

A New Calculus Courseware Package from Addison-Wesley!

1. What is Calculus&*Mathematica*®?

In just a few short years, *Mathematica* has revolutionized the desk tops of mathematicians and scientists all over the world. Pencils and writing paper have been assigned a new role as more and more scientists begin to rely on *Mathematica* as their calculating tool of choice.

Calculus&*Mathematica* takes this revolution out of the research laboratories and into the classroom. Developed by Don Brown, Horacio Porta and Jerry Uhl at the University of Illinois and Bill Davis of Ohio State, this courseware package is developed completely with *Mathematica* notebooks that are flexibly designed for structured, partly supervised, self-paced, or even independent study. The medium of *Mathematica* notebooks provides a powerful environment for hands-on, graphically-active courseware.

In this proactive environment, *Mathematica's* graphical and calculational power makes computations that lead to a rich mathematical experience. And *Mathematica* notebooks provide a new medium of communication that combines the advantages of a standard word processor, and enormously powerful, easy-to-use computer algebra system and superb on-line graphic capabilities.

2. How is it organized?

Calculus&*Mathematica*, Part I, contains 30 lesson units covering the first two terms of calculus, both on disk and in printed form. Each disk-based unit is organized with three components: *Basics*, an on-line introduction to the theory being taught, *Tutorial*, which guides the student through problem-solving techniques, and *Give It a Try*, the homework section which is the heart of the Calculus&*Mathematica* course. *Give It a Try* allows students to experience hands-on problem solving while extending and reinforcing material presented in the *Basics* and *Tutorial* sections. All are designed using *Mathematica* notebooks.

The electronic component is supported with a manual that contains the *Basics* and *Tutorial* sections, as well as *Literacy Sheets* that test the student's knowledge of the subject away from the computer. An additional booklet includes printed *Give It a Try* sheets and problem statements. This combination of fully-interactive electronic lessons and printed materials clarifies and enhances the on-screen problems and makes *Calculus&Mathematica* a powerful presence in the mathematics classroom.

Calculus&Mathematica, Part II, devoted to the third term of calculus, is currently under development and will be organized similarly.

3. How was *Calculus&Mathematica* Developed?

Don Brown, Horacio Porta, and Jerry Uhl of the University of Illinois, and Bill Davis of Ohio State have been teaching calculus via *Mathematica* notebooks for several years under the National Science Foundation-funded *Calculus & Mathematica* Curriculum Revision project. The course is taught as a laboratory course with discussion sections away from

the computers held once a week. The laboratory is equipped with Macintosh computers (Macintosh II, IIcx, SE/30, and SE systems) that are arranged in a large "U" formation with the professor at the top of the U and the students' backs toward the professor. From this vantage point, the professor can monitor the work of each student and assist students at the optimal teachable moment. In this way, learning becomes the primary activity, while teaching is supplied only in necessary doses during laboratory sessions.

4. How Is It Available?

The preliminary version of Calculus&*Mathematica*, Part I, is available now in both Macintosh and NeXT versions. Part II will be available for fall 1992 classes.

Printed material for Part I (Basics, Tutorial, Literacy Sheets, and Give It a Try) is available by ordering ISBN 0-201-51988-7.

A courseware site license is available free of charge to colleges and universities adopting Calculus&*Mathematica* for at least one section of calculus. The site license permits any

user who has legally acquired the printed materials to use the courseware in conjunction with a calculus course centered around *Calculus&Mathematica*. Courseware may also be purchased for individual use outside of the calculus course as follows:

0-201-51989-5 Part I Macintosh Courseware

0-201-56811-X Part I NeXT Courseware

Note: Calculus&Mathematica does not include *Mathematica* software.

Ordering and pricing information is available from:

Addison-Wesley Publishing Company, Inc.

1 Jacob Way

Reading, MA 01867 USA

(617) 944-3700 or (800) 447-2226

ISBN

Title

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Brown/Davis/Porta/Uhl: *Calculus & Mathematica*,
preliminary version.

0-201-51988-7 Printed manuals (for use with Mac and NeXT disks)

0-201-51989-5 Macintosh courseware (disks)

0-201-56811-X NeXT courseware (disks)