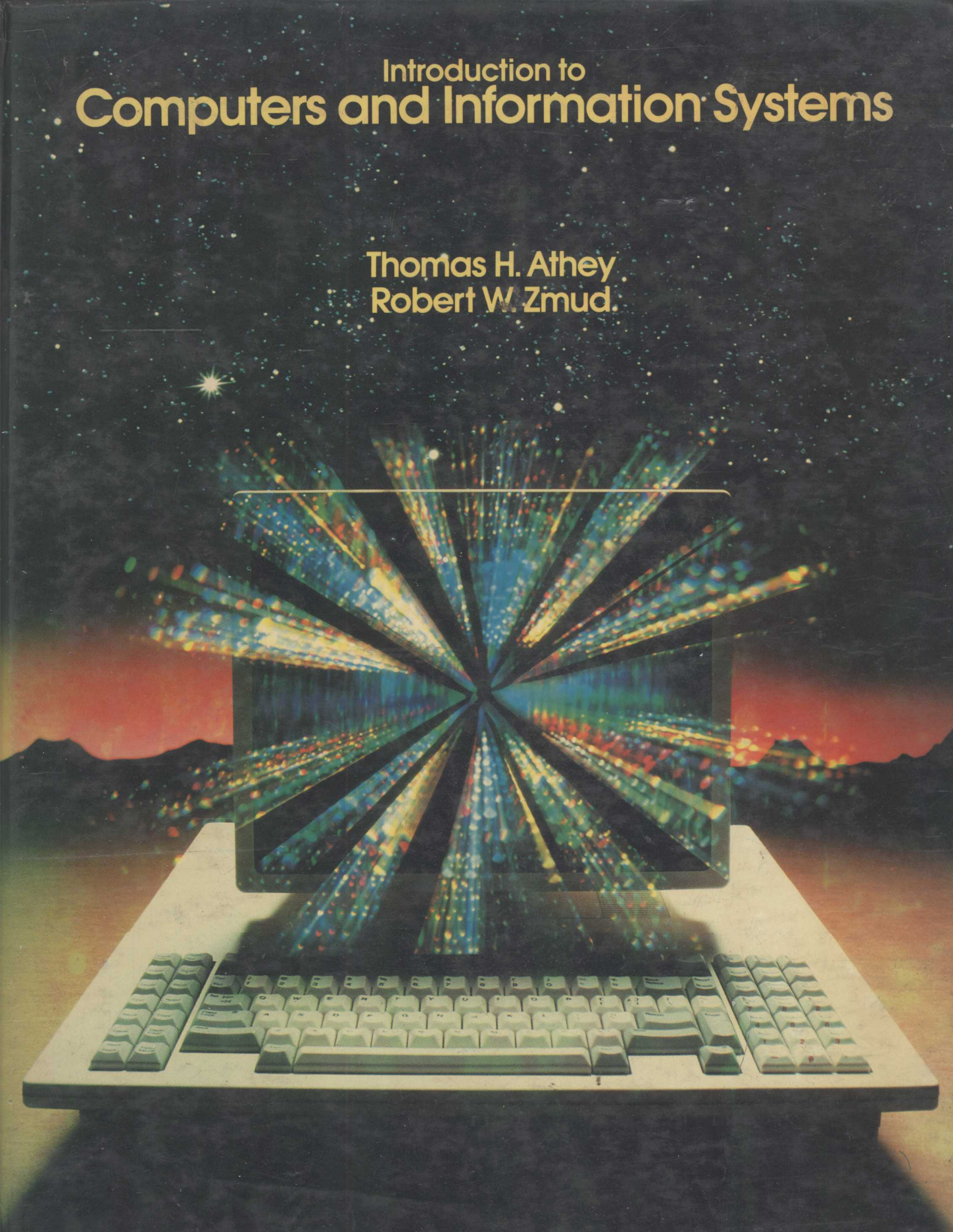
Introduction to Computers and Information Systems

Thomas H. Athey
Robert W. Zmud



Introduction to
Computers and Information Systems

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Scott, Foresman and Company
Glenview, Illinois
London, England

A Study Guide to Accompany Introduction to Computers and Information Systems has been prepared to help you master the concepts discussed in your text. The *Guide* contains chapter summaries, detailed annotated chapter outlines, drill sections made up of multiple-choice, true/false, fill-in-the-blank, matching, and essay questions, as well as practice tests made up of true/false and multiple-choice questions. Page-referenced answers are provided for all questions. If the *Guide* (ISBN 0-673-18168-5) is not available in your bookstore, your bookstore manager will be able to order it for you.

