Course: Math 153 College Algebra and Trigonometry

Spring 2016 Course Meetings: MWF 10 - 11:15 am SBS E220
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Office Phone: (310)243-2410
Office Hours: M 11:30 - 12:30, F 9:00 am - 9:50 am

Text and Materials: There is an e-book for this course, available as a PDF on Blackboard. You will also need a graphing calculator app, Desmos.

Computer/Information Literacy Expectations: Students in this class are expected to be able to use the university email system (Toromail), use Blackboard to access assignments and handouts, and to bring an internet-enabled device on Fridays to respond to the prompts.

Prerequisite: This course requires a passing score on the ELM, or the successful completion of MAT 009.

Course Description:

Essential Goals:

Linear Goals
1. L: Be able to solve a linear equation or system of linear equations.
2. L: Be able to model a situation with appropriate linear equation(s) and interpret the solution.
3. L: Be able to determine the slope or equation of a linear function given its graph or a table of values.

Quadratic Goals
4. Q: Be able to solve a quadratic equation.
5. Q: Be able to model motion of objects falling with the force of gravity with appropriate quadratic equation(s) and interpret the solution.
6. Q: Be able to determine and interpret the vertex of a quadratic function given an equation or context.

Exponential Goals
7. E: Be able to solve an equation with an unknown exponent.
8. E: Be able to model a situation with appropriate exponential equation(s) and interpret the solution.
9. E: Be able to determine the equation of an exponential function given a table of values.

Proficiency Goals:

21. L: Be able to model a situation involving linear motion with appropriate parametric equation(s) and interpret the solution.
22. Q: Be able to determine the equation of a quadratic function given its graph.
23. Q: Be able to model problem situations with an appropriate quadratic function equation(s) and interpret the solution(s).
24. E: Be able to use the definition and properties of logarithms to rewrite expressions involving logarithms in different forms.
**Essential Goals:**

**Function Concepts**

10. F: Be able to determine inputs or outputs from a function table.
11. F: Be able to determine inputs or outputs from a function graph.
12. F: Be able to draw a diagram incorporating all of the important information in a given situation, and impose coordinates on the diagram.
13. F: Be able to determine a composition of functions given in any form (graph, table, equation).
14. F: Be able to perform arithmetic (sum, difference, product, quotient) on functions given in any form (graph, table, equation).
15. F: Be able to determine the inverse of a function given in any form (graph, table, equation).
16. F: Be able to give the solution to an inequality or set of inequalities using proper mathematical notation.
17. F: Be able to determine or describe a transformation (reflection, translation, dilation) of a function given in any form (graph, table, equation).

**Proficiency Goals:**

25. F: Be able to identify the intervals on which a given function is increasing or decreasing.
26. F: Be able to compute the average rate of change of a given function on a given interval.
27. F: Be able to produce a graph of a given rational function, indicating the vertical asymptotes, and x- and y-intercepts, if any.
28. F: Be able to determine the domain and/or range of a function given as an equation or a graph.
29. F: Be able to determine an appropriate function class (linear, quadratic, exponential, trigonometric) to model a particular situation.

**Trigonometry Goals**

18. T: Be able to solve for an unknown angle and interpret the result in the appropriate quadrant.
19. T: Be able to model a situation involving motion on a circle with appropriate trigonometric parametric equation(s) and interpret the solution.
20. T: Be able to use the distance formula or the equation of a circle in context.
21. T: Be able to determine the equation of a trigonometric function given its graph.
22. T: Be able to solve problems involving the law of sines or law of cosines.
23. T: Be able to determine the length of an arc of a circle or the area of a sector of a circle.
24. T: Be able to prove trigonometric identities.
25. T: Be able to determine a missing angle or side in a right triangle.
**Expected Outcomes:** Students will demonstrate that they have met the goals through presentations, quizzes, and the final exam. A goal is met if a student has successfully demonstrated it twice in class either (a) on two quizzes, or (b) on one quiz and one other (either the final or a presentation).

**Assessment:**

- You may earn up to 40 points for the following:
  
  - **Homework:** Homework assignments are a chance for you to develop your skills. To earn credit for a homework, you must show progress in solving all the assigned problems, and you must have solutions to all problems discussed in class. If you forget your assignment in class on the day it is due, you may turn in the assignment no later than 2:30 pm on the same day to my office, NSM A115. After that, you will not earn credit for that assignment. Each homework is worth 1 point.
  
  - **Prompts:** On Fridays, you will either respond to a prompt or have a quiz. A prompt is a short set of multiple-choice questions, available online and due 5 minutes after the start of class (at 10:05 am). You earn credit for a prompt as long as you respond on time to all questions in good faith (meaning, don’t bubble all “A”, for example). Each prompt is worth 1 point.

  - **Group Work:** This class is designed so that you will have opportunities to participate actively, both by discussing mathematics in small groups, and by presenting your work to the class. You earn credit for group work by being on-task and discussing mathematics with your group members, and submitting any final group reports requested. Each group work report is worth 1 point.

