep up with the topic study schedule and to master all the topics by the end of the semester. To “master” topics, students must demonstrate (and continue to demonstrate) knowledge of topics on assessments. Topics “studied” but not mastered are those topics that have been added to the student’s “MyPie” chart but not demonstrated on assessments. The “ALEKS Combination Score” portion of the course grade is computed at the end of the semester from the total number of topics mastered, the number of topics studied but not mastered, and “BONUS” points earned. Bonus points are computed from the number of hours of ALEKS instruction, number of topics mastered, number of topics studied, and other factors, during weeks 1 – 6 and 9 – 14. Bonus points are designed to reward diligent students regularly using ALEKS and keeping pace with the study goals of the course. All of these grading elements are only fully determined at the end of the semester since they accumulate and change as the student works in ALEKS. While the student’s exact ALEKS Combination Score is not available until the end of the semester, ALEKS provides the student with a continuous report of the “raw” values of the three elements used. Students will be provided with an estimate of their ALEKS Combination Score and course grade periodically during the semester.

**Assessments and Exams:** Assessments are the ALEKS equivalent of tests or quizzes. It is important that students take these seriously and put their best effort into answering assessment questions since ALEKS uses assessment results to set the student’s individual course of study. The last assessment taken is the only assessment used in the computation of the ALEKS
Combination Score and determining a student’s course grade (see above). Assessments will be given automatically by ALEKS based upon time spent in ALEKS and/or the number of topics studied by the student since their last assessment. Assessments will also be scheduled and/or assigned by the professor either to the class as a whole or to students individually. While assessments are generally not required to be taken in class (proctored), the professor retains the right to require any student at any time to take an assessment under supervision.

At the end of the semester there will be a “Terminal Course Assessment” as well as a final exam. The Terminal Course Assessment is generally the last opportunity for the student to demonstrate mastery of ALEKS topics and thusly is very important to the course grade. It is taken at the end of the regular part of the semester but before the final exam. Students may continue to work in ALEKS after the Terminal Course Assessment before the final exam and try to improve their ALEKS Combination Score. If significant work in ALEKS is made after the Terminal Course Assessment a student can request one (1) additional assessment from the professor before the final exam. The latest time a request for an additional assessment can be made is 5:00 pm on the day before the scheduled final exam. After that time no additional assessments will be set by the professor. This extra assessment cannot be pre-scheduled (system constraints), only requested at the time the student is ready to take it—there will be no exceptions to these rules. No work on ALEKS after the start time of a student’s scheduled final exam will be used in the computation of that student’s course grade (except the final exam, of course).

The midterm exam will be taken on the computer in ALEKS. The Final Exam may be a combination of parts written and parts taken in ALEKS. All exams must be taken on the university computers provided in the classroom laboratory. Tangible calculators can be used on exams but not shared. Notes and other materials may not be used on exams. Final exams are taken on the date and at the time set by the university (see the official university final exam schedule). Any student missing the midterm and/or final exam for any reason will receive a score of zero. If the student is eligible and if the professor agrees, a grade of “I” may be temporarily assigned and an excused absence from the final may be made up the next semester.

The use of MP3 players or other electronic devices during exams is not permitted. Students attempting to use these prohibited devices during exams may be disqualified and receive a grade of zero. Cell phones and other devices must be turned off and remain under cover during the entire time exams are being administered—no exceptions. If a student arrives to an exam late, that student will lose the time passed since the exam began—no additional time will be given. Once any student leaves the room after an exam begins that exam will be deemed “closed” and no student arriving after that time will be allowed to take the exam—this will be treated as an absence. There will be no exceptions to the exam late-arrival rule.

CLASS POLICIES & EXPECTATIONS:

✓ Attendance: Attendance is suggested and expected; exceptions are illness, university sponsored activities, job and family emergencies. Your professor will not take roll (ALEKS will do this), it is your responsibility to be in class and attend to the process of learning—keep in mind that what you do in school you do for yourself. The use of cell phones in class is not permitted at any time. Because of the non-lecture nature of the course, students are generally free to step outside the classroom to use their phones any time necessary. Please refrain from excessive movement and loud talking during class since this tends to disturb everyone.

✓ Computer Classroom-Labs: For safety of students and equipment, food and drink are discouraged in the lab. MP3 players can be used during regular class provided the student uses headphones and has the volume adjusted so no other person can hear it. Printing from the computer lab will cost students some cents per page (see computer lab supervisors for exact cost) paid by Sandollar Card. Students may use their personal computers to work in ALEKS but all exams must be taken on the university computers provided in the classroom laboratory—this will require an active student account to access the internet in the classroom computer lab. It is the responsibility of the student to obtain and maintain this account during the semester.