Acknowledgments
Acknowledgments for literary selections, charts and graphs, illustrations, and photographs appear in a section at the back of the book beginning on page R-1, an extension of the copyright page.

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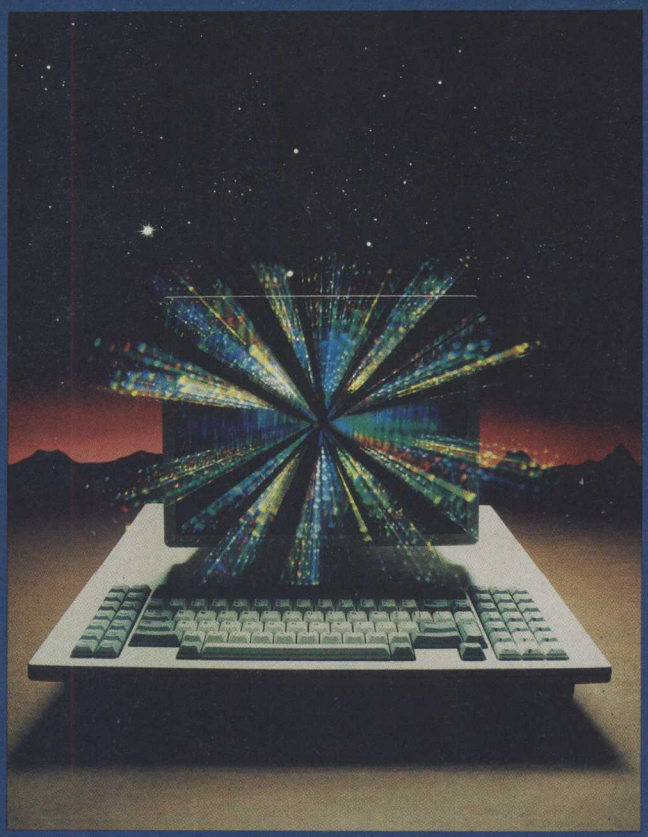

The Scott, Foresman Series in Computers and Information Systems

Thomas H. Athey, Consulting Editor

Athey and Zmud
INTRODUCTION TO COMPUTERS AND INFORMATION SYSTEMS

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MICROCOMPUTERS IN BUSINESS

Pierson and Horn
STRUCTURED COBOL PROGRAMMING

Tom
MANAGING INFORMATION RESOURCES

Zmud
INFORMATION SYSTEMS IN ORGANIZATIONS

Zmud and Eagle Software, Inc.
BASIC PROGRAMMING

PREFACE

In this, the Information Age, educators are finding it increasingly easy to convince students they should learn about computers. Indeed, the demand for this knowledge is growing almost as fast as the number of computer products and applications. It is not so easy to decide what—or how—to teach these students. Many textbooks focus on the "what"—computers and information systems in and of themselves. We call this the "computer literacy" approach and feel that it neglects the "why"—the reasons we use computers.

We wanted to write a book that was different. Both of us feel a strong conviction that today's students need *computing literacy,* the ability to use the computer as a tool to enrich their personal and professional lives. As computers become more common, the likelihood increases that students will need to understand and use computers in their careers, even if they do not become computer professionals. Like many employees, they may someday find themselves on a steering committee charged with developing or evaluating a computer application.

Our goal in this book is to help students become good consumers of computer technology and information systems. This goal is expressed in three major ways.

1. Understandable depth. First, we made a commitment to present each topic in understandable depth. This means that we are careful to focus on the information that students need to be able to understand how and why computers and information systems can be used to simplify and improve our lives. This does not mean that we avoid technical detail or ignore recent advances, however. As required by today's computing environment, we explain the workings of the most recent technological advances, including pointing devices, flat-panel displays, local area networks, and the Fifth Generation Computing Project. We are careful, though, to highlight trends and show students what these technologies mean to the users of computers and information systems.

2. Integration of technology and its applications. We also made a commitment to focus on applications and to explain how technology affects our use of computers. Thus, every major discussion of technology is illustrated by an application. This deliberate integration can also be seen in the section entitled "Special Feature: A Systems Approach to Selecting a Microcomputer," which shows students how to apply systems development techniques to their own computer-selection decisions.

