

Sullivan/Lewis/Cook

INSTRUCTOR'S MANUAL



COMPUTING TODAY

Microcomputer Concepts and Applications

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Microcomputer Concepts and Applications

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PREFACE

The purpose of this Instructor's Manual is to provide you with teaching aids to use with Computing Today: Microcomputer Concepts and Applications. This manual contains the sort of teaching materials we use ourselves. Inside you will find a sample syllabus, a course schedule, chapter-by-chapter lecture outlines, assignments, test questions, miniature case studies, and even two emergency lectures. We hope they make your job of teaching about personal computers easier and more effective.

One useful teaching aid did not fit conveniently within the covers of this manual: floppy disks containing some excellent tutorial software. You can read more about this software in the section titled DoMore Tutorial Software that begins on page 135.

We intend to actively support Computing Today with teaching aids. Much of what we do in the future will be guided by feedback from adopters of Computing Today. We need to know what teaching aids you would like and what equipment you have available for students to use. Also, we need to have an accurate mailing list of the addresses of adopters so that we can send out additional teaching materials as they are created. If you are adopting the text, you can help us acquire this information by filling out the questionnaire at the back of this manual. The questionnaire is printed on sheets that can be torn out of the manual, filled out in less than fifteen minutes, folded in thirds, stapled, and mailed directly to Houghton Mifflin.

Teaching is an activity that benefits from cooperation and sharing. Most of us find that there just isn't enough time to develop course materials from scratch, so we use or adapt materials that have been created by others. One thing we want future editions of this Instructor's Manual to do is to facilitate the process of sharing materials. If you develop a syllabus, test questions, or an assignment that you think would be useful to others, we would appreciate your sending a copy of the materials to David Sullivan, College of Business, Oregon State University, Corvallis, Oregon 97331. Whether we end up using your submission or not, we will acknowledge your contribution in the Preface of the next Instructor's Manual.

We want to thank Paul Paschke and Rick Smith of Oregon State University for contributing the material that led to several of the assignments in this manual.

David Sullivan
Ted Lewis
Curt Cook

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INTRODUCTION

This instructor's guide was prepared by the authors of Computing Today to assist you in teaching one of today's most fascinating and rapidly growing subjects: personal computers. We have several goals in mind:

1. Organize diverse information on personal computers into a coherent body of knowledge that can rightfully take its place in education as the subject called "Personal Computers."
2. Unify many of the concepts and techniques used in the world of personal computers into a meaningful whole -- again emphasizing that "Personal Computer" courses can and should be taught as a discipline with important subject matter.
3. Emphasize concepts rather than "button pushing" so that what is learned today can be used in the future -- even though a particular word processor or spreadsheet program may change over time.

In addition, this guide is designed to help you by explaining what we had in mind when each chapter was written, suggest some areas where you might be able to adapt the presentation to your particular circumstances, assist you with laboratory and test questions, and provide hints and tips.

The chapter-by-chapter sections contain chapter objectives, lecture outlines, computer lab exercises, and multiple-choice questions. The lecture outline will give you insights into the material that you can weave into your lectures.

Additionally, we have included a number of useful aids such as emergency lectures for use when you are unprepared for the scheduled lecture, miniature case studies to stimulate class discussion (or provide comprehensive questions for the final exam), assignments that may be used for more extensive class work, and other aids as shown in the Table of Contents.

BACKGROUND QUESTIONNAIRE

We recommend that you pass out and collect a simple background questionnaire on the first day of class to find out what your students already know about computing. This activity doesn't take much class time, but it can pay off handsomely. Summarizing the results of the survey can be done in about half an hour with the help of a blank questionnaire that you use as a tally sheet. Some benefits of using the questionnaire are:

- o It will give you a better feeling for how detailed your explanations need to be. If most of your students have already used a word processor, then you can move quickly through the chapter on word processing basics and spend more time on advanced word processing features. If, on the other hand, a sizable portion of the class does not know what a spreadsheet program does (this happened recently to one of the textbook's authors), then you will need to start carefully with the basics and proceed methodically through the material.
- o You can spend a few minutes at the beginning of the second lecture telling the students the results of the survey. Students like to know how they stack up against their peers with respect to prior computer experience. This gives you an opportunity to explain what background you are expecting and how students might take remedial steps.
- o The survey gives students an opportunity to express what they hope to learn in the class and to suggest topics to be added to the course. Often it is possible to accommodate these requests within the course, but even if it isn't, you should be able to explain why a topic won't be covered. This shows students that you care about their interests and are willing to adapt (within reason) to what they find interesting.
- o If you give the same survey at the beginning of each term, it will allow you to determine whether there is a trend toward increasing prior knowledge about micro-computing, and if so, how significant the trend is. This can have implications about the curriculum your school should establish. It can also help determine what should be considered remedial knowledge.

