

SYLLABUS

GI 623 AP INSTITUTE: CALCULUS AB

DATE: Spring 1997

I. Catalog Description: This institute assists secondary school mathematics teachers in offering an Advanced Placement Calculus course in their schools. The institute is taught over a two-week period for a total of 45 hours. (3)

II. Prerequisites: Mathematics teacher certificate.

III. Objectives of Course:

1. To review the concepts and methods of calculus and analytic geometry.
2. To explore the implications of calculus reform for their AP Calculus course.
3. To understand the current status of technology and the AP Calculus examination.
4. To develop a syllabus for the AP Calculus course they will be teaching.
5. To integrate appropriate technology into their AP Calculus syllabus.
6. To model the teaching of concepts and methods in the AP Calculus syllabus.
7. To examine some of the non-routine and abstract applications of calculus.

IV. Expectations of Students: Participants are expected to attend classes, participate in classroom activities, and complete homework projects.

V. Course Outline:

The workshop will cover the topics in the Advanced Placement Calculus AB course. A listing of the major topics follows:

1. Graphs
2. Functions and Limits
3. Differentiation
4. Applications of Differentiation
5. Integration
6. Applications of the Definite Integrals
7. Logarithmic and Exponential Functions
8. Techniques of Integration

VI. Textbook: (1) *Advanced Placement Course Description: Mathematics (Calculus AB and BC)*, The College Board, May 1997, and (2) *Calculus with Analytic Geometry, Fifth Edition* by Howard Anton, John Wiley and Sons, Inc., 1995

VII. Basis of Student Evaluation:

- 25 % Participation in classroom discussion
- 25 % Presentations of selected topics
- 25 % Reviews of current literature regarding calculus education
- 25 % Syllabus for the AP Calculus course they will be teaching