3. Focus on the microcomputer. Microcomputer systems are used in almost every chapter to illustrate and explain concepts that are relevant to our discussion of larger systems. In addition, "Special Feature: A Systems Approach to Selecting a Microcomputer" offers practical advice for students contemplating the purchase of a microcomputer. We chose this strategy for two reasons. First, the importance of the microcomputer in today's business world is undeniable. Second, the microcomputer is probably the first computer students will use, either at home or in the micro lab at school. For many students, the micro is a convenient way to get hands-on experience—something we feel is important in helping students understand computers and information systems.

We also developed some recurring features to help us meet our goal.

"Professional Issue" sections within chapters address concerns that will affect students as business professionals and provide further insight into a variety of issues. Computing literacy, computer classification, the human-computer interface, printer selection, local area networks, fitting microcomputers into an MIS plan, cultivating the human touch in systems development, promoting and managing end-user computing, and telecommuting are some of the topics discussed.

"Computers at Work" features in each chapter excerpt articles from business and computer magazines that show the varied, real-world uses computers in product inventory, motel reservations, talent agency bookings, film, telecommunications, medicine, product design, and the music industry.

Full-color illustrations explain and clarify both technical processes and business procedures. We also feel that color photographs of computer applications are most useful when integrated within the text, rather than grouped in isolated collages. Thus, the text features a functional, as well as attractive, illustration program that is interwoven with the text.

In addition, we have provided a number of study aids to reinforce important text concepts, such as chapter outlines, bold-faced key terms, detailed chapter summaries with key terms reviewed in context, end-of-chapter review questions, and a bibliography of sources for further reading. Our text is also offered in two versions: one with extensive appendices on BASIC programming and one without these appendices.

THE SUPPLEMENT PROGRAM

We were also aware that a good book alone is not enough, given the demands of today's teaching environment. Understanding computers and information systems can be challenging for both instructor and student. Instructors must keep abreast of developments and trends, as well as offer students opportunities for hands-on experience through computer exercises that reflect real-world applications. Thus, our text provides a full range of supplements, designed to meet the needs of both instructors and students. These supplements include innovative software teaching aids, outstanding paper-based supplements, and the *CIS Profiles in Excellence* newsletter that showcases outstanding CIS programs around the nation.

Innovative Software Teaching Aids

1. The Scott, Foresman Electronic Bulletin Board is an online resource designed to meet the dynamic and diverse needs of data processing and information systems instructors nationwide. The Bulletin Board offers the following features to users of this text:

regularly updated information on computer technology and its application to business information systems;

an electronic mail and message system to allow instructors to leave messages for and interact with other instructors as well as Scott, Foresman marketing and editorial personnel; and

file transfer capabilities. Files available for transfer from the Bulletin Board to your computer include the following:

—fully functioning and documented spreadsheet, word processing, and data base management software for the IBM PC, as well as a variety of utilities and games

—class-tested assignments, exercises, problems, and applications for major software packages such as Lotus 1–2–3, VisiCalc/SuperCalc, DBase II and III, etc.

—BASIC programming assignments and exercises for the IBM PC, along with solutions

—additional teaching material for both the classroom and the microcomputer lab

The Scott, Foresman Electronic Bulletin Board is a resource designed to grow and become more useful with time. We encourage instructors to use the Electronic Bulletin Board to exchange ideas and to share successful teaching strategies and materials by uploading their own teaching materials into the Bulletin Board. The Bulletin Board will support baud rates up to 2400 and can be accessed by any computer. For instructors' convenience, microlab exercises and assignments, as well as spreadsheet, word processing, data base management, and telecommunications software, will also be made available on diskettes upon request.

2. A complete, interactive BASIC programming tutorial for the IBM PC, *BASIC Programming* by Robert W. Zmud, with the PC-Professor software tutorial by Eagle Software, Inc., features the most sophisticated and useful BASIC programming educational software available, along with a 128-page text on BASIC programming reprinted from the text and referenced to corresponding lessons in the software tutorial.

3. For the Apple IIe and IIc, an integrated spreadsheet, word processing, and data base management software package, available Spring 1986.

4. A revolutionary new electronic classroom management system, DIPLOMA, consists of four programs that assist instructors in testing, grading, and course management. DIPLOMA operates on IBM, Apple IIe and IIc, and compatible microcomputers.

EXAM provides almost 2000 true/false and multiple-choice questions keyed to our text. In addition, EXAM lets you create and edit questions, allowing you to develop personalized test files. EXAM accommodates an unlimited number of multiple-choice, true/false, matching, and short-answer/essay questions. Fourteen test-printing options can be used to leave space for figures or graphs, set margins, minimize page count, insert page headings, number pages, scramble questions and/or answers, generate answer keys, and provide student answer sheets.