SAMPLE BACKGROUND QUESTIONNAIRE

Your Name: _____

The sole purpose of this questionnaire is to provide your instructor with a better understanding of the content and level of presentation that should go into this course. Complete it in less than 10 minutes.

1. List any computer programming courses you have taken or computer programming experience. Be sure to include the programming languages you have used.

Class Number/Name	Languages Used
1.	
2.	
3.	
4.	

2. Have you used a word processing system? Yes: ____ No: ____

If yes, which system: _____

How would you rate your knowledge about word processing?

None: ____ Little: ____ Occasional user: ____ Expert user: ____

3. Have you used a spreadsheet program? Yes: ____ No: ____

If yes, which system: _____

How would you rate your knowledge about spreadsheet processing?
(Check all that apply)

I don't know what a spreadsheet program is: ____
 I've had less than 1 hour of hands-on experience: ____
 I am an occasional spreadsheet user: ____
 I frequently use spreadsheets: ____
 I can design fairly complicated templates: ____

4. Give your best definition of a database management system in 40 words or less.

5. Is there something related to the topic of personal computing that you would particularly like to see covered in this class?
If so, what?

THE COURSE SYLLABUS

The course syllabus has more influence on the outcome of a course than any other document. It tells students what they will learn from the course, establishes the grading policies, describes the materials and background students should have, and determines the grading policies to be used. The syllabus acts as a contract between the students and the instructor -- it defines who is responsible for what. A good syllabus will forestall most administrative problems with students.

Make sure you will be able to hand out the course syllabus in the first class. This begins the class in an organized manner. It also allows you to review what the class will cover and how the class will be conducted. Expect questions on the grading system you will be using; this is one of the first concerns of most students.

A modified version of the following syllabus has been used with some success by one of the authors. In addition to the essential points (objectives, grading methods, required materials), it includes a brief description of the assignments and research paper. You may want to add some of the following material to your syllabus:

- o If your course will require the use of a Microcomputer Lab, the syllabus is a good place to describe the rules governing its use and hours of operation.
- o You may want to describe more fully your position on academic honesty or on giving alternative grades (such as an incomplete).
- o A lecture schedule should be part of the course syllabus. Developing the course schedule is discussed in the next section of this Instructor's Manual.
- o It is generally a good idea to attach the first couple of assignments to the back of the course syllabus. This allows students to begin working on these assignments early.

SAMPLE COURSE SYLLABUS

Personal Computing Today
Maxwell Hall, Room 412
MWF 3:30-4:20

Professor: Dr. J. P. Mathews
Office: Maxwell Hall, Room 128
Office Hours: Tue. 2:30-3:30
Wed. 1:30-2:30
Fri. 11:00-12:00
Office Phone: 754-4033 (messages)

About the Course

This course surveys the uses of microcomputers in professional activities. The course will treat microcomputers as a tool--and you will be expected to learn to use the tool effectively. It will not to teach you how computers work or how to program. Consequently, there will be no programming assignments. Instead, the assignments will require hands-on use of application programs to solve problems.

On completion of the course, the student should be able to:

- o Discuss the relationships among the various hardware and software components of a personal computer system.
- o Operate a personal computer in a "hands-on" mode. This includes using the operating system and executing programs.
- o Use a word processing program to write memos and reports.
- o Match the type of features to look for in a word processing program with the type of writing and printing to be done.
- o Use an electronic spreadsheet to construct and use templates for financial modeling, budgeting, and other "what if?" projections.
- o Discuss the limitations of early spreadsheet programs in relation to second-generation spreadsheet programs and the recently introduced integrated packages.
- o Use a single-file record management system to set up and manipulate data files, query a data file, and format a report.
- o Compare the capabilities of a single-file record management system with a database management system.
- o Research a computing problem to identify an appropriate software solution -- whether the problem is a need for record keeping in business, for producing commercial art, or for solving an engineering problem.
- o Discuss the capabilities of personal computers for creating graphics, communicating with other computers, and transferring data among application programs.

THE COURSE SYLLABUS

- o Determine when a problem should be solved with a commercial software package and when a problem requires custom programming.
- o Explain the social issues surrounding software piracy and computer trespass.

Recommended Materials

The basic course text is:

Sullivan, Lewis, and Cook, Computing Today: Microcomputer Concepts and Applications, Houghton Mifflin, 1985.

You will need to own or have the use of a 5 1/4-inch floppy disk to store the data files you generate as part of the assignments. (Almost any 5 1/4-inch diskette will do; the bookstore sells them for a few dollars.)

Grading

Letter grades will be assigned according to the number of points accumulated on assignments, a midterm exam, the final exam, and a research paper. Points will be recorded with an electronic spreadsheet program. Although the instructors will attempt to be accurate in recording point scores, they are not known for their secretarial skills. For your own protection, audit the portion of the listing that applies to you. If you do not want your course points displayed publicly in association with your social security number, then provide your instructor with an alternative grading password.

