MA145: College Algebra

Baker University — Spring 2023

MWF, 1:30 to 2:20 PM; Mulvane 211

Contents

1 Instructor Information

Dr. Dylan C. Beck, Visiting Assistant Professor of Mathematics

- Discord: https://discord.gg/qsnpKD2Kjz (Enroll here for assistance on homework.)
- email: Dylan.Beck@BakerU.edu (Capitalization is used for clarity.)
- Moodle: https://bumoodle.bakeru.edu/course/view.php?id=35948
- office: Boyd Science Center 328
- office hours: MWF, 2:30 to 3:20 PM; Tu, 12:30 to 3:20 PM; or by appointment
- pronouns: he / him / his
- textbook: *College Algebra* (OpenStax) by Jay Abramson (via LibreTexts)
- virtual office: Click to access my virtual office via Zoom. (passcode: 044163)
- web page: https://dylan-c-beck.github.io

2 Course Information

2.1 Course Description

Per the course catalog, MA145 is a three credit-hour "study of algebraic equations, inequalities, functions, graphs, polynomials, rational functions, and exponential and logarithmic functions" intended especially for students who are "preparing for calculus and science courses."

2.2 Course Objectives

College algebra is a formative mathematics course for any student seeking a baccalaureate degree; however, it is especially imperative for students who intend to pursue studies in accounting, business, chemistry, computer science, data analytics, economics, engineering, finance, mathematics, physics, or statistics. By the end of the course, successful students will be able to

- analyze and interpret data using function notation, graphs, and tables to make predictions;
- determine the domain and range of functions, composite functions, and their inverses;
- graph linear, polynomial, rational, exponential, and logarithmic functions;
- perform polynomial long division to find the roots of polynomial functions; and
- use polynomial, radical, rational, exponential, and logarithmic functions to model, optimize, and solve problems informed by real-world scenarios.

2.3 Course Prerequisites

Enrolled students must have achieved one of the following: an ACT mathematics score of 22 or higher; an SAT mathematics score of 500 or higher; or succesful completion of MA090.

2.4 Course Policies

Class meetings will typically consist of an instructor-led lecture component with some class discussion; if time allows, at the end of each class period, students may work on their WeBWorK assignments. Lectures will feature materials from *College Algebra* by Jay Abramson; supplementary notes and examples may be provided to the students at the instructor's convenience.

Each student must submit their phone face-down on the table at the front of the room at the beginning of each class period, and the device must be left there for the duration of the meeting (barring extenuating circumstances that merit phone usage). Failure to comply with this policy will result in a deduction of one-tenth of a percentage point from the student's overall grade.

Regular and punctual attendance is vital to understanding the information presented in this course; however, in the event of a mandatory absence, it is the responsibility of the student to inform the instructor by filling out the Excused Absence Request Form and to make arrangements with the instructor to make up any materials or assignments missed during class.

Unless otherwise specified, the instructor requires that students wear masks in the classroom. We will adhere to Baker University guidance on other matters pertaining to COVID-19.

2.5 Coursework and Exams

Each week, homework will be assigned at the instructor's discretion; unless otherwise specified, assignments are due at 11:59 PM one week after they are given. Late work may not be accepted by the instructor unless proper documentation is provided; however, if a student anticipates an absence and communicates it to the instructor prior to the due date of an assignment, the student may be allowed to submit their work even after the due date with no deduction in points.

Exams will be administered four times throughout the semester (including the final exam). Questions on exams will include true-false, multiple choice, short answer, and free response. Credit for true-false and multiple choice questions is administered to the student on an all-or-nothing basis. On the other hand, credit for short answer and free response answers is earned by the student primarily through showing work: when the relevant work is shown and a problem is answered correctly, full credit will be awarded. Partial credit may be awarded when it is obvious that a problem was attempted and some coherent and pertinent details were supplied.

Before exams, each student must demonstrate that their work space is compliant with the regulations and guidelines set out by the instructor. Explicitly, a student is only allowed to have a writing utensil and a scientific calculator on their desk; all other papers and electronic devices must be stored in the student's backpack and placed under or next to their desk. Once all students have cleared their work spaces, the exam will begin, at which time the student has (at least) 80 minutes to complete the assessment. Once the student has finished the exam (or time has expired), the check-out procedure will be initiated by the student bringing their work to the instructor; if they so choose, the student may subsequently leave class for the day.

2.6 Student Expectations

Communication between students and the instructor will occur primarily in the classroom and during the instructor's (virtual) office hours; however, each student should check their email and our course Moodle regularly for course updates and supplementary materials.

Collaboration with classmates on homework is encouraged; however, each student is expected to submit their own work on all assignments, and each student will be graded on their own work

as it appears. Consequently, for students working together, it is critical that no party completes any work on behalf of another party and moreover that each party determines their own solutions. Explicitly, students should write original solutions rather than copy from one another; however, students may discuss different techniques or strategies leading to a possible solution. Ultimately, students must clearly indicate their collaborators for each assignment (see Section 3 below).

Outside of class, students should expect to spend (at least) two hours preparing materials and studying for every hour spent in class (see Section 5 below). Unlike in high school, students that do not understand the material covered should not assume that their instructor will repeat material until it is understood and mastered; rather, each student is expected and encouraged to ask questions as they occur in class. Certainly, all students should devote time to studying course materials outside of class, but if that does not work, students should consider visiting the instructor during his office hours. Do not hesitate to ask questions, as this course is cumulative.

