Course Description

A. COVER PAGE

Date of Submission (Please include Month, Day and Year)

1. Course Title
Math Analysis A/B

2. Transcript Title(s) / Abbreviation(s)
Math Anal A/B

3. Transcript Course Code(s) / Number(s)
MA6554   MA6555

4. School
Ernest Righetti High School & PVHS

5. District
Santa Maria Joint Union High School District

6. City
Santa Maria, CA 93455

7. School / District Web Site
http://www.smjuhsd.k12.ca.us

8. School Course List Contact

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Title/Position: Asst. Supt. Curric/Instruction

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9. Subject Area
- [ ] History/Social Science
- [ ] English
- [x] Mathematics
- [ ] Laboratory Science
- [ ] Language other than English
- [ ] Visual & Performing Arts
  - [ ] Intro   [ ] Advanced
- [ ] College Prep Elective

10. Grade Level(s) for which this course is designed
11th & 12th

11. Seeking "Honors" Distinction?
No

12. Unit Value
- [ ] 0.5 (half year or semester equivalent)
- [x] 1.0 (one year equivalent)
- [ ] 2.0 (two year equivalent)
- [ ] Other: _____

13. Is this an Internet-based course?   No

If "Yes", who is the provider?   [ ] UCCP [ ] PASS/Cyber High [ ] Other _____

14. Complete outlines are not needed for courses that were previously approved by UC. If course was previously approved, indicate in which category it falls.

- [ ] A course reinstated after removal within 3 years. Year removed from list? _____
  - Same course title? [ ] Yes [ ] No
  - If no, previous course title? _____
- [ ] An identical course approved at another school in same district. Which school? _____
  - Same course title? [ ] Yes [ ] No
  - If no, course title at other school? _____
- [ ] Year-long VPA course replacing two approved successive semester courses in the same discipline
- [ ] Approved Advanced Placement (AP) or International Baccalaureate (IB) course
- [ ] Approved UC College Prep (UCCP) Online course
- [ ] Approved CDE Agricultural Education course
- [ ] Approved P.A.S.S./Cyber High course
- [ ] Approved ROP/C course. Name of ROP/C? _____
- [ ] Approved A.V.I.D. course
- [ ] Approved C.A.R.T. course
- [ ] Approved Project Lead the Way course
- [ ] Other. Explain: _____

15. **Is this course modeled after an UC-approved course from another school <u>outside</u> your district?** ☐ Yes ☒ No

    If so, which school(s)? _____

    Course title at other school _____

16. **Pre-Requisites**

Completion of Algebra 2 A/B with grade of C- or better

17. **Co-Requisites**

18. **Is this course a resubmission?** ☐ Yes ☒ No

    If yes, date(s) of previous submission? _____

    Title of previous submission? _____

19. **Brief Course Description**

This course combines the concepts of trigonometry, geometry, and algebra as preparation for the study of calculus. Topics include polar coordinates and vectors, math induction, conics, complex roots, parametric functions, sequences and series and convergence, matrices, systems of equations and inequalities, exponents and logarithms.

B. COURSE CONTENT
Please refer to instructions

20. Course Goals and/or Major Student Outcomes

21. Course Objectives

22. Course Outline

23. Texts & Supplemental Instructional Materials

24. Key Assignments

25. Instructional Methods and/or Strategies

26. Assessment Methods and/or Tools

C. HONORS COURSES ONLY
Please refer to instructions

27. Indicate how this honors course is different from the standard course.

D. OPTIONAL BACKGROUND INFORMATION
Please refer to instructions

28. Context for Course (optional)

29. History of Course Development (optional)

Math Analysis A/B

Course Goals:
- Students know the identity $\sin^2 x \cos^2 x\ 1 = 1$
- Students compute, by hand the values of the trigonometric functions at various standard points
- Students demonstrate understanding of the addition formulas for sines and cosines
- Students demonstrate understanding of half-angle and double-angle formulas for sines and cosines.
- Students know the law of sines and the law of cosines.
- Students can prove various formulas using the technique of mathematical induction.
- Students demonstrate an understanding of functions and equations defined parametrically.
- Students are familiar with and can apply polar coordinates and vectors in the plane.

Course Outline:
- Graphs and Equations
  - Linear equations
  - Circles
  - Inequalities
- Functions and their Graphs
  - Graphing techniques
  - Operations on functions
  - Composite functions
- Polynomial and Rational Functions
  - Quadratic functions
  - Polynomial and power functions
  - Rational functions
  - Real and complex functions
- Exponential and Logarithmic Functions
  - Inverse functions
  - Properties of logarithms
  - Logarithmic and exponential equations
- Trigonometric Functions
  - The unit circle
  - Properties and graphs of the trigonometric functions
- Analytic Trigonometry
  - Identities
  - Sum and difference formulas
  - Double-angle and half-angle formulas
- Applications of Trigonometric Functions
  - The law of sines
  - The law of cosines
  - The area of a triangle

Course Outline (continued)
- Polar Coordinates; Vectors
    - Polar equations and graphs
    - The complex plane
    - Vectors
- Analytic Geometry
    - Conics
    - The parabola, ellipse, and hyperbola
- Systems of Equations and Inequalities
    - Subtractions and elimination methods
    - Matrices
- Sequences; Induction; Probability
    - Arithmetic and geometric sequences
    - Geometric series
    - Mathematical induction

Texts & Supplemental Instructional Materials
Texts currently in use: Pre-calculus, Graphing and Data Analysis, Sullivan, Sullivan III; Prentice Hall (1998)
The text for this course is currently under review)
Supplemental materials: Graphing calculators and internet resources, overhead graphing demonstrations with the TI-83 Plus

Instructional Methods and/or Strategies:
- Lecture
- Small group activities
- Overhead demonstrations
- Graphing calculator activities

Assessments Methods and/or Tools
- Quizzes
- Chapter tests
- Daily homework and classwork
- Course exit exam
- STAR assessment
- Notebooks

Submitted to UC 2/28/06
Pending Approval: C/Math