HIGH SCHOOL CURRICULUM PROPOSAL

PROPOSED COURSE NAME   AP Calculus BC

OLD COURSE NAME (if applicable)

SUBMITTED BY:

Underline the Appropriate Item: <u>New Course</u> / Major revision to an existing course

Implementation Date: **08/2016**

Person(s) who will write the Curriculum: Dustin Berthold

Respond to the following:

Duration: 1 year

Open to: A in Honors-Pre-Calculus and Teacher recommendations

Prerequisites: Honors Pre-Calculus or AP Calculus AB

Pass/Fail Option: No

Credit:

If the course meets a graduation requirement, which one does meet?
Math Credit

Where does this course fit into department sequence?
Capstone Math class

What is the potential impact of this course on the other department offerings?
Offers additional rigor for students as opposed to AP Calculus AB

Course Description
This AP Calculus BC course covers topics in single variable differential and integral calculus typically found in a first-year college Calculus I and Calculus II two semester course sequence. While taking the Advanced Placement (AP) Calculus BC exam is not required, this course prepares students to succeed on the AP Calculus BC exam and subsequent courses that draw on material from this course. Extensive media usage will be used throughout the flipped classroom.

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Special Notes (i.e., extended periods, team teaching, etc.)

    N/A

RATIONALE, OBJECTIVES, STRATEGIES

1. Course Rationale

    A) What is the evidence of student need for this course?
Provide those who desire additional challenges that opportunity.

    B) What departmental needs/goals would this course meet?
With our current Honors Algebra II group, many of them will become BC ready students. Because of this, it would help to have a curricula already implemented for them.

    C) What institutional needs/goals would this course meet?
AP criteria.

2. Course Objectives: What will each student learn and know?

Topics include:

- Pre-Calculus review
- Limits and continuity
- Derivatives & applications
- Curve sketching
- Related rates
- Techniques of integration & applications
- Applications of integration
- L'Hôpital's rule and improper integrals
- Applications of integral calculus
- Parametric equations and polar coordinates
- Differential equations
- Sequences and series
- Applications of series
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3. What types of instructional strategies will be used in the class?
Flipped classroom will be extensively used to move at a pace required by AP. Student-led discovery will also transpire throughout the curricula to ensure fluid mastery of content.

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4. What types of student assessment procedures will be used? How will the assessment be used to guide instruction?
AP problems will be pulled along with traditional problems. As a math department at the high school, we have opted to conduct target-based evaluations to confirm student growth.

5. List resources needed and approximate costs to implement this course. Include staff development, materials, textbooks, additional staff, equipment, technology resources, facilities, and fees.
AP training for BC Calculus. Approximately $900

Include any additional information pertinent to your course.

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