2.7 Grade Distribution

Below is a table with the distribution of grades for this course.

type	*quantity*	*weight*	*total*
attendance	40	0.1%	5%
exams	3	15%	45%
final exam	1	30%	30%
WeBWorK	20	1%	20%

We will use the traditional grading scale (e.g., an A is $\geq 90\%$; a B is $\geq 80\%$ and $< 90\%$; etc.). Once during the semester, students will have the opportunity to earn up to 1% of bonus points toward their overall grade by completing the syllabus quiz on the third day of class.

2.8 Final Exam

Our final exam will be administered on **Wednesday, May 17** from **1:00 to 4:00 PM** in Mulvane 211. Contents from each of the three exams will appear in roughly equal measure and will account for approximately half of the final exam; the remainder of the material on the final exam will be taken from the sections of the text on exponential and logarithmic functions.

2.9 WeBWorK

Per the official WeBWorK website, "WeBWork is an open-source online homework system for STEM courses. WeBWorK is supported by the [Mathematical Association of America] and the [National Science Foundation] and comes with a [library] of over 35,000 homework problems." We will use WeBWorK as a tool to practice and master the course topics. Each student will receive a username and password with which to log in; the students may subsequently visit the MA145 WeBWorK page to update this password and complete assignments. Beginning on the first day of class, all WeBWorK assignments will be available for the students to attempt. Generally, the WeBWorK assignments will be due one week from the date the topic was covered in class. Consult the course schedule or daily planner for the specific due dates. Ultimately, each of the 20 WeBWorK assignments will constitute 1% of the student's total grade.

3 Academic Misconduct Policy

Per the official Baker University guidelines, "students [are expected] to have solely completed or prepared the work or research that bears their name and to acknowledge the materials and sources of others; [...] to do their own work and research; to prepare their own reports and papers; and to take examinations without the assistance of others or aids not allowed in the testing procedure." Even more, Baker University holds that "academic misconduct includes but is not confined to plagiarizing; cheating on tests or examinations; turning in counterfeit reports, tests, and papers; stealing of tests and other academic material; knowingly falsifying academic records or documents; and turning in the same work to more than one class without informing the instructors involved." Each of the aforementioned terms are in turn defined as follows.

- "Cheating includes possession, use, or receipt of unauthorized aids or assistance. Notes, charts, books, and mechanical devices used in a quiz, test, or examination, but not specifically allowed by the examiner, constitutes cheating. Visually or verbally receiving or giving information during a quiz, test, or examination that is not specifically allowed by the examiner is also cheating." Cheating may benefit one's self or one's neighbor.
- "Counterfeit work includes work submitted as one's own that was created, researched, or produced by someone else. Submission of the work of another person, joint work as if that work was solely one's own, or production of work to be submitted in the name of another person are all forms of counterfeit work." Be sure to clearly indicate the names of any and all collaborators on any assignment that is not completed solely on one's own.
- "Plagiarism includes presenting as one's own efforts the work of someone else without proper acknowledgment of that source. It is not enough to copy the work of someone else and provide a citation. Exact copying must be enclosed in quotation marks or properly blocked with an appropriate citation of its origin. Failure to cite paraphrasing in which the basic sentence structure, phraseology, and unique language remain the same constitutes plagiarism as well as failure to acknowledge unique, unusual, or new ideas or facts not the product of one's own investigation or creativity. It is the student's responsibility to understand what constitutes plagiarism and how to properly paraphrase and cite sources. When in doubt, it is the student's responsibility to seek guidance from the instructor."

If a student engages in academic misconduct, it will be documented by the instructor and the student's grade will be reduced or an XF will be appended to the student's academic transcript, in accordance with and as permitted by Baker University. Consequently, the instructor urges that students become familiar with the academic misconduct policy from the student handbook.

4 Accommodations Policy

Per the official Baker University guidelines, "Baker University is committed to providing 'reasonable accommodations' in keeping with Section 504 of the Rehabilitation Act and the Americans with Disability Act of 1992. Students must provide appropriate documentation of the disability, which should include appropriate diagnostic testing and a recommendation form prepared by qualified personnel outside of Baker University. 'Reasonable accommodations' will be determined by university staff in consultation with the student, faculty, and / or staff member. Accommodations are not retroactive." Further information is provided here and here.

5 Credit Hour Definition

Baker University adheres to the federal definition of a credit hour as "an amount of work represented in intended learning outcomes and verified by evidence of student achievement that is an institutionally established equivalency that reasonably approximates not less than (1.) one hour of classroom or direct faculty instruction and a minimum of two hours of out-of-class student work each week for approximately fifteen weeks for one semester [...] hour of credit [...]; or (2.) at least an equivalent amount of work as required in [the first] definition for other academic activities as established by the institution, including laboratory work, internships, practica, studio work, distance learning, and other academic work leading to the award of credit hours." Courses at Baker University are typically 50 minutes in duration. Further information is provided here.

6 Update Clause

Ultimately, the instructor reserves the right to alter or update this syllabus in order to reflect changes in policy or schedule due to extenuating or otherwise unforeseen circumstances. Consequently, it is the responsibility of the students to remain up-to-date with this syllabus; however, the instructor will inform students of any such changes to this document, and the syllabus will be maintained and subsequently updated on the instructor's web page for the students' convenience.