

Waterford High School AP Calculus AB Final Project

Make sure you plan enough time to work on your project. Since this project contains multiple parts, you need to keep in mind that you will need a planned schedule.

For your calculus project you will:

- 1) Create a lesson plan on a topic that includes:
 - a. Written lesson plan
 - b. At least 10 original homework problems
 - c. Visual aids beyond concepts presented on a whiteboard
 - d. Technology or calculator
 - e. A plan for assessment

- 2) 30 minute class presentation of the lesson

Format and Structure for Calculus Project essay:

- 1) Your essay on your project must be typed and double-spaced. Remember that margins should be at least one inch on all sides and use only 12 point font. Your work should be easy to read.
- 2) Each report should begin with a cover sheet that includes the title of your project, your names and the date, your school, your class, and your teacher.
- 3) Include computer runs, graphs and the data with your essay when applicable. You can use the cut-and-paste format to integrate the graphs and the data in your essay.
- 4) List all references used in MLA format or other accepted bibliography format, the use of footnotes is also acceptable.
- 5) You need to list all the mathematical formulas used when computing test statistics or any type of example.
- 6) All the pages need to be numbered
- 7) Make sure you also include a table of content of your project
- 8) Order of the sections:
 - a. Cover sheet
 - b. Table of content
 - c. Abstract

- i. A statement as to why your project is important or relevant. Include the topic for the lesson and any difficulties in creating the lesson plan
- d. Explanation of topic to be covered
 - i. This should provide a clear explanation of the topic your lesson covers
- e. How you will present your topic
 - i. This is where you create your lesson plan including how you will your visual aids and technology
- f. Problems in the project
 - i. You will include your 10 original homework problems in this section
- g. Conclusion
 - i. A discussion of various assessment plans is appropriate in this section.
- h. Discussion
 - i. You will include any question or issues you or with your partner discussed in creating your lesson in this section. You can include the discussion you had in class or outside class time regarding your topic.
- i. Work cited
 - i. Use the MLA format for your paper
- j. Appendix
 - i. Include data, sample surveys, and handouts here.

Final Presentation:

- 1) Be prepared to discuss your topic for over 30 minutes for this lesson
- 2) Regarding how to dress for your presentation, it is expected to be business casual.
- 3) Make sure you have enough slides in your presentation to discuss your topic.
- 4) If you have any hand outs for the class that you need the students in class to have during your presentation, try to get them to me ahead of time so I can make enough copies.

AP Calculus Project Evaluation:

Check the website for the evaluation rubrics. Every one will have two evaluations done. One will be done by the student(s), and the other one will be done by your instructors.

The website is:

www.aleksanilovesmath.weebly.com

Receiving Instructor's Help

Every student will receive 3 tickets for this project. You are allowed to use one ticket for every question you ask your instructor. However, you will lose 5 points for every question you ask.

This project will be evaluated on:

- 1) Creativity and originality
- 2) Organization and neatness
- 3) Clarity
- 4) All work must be submitted by the deadline discussed in class.
- 5) Validity of conclusion
- 6) Presentation

AP Calculus Project Topics:

You will be creating an original lesson on one of the Calculus topics we covered this year. You can choose to work alone or with a partner. However, when working with a partner, make sure you pick related topics.

1. Limits and their properties
2. Rules for differentiation
3. Derivatives and tangent lines
4. Graphical interpretations of f , f' , f''
5. Implicit differentiation
6. Curve sketching
7. 1st derivative test
8. 2nd derivative test
9. Extrema and inflection points
10. Growth and decay applications of differential equations
11. Anti-derivatives and the 1st fundamental theorem of calculus
12. Area under a single curve and the geometric explanation of it
13. Area between the two curves
14. Solving differential equations
15. Application of differential equations
16. Volume of solid of revolution
17. Calculating volume using the disk method
18. Calculating volume using the washer method
19. Implicit differentiation
20. Riemann sum

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Project due date:

May 9, 2011