GRADEBOOK, an electronic grade book, provides a work area that looks like the familiar grid of traditional paper grade books. In addition, GRADEBOOK offers these four advantages: (1) Student records can be located by name or ID number and can be sorted using combinations of four sorting options. In addition, comments about students, tests, or classes can be entered. (2) GRADEBOOK automatically calculates running averages for both students and tests and can be tailored to display letter grades, percentage averages, GPA, or points earned. (3) Tests can be given independent weights and curved using a variety of options. The program automatically generates and displays a test's bell curve during curving operations. (4) Graphic report screens monitor the effectiveness of a test or a student's progress.

STUDY GUIDE allows students to take tests generated by EXAM at a computer. As with tests given on paper, students can browse, skip difficult ques-

tions, and review or alter their answers. Upon completion, STUDY GUIDE will grade each test and present results in the form of graphs that depict overall performance, as well as performance by subtopic.

CALENDAR is a free-form scheduling tool that allows instructors to enter up to nine events or messages for any particular date. Messages can be easily entered, edited, saved, and displayed, while a transfer feature allows recurring events to be entered for several dates without retyping. The program can be set up to automatically load and save information.

Paper-Based Supplements

5. An Exercise/Case Book, *Microcomputers in Business: Spreadsheet, Word Processing, and Data Base Management Systems,* by John Day, Ohio University, was designed for use as a microcomputer lab manual. Through business-oriented problems and assignments, students learn how to use the microcomputer as a business tool. Unlike other lab manuals, *Microcomputers in Business* contains general problem descriptions and can be used with any available hardware and software.

6. Instructor's Manual provides an overview and summary of each text chapter, as well as lecture outlines, ideas for lecture and discussion, answers to in-text review questions, class projects and activities, additional essay and review questions, and abstracts from popular and academic literature.

7. Test File contains approximately 2000 questions, 30 true/false and 70 multiple-choice items for each chapter. These same questions are available through the DIPLOMA class management software.

8. One hundred full-color **Transparency Acetates** plus an additional fifty **Transparency Masters** have been prepared to enhance classroom lectures.

9. Study Guide includes chapter summaries, detailed annotated chapter outlines, drill sections made up of multiple-choice, true/false, fill-in-the-blank, matching, and essay questions, as well as practice tests made up of true/false and multiple-choice questions. Page-referenced answers are provided for all questions.

A Newsletter to Keep You Informed

10. The Scott, Foresman CIS Profiles in Excellence Newsletter, published three times annually, showcases outstanding CIS programs in two-year, undergraduate, and graduate schools around the nation, allowing readers to see how their colleagues have coped with the challenges of establishing curricula, developing courses, choosing hardware and software, and obtaining the funding for such programs.

ACKNOWLEDGMENTS

To Our Publisher and Family

It is a rare experience for authors to work with a team of professionals who are committed to excellence in everything that they do. We were privileged to become part of the Scott Foresman team.

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To Our Colleagues

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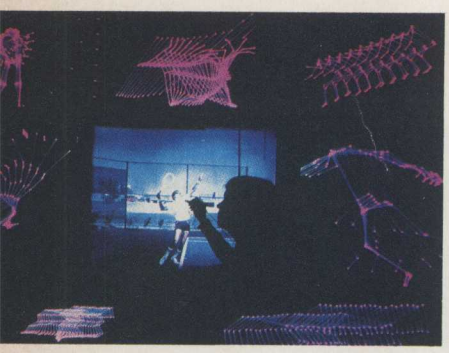
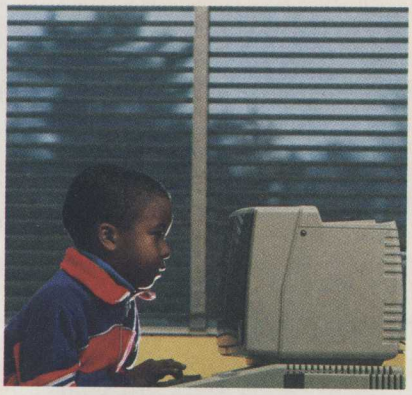


PART I THE INFORMATION SOCIETY



OVERVIEW

PART II COMPUTER SYSTEM HARDWARE

PART III SYSTEM SUPPORT SOFTWARE