✓ Assessments: Do your best but do not guess. There is an “I do not know” choice on assessment questions…use it if you truly do not know how to work the problem. ALEKS uses assessment results to compute and guide your individualized course of study as well as the list of topics you have mastered. If you correctly guess a problem the likelihood of you continuing to correctly guess it is low. ALEKS will eventually determine that you do not know that topic and will remove it (and perhaps others) from your pie-chart (list of studied topics). ALEKS will make that conclusion based upon either direct questions (on future assessments) on that topic or other topics which use it as a foundation. Once you master a topic, you must show continuing knowledge of that topic or ALEKS will remove it from your pie-chart. If ALEKS removes a topic from your pie-chart you will have to restudy it and re-demonstrate mastery on a future assessment…this is how ALEKS works. Do NOT rush through or try to escape an assessment by clicking “I do not know” for every problem. This will result in loosing many topics from your pie-chart which will force you backwards a long way in your study, plus, your grade will go down as a result.

✓ Other Responsibilities & Advice: I expect each student to be informed about his/her progress, grades, attendance and ALEKS usage. You can keep track of your ALEKS hours and the other raw elements of your course grade through the
“Report” function in ALEKS. It is the student’s responsibility to be prepared for each class, attend class, and seek help from the CASA or make an appointment to see me if necessary. Electronic communication between you and your professor should be done through the ALEKS message center. This function is similar to email and will come on your screen when you log into ALEKS. Please use the campus email address for any non-class related messages. Students should keep extensive notes of their online activities. This notebook should include “scratch” and notes used in working the exercises in ALEKS and any important facts the student may need to reference about individual ALEKS topics and algebraic concepts (helpful for later study). Students are encouraged to work, interact, investigate, and study together—you may benefit from seeing your peers work problems you are having difficulty with. However, duplicative work, in which more than one student claims credit for essentially the same material (copying), will be treated as academic dishonesty (cheating) and will receive a grade of zero and possibly lead to more severe penalties. Every student is expected to do his/her own work. Diligent and honest study is the only way to successful learning.

For more information on ALEKS please see the “WHAT IS ALEKS?” topics on the ALEKS website home page. Ask questions in class and schedule time daily for this course, shorter daily study is usually more effective than longer intermittent periods of study—particularly when it is on the computer.

CLASSROOM BEHAVIOR:
Texas A&M University-Corpus Christi, as an academic community, requires that each individual respect the needs of others to study and learn in a peaceful atmosphere. Under Article III of the Student Code of Conduct, classroom behavior that interferes with either (a) the instructor’s ability to conduct the class or (b) the ability of other students to profit from the instructional program may be considered a breach of the peace and is subject to disciplinary sanction outlined in article VII of the Student Code of Conduct. Students engaging in unacceptable behavior may be instructed to leave the classroom. This prohibition applies to all instructional forums, including classrooms, electronic classrooms, labs, field trips and discussion groups.

GRADE APPEAL PROCESS:
As stated in University Rule 13.02.99.C2, Student Grade Appeals, a student who believes that he or she has not been held to appropriate academic standards as outlined in the class syllabus, equitable evaluation procedures, or appropriate grading, may appeal the final grade given in the course. The burden of proof is upon the student to demonstrate the appropriateness of the appeal. A student with a complaint about a grade is encouraged to first discuss the matter with the instructor. For assistance and/or guidance in the grade appeal process, students may contact the Office of Student Affairs. For complete details, including the responsibilities of the parties involved in the process and the number of days allowed for completing the steps in the process, see University Rule 13.02.99.C2. Student Grade Appeals, and University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures. These documents are accessible through the University Rules Website at: "http://www.tamucc.edu/provost/university_rules".

AMERICANS WITH DISABILITIES ACT:
The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please call or visit Disability Services at (361) 825-5816 in CCH 116.

COURSE OUTLINE:

<table>
<thead>
<tr>
<th>Week</th>
<th>Course Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Course Introduction and Introduction to ALEKS</td>
</tr>
<tr>
<td>1–6</td>
<td>Individualized CDI using ALEKS</td>
</tr>
<tr>
<td>7</td>
<td>Spring Break</td>
</tr>
<tr>
<td>8</td>
<td>Midterm Exam</td>
</tr>
<tr>
<td>9–15</td>
<td>Individualized CDI using ALEKS</td>
</tr>
<tr>
<td>15–16</td>
<td>Final Exam (see official TAMUCC schedule)</td>
</tr>
</tbody>
</table>

IMPORTANT DATES:

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan. 23</td>
<td>First day of class</td>
</tr>
<tr>
<td>Mar. 11-15</td>
<td>Spring Break Week</td>
</tr>
<tr>
<td>Mar. 10-22</td>
<td>MIDTERM EXAM WEEK</td>
</tr>
<tr>
<td>Apr. 12</td>
<td>Last day to drop a class</td>
</tr>
<tr>
<td>May 6</td>
<td>Last day to withdraw from the University</td>
</tr>
<tr>
<td>May 7</td>
<td>Last day of classes</td>
</tr>
<tr>
<td>May 8</td>
<td>Reading Day – No Class</td>
</tr>
<tr>
<td>May 9-15</td>
<td>FINAL EXAM DAYS</td>
</tr>
</tbody>
</table>

NOTE: Course schedule, outline, dates and topics are subject to change.