Midterm	80 pts	27 %
Assignment 1 (Simple word processing)	10	
Assignment 2 (Cover letter and resume)	20	
Assignment 3 (Single-file record management)	15	
Assignment 4 (Multiple-file database report)	15	
Assignment 5 (Simple spreadsheet)	10	
Assignment 6 (Building a spreadsheet template)	20	
Subtotal	90 pts	30 %
Final Exam	100 pts	33 %
Research Paper	30 pts	10 %
Total	300 pts	100 %

Assignments

Assignments will be geared toward demonstrating a reasonable level of competence rather than illustrating complete mastery of the application package. It is expected that each student will complete all assignments.

It is the instructor's opinion that "group computing" is an effective learning experience for only one member of the group--the one who does the work. For this reason, the assignments are to be done individually. Do not turn in someone else's work as your own, or allow someone else to copy your work.

Research Paper

The purpose of the research paper is to expose each student to current articles in one field of personal computing. The topic area will depend on the last digit of your social security number, as follows:

Last digit	Topic Area
1 or 6	Word processing
2 or 7	Spreadsheet programs
3 or 8	Data management programs
4 or 9	Graphics programs
5 or 0	Telecommunications programs

The paper is to be a survey report of the state-of-the-art in a software application area. The report should be addressed to Emma Peel, Director of Forest Products Marketing, Boise Cascade Corporation. You are to assume that Ms. Peel has decided to purchase forty personal computers for her division, but so far she has not yet purchased any hardware or software. Your report should state:

1. What software features you feel are most important to look for.
2. Why the features you have selected are important.
3. What program you would recommend purchasing.
4. Why you are recommending that program and how you arrived at your recommendation.

Your paper should consist of library work and then some justifiable opinions. Papers should be from three to five typed pages, double-spaced. A good paper will go beyond reading four or five articles; it will sum them up, tie them together, and tell where they are going. A bibliography is required.

THE COURSE SCHEDULE

If you are like most instructors who are adopting Computing Today, this will be the first time you have taught a course that focuses primarily on microcomputers. The concern of many first-time instructors is "What will I do to fill up all of the classes?" A natural reaction to this feeling is to develop a lecture schedule that covers a different topic each class session. Often the result is a course that tries to cover too much material and suffers from a loss of continuity.

Think through what you really want the students to know and make sure you budget enough time to cover these topics adequately. Computing Today surveys all of the major applications of personal computers, and so you might expect that the depth of coverage in each area is rather limited. If this is your initial impression, examine the book again. We packed as much usable knowledge as we could on each page (within the constraint that the reader should not feel overwhelmed or confused). The book easily contains enough material for a full semester course. It contains more than enough material for most one-term courses.

Some factors you should consider when you develop the schedule are:

- o Today's microcomputer products are quite sophisticated and have hundreds of features. Even if you carefully limit which features you discuss, it will take longer to explain how to use programs than you expect.
- o Students will run into unexpected problems, and these problems will need to be resolved. Plan on spending part of most classes in a question-and-answer mode.
- o Don't forget to budget time to review the material and to discuss when the programs you have studied would be useful.
- o Nothing ever goes right the first time through. You will make mistakes, so be sure to allow enough "slack" in the schedule to recover from them gracefully by trying a new approach.

OVERVIEW OF THE TEXT

Computing Today is divided into six major parts. We tried to write the book in a modular manner, so that once the first part has been covered, the remaining parts can be studied in any order. In general this effort was successful, but there was one notable failure. It does not make sense to schedule Chapter 14, Integrated Applications, before the students have been exposed to at least some of the major applications. The six parts of the book break down as follows.

Part I The World of Personal Computing

This introductory part introduces the student to critical personal computing terms and concepts.

Chapter 1, Personal Computers in Historical Perspective, explains how the current state of personal computing fits into a larger historical perspective. If you want your students begin using personal computers as quickly as possible, you can begin the course with Chapter 2.

Chapter 2, Parts of a Computer, is essential. Its object is to describe how all the parts of a microcomputer work together to accomplish a task. Also, it describes enough about how each component (memory, CPU, disk, and so forth) works to take the mystery out of how it operates.

Chapter 3, Using a Personal Computer, begins by surveying the two major types of programs: system software and application software. Then the role of a microcomputer operating system is explained, both conceptually and with specific examples. Chapter 3 contains a lot of fundamental material that is essential to success later in the course.

Part II Word Processing

The objective of this part is to teach the student how word processing works. The three chapters in Part II should be covered in their present order, but the entire part can be deferred or omitted if necessary.

Chapter 4, Word Processing Basics, focuses on those concepts that are necessary to create, edit, save, and print a simple document. Chapter 5, Common Word Processing Features, covers the intermediate features that are used in most writing projects.

Chapter 6, Advanced Word Processing, demonstrates nice, but optional, word processing features. If there is not enough time in the course schedule to cover Chapter 6 completely, you should have students skim the chapter so that they are at least aware of the features a good word processor will provide.