  - **Calculus Readiness Exam:** The Calculus Readiness Exam is a chance to see how prepared you are for calculus. It is a paper-and-pencil only test. It will be given in class on April 15. The Calculus Readiness Exam will be scored out of 10 points.

- **Presentations:** You earn credit for a presentation if you are able to correctly explain your solution in front of the class. (It is not enough to have a correct answer.)

- **Quizzes:** A total of 8 quizzes will be held, on the following Fridays: Feb. 12, Feb. 26, March 11, March 25, April 22, April 29, May 6; and Wednesday, May 11.

- **Final:** The final exam will be held on Monday, May 16, 10 am - 12 noon, and will be cumulative.

**Grading:** In this class, we will use a system known as standards-based grading. You will have multiple opportunities to demonstrate that you have met a goal and, as mentioned in outcomes, you will need to be successful on two separate problems in class. There is no partial credit. If you are unsuccessful on a quiz problem, prepare yourself to do better on the next quiz. Doing the Exercises, Problems, and Prompts, and participating in class are all ways to help you prepare for the next quiz. All of the Essential goals appear on multiple quizzes. You will be assigned the highest of the grades below for which you meet all criteria listed.

- To earn a grade of F, a student must meet fewer than 8 Essential goals.
- To earn a grade of D-, a student must meet at least 8 Essential goals.
- To earn a grade of D, a student must meet at least 10 Essential goals.
- To earn a grade of D+, a student must meet at least 13 Essential goals.
- To earn a grade of C-, a student must meet at least 16 Essential goals.
- To earn a grade of C, a student must meet all Essential goals
- To earn a grade of C+, a student must do all of the following:
  
  - Meet all Essential goals and any 3 Proficient goals
  - Earn at least 18 points
• To earn a grade of B-, a student must do all of the following:
  – Meet all Essential goals and any 6 Proficient goals
  – Earn at least 21 points

• To earn a grade of B, a student must do all of the following:
  – Meet all Essential goals and any 8 Proficient goals
  – Earn at least 23 points

• To earn a grade of B+, a student must do all of the following:
  – Meet all Essential goals and any 10 Proficient goals
  – Earn at least 25 points

• To earn a grade of A-, a student must do all of the following:
  – Meet all Essential goals and any 11 Proficient goals
  – Earn at least 28 points

• To earn a grade of A, a student must do all of the following:
  – Meet all Essential goals and any 13 Proficient goals
  – Earn at least 31 points
  – Attend every class, or nearly every class

Professor Jones’ Role: I want you to succeed in this class! The class format will challenge you but I think it will also be exhilarating and even fun at times. For my part, I am here to help you learn. I have designed the structure of the course to help you. I will do what I think is best to help you understand the material in the course. I hold office hours to provide you the opportunity to get additional help, and I check and respond to email frequently.

Student’s Role: These guidelines are meant to benefit you and the entire class, and to ensure that everyone has the opportunity to contribute and to learn.

• You are responsible for making sense of the concepts and processes in this course. Success in mathematics is less about “ability” and more about willingness to think and to WORK HARD to make sense of things.
• ATTEND every class meeting, participate, and work on the assignments outside of class.
• Please respect the ideas and opinions of others.
• Raise your hand before speaking.
• Bring your assignments with you, ready to turn in on the day they are due.
• In class, when we discuss homework problems, you are to do all writing in colored pen (different from the color you use to write your homework). This lets me know what work you completed on your own time.
• If you are having trouble, please come to office hours or make an appointment to visit me.

• Cell phones should be off or set to vibrate. Do not place a call or send a text during class, and do not answer a phone call without first leaving the room.

Absence Policy: ATTENDANCE IS MANDATORY. Attending class meetings will have a direct impact on your learning as well as your grade. If you miss class for any reason, you are responsible for getting the information you missed from a classmate, and checking Blackboard for any handouts or changes to assignments. You will not be able to turn in prompts for the day if you were not in class.

Makeup Policy: As outlined above, you may turn in assigned problems until 2:30 of the same day for credit. Beyond that, I do not accept late or make-up work. Work that is turned in later than after the due date will not be accepted, even if the absence is excused.

Academic integrity is expected. I enforce university policies on academic integrity. In particular, cheating, fraud, plagiarism or other academic dishonesty is unacceptable and will be cause for disciplinary
action. In this class, you are welcome to seek help from me or to work with your classmates.

Accommodating students with disabilities: Cal State Dominguez Hills adheres to all applicable federal, state, and local laws, regulations, and guidelines with respect to providing reasonable accommodations for students with temporary and permanent disabilities. If you have a disability that may adversely affect your work in this class, I encourage you to register with Disabled Student Services (DSS) and to talk with me about how I can best help you. All disclosures of disabilities will be kept strictly confidential. Please note: no accommodation may be made until you register with the DSS in WH B250. For information call (310) 243-3660 or to use telecommunications Device for the Deaf, call (310) 243-2028.