OBJECTS: The main object of this course is innovative uses of the personal computer in economic analysis and model building techniques. Students will acquaint themselves with the nature and properties of economic models by trial and error through individualized, computer generated exercises. The course contents may be divided into two parts: Part I MS Excel with applications in Economics and Statistics; Part II Dynamic analysis or some specialized topics. The exact content and emphasis of the course may differ from year to year depending on the availability of software programs and the textbook. In previous years, Part II covered Input-output Analysis, Linear Programming, and Game Theory.

TEXTBOOKS:
2. Hsiao, F., Lecture Notes on Microcomputer Applications in Economics, 1992. The Lecture Notes will be reserved at the Reservation Desk in the Norlin Library.

PREREQUISITES: Math 1050-1, 1060-1, 1070-1, 1080-1, 1090-1, 1100-1; or Math 1070-3 and 1080-3; or Econ 1078-3 and 1088-3; or Math 1300-5; or higher.

We assume that the students have completed the equivalence of the following textbook: Mizrahi, Abe, and M. Sullivan. Mathematics for Business and Social Sciences, An Applied Approach, 4th ed., John Wiley and Sons. This book is generally used in Math 1050-1 to Math 1100. The equivalent level of the book is used in Econ 1078-3 and 1088-3.

Previous knowledge of microcomputers or software is not required. However, you should have enough time to practice and familiarize yourself with the computer and the software package within a short period of time. This takes constant effort and great determination.

THE SOFTWARE PROGRAM: The software program we use is Microsoft Excel 2000. It is installed on the hard disk of the computers.

The reason we use Excel is simple. It is practical and widely available. We have been using spreadsheets programs in this class: VisiCalc, Lotus 1-2-3, Quattro Pro, and now Excel, depending on the most popular spreadsheet program of the time. As shown in the reference section below, we have demonstrated that the spreadsheet program is an excellent tool for computer assisted instruction (CAI) in economics and statistics. Unlike a packaged learning program, students can learn economic and statistical concepts and methods by actually writing the formulas directly on spreadsheets. However, no programming knowledge and skill are required. Many students find that spreadsheet is easy to learn and remember, as compared with programs like TSP, RATS, SPSS, the commands of which are oftentimes confusing, idiosyncratic, and easy to forget. They also find that it is useful in daily life (balancing the budget, doing financial planning, etc.), and easier to get a job in business and government (Excel is required in the Business School).

FACILITIES: The computers we use are Dell Optiplex QX1 Pentium III with 120 Mb of memory, MS Windows 98, Office 2000. The class will be held in the new Humanities Building, Room 1B45. There are 22 Dell microcomputers in the room, each with a 17" color graphic monitor. Software programs are installed on the hard disk drive.

Excel is also installed in the microcomputers located in the Economics Building Room 7 and Engineering Center. They are also available in Business, Room 104 and 107, Norlin Library Rooms 310 and M350. There are about 30 computing sites throughout the campus. The Excel program is installed in most of the sites. When they are not in use by classes, the facilities are available for individuals.

Reference books and periodicals on Excel (and other spreadsheet programs) are available at the Math/Physics Library and the Business Library.
## COURSE SCHEDULE

<table>
<thead>
<tr>
<th>Week of</th>
<th>Text</th>
<th>Chapter</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>8/27</td>
<td>MS</td>
<td>Lesson 1</td>
<td>The Excel environment, entering and editing data.</td>
</tr>
<tr>
<td>9/3</td>
<td>MS</td>
<td>Lesson 2</td>
<td>Writing formula and formatting data. TR. TC, and Profits.</td>
</tr>
<tr>
<td>9/10</td>
<td>MS</td>
<td>Lessons 3 &amp; 4</td>
<td>Formulas and formatting. Cell references. Relative frequency distribution (rfd) and cumulative rfd. Trendlines, regression models without tear.</td>
</tr>
<tr>
<td>9/17</td>
<td>MS</td>
<td>Lesson 6</td>
<td>Filtering to find information. Production and utility surfaces. Introduction to internet data sources.</td>
</tr>
<tr>
<td>9/24</td>
<td>MS</td>
<td>Lessons 7&amp;16</td>
<td>Sorting, subtotaling, and charting. Internet data sources.</td>
</tr>
<tr>
<td>9/28</td>
<td></td>
<td></td>
<td><strong>First Mid-term Exam - 100 points (20%)</strong></td>
</tr>
<tr>
<td>10/1</td>
<td>MS</td>
<td>Lesson 8</td>
<td>Pivot tables. Extracting information from economic data sets. Why some countries are poor and some are rich? A cross-section analysis.</td>
</tr>
<tr>
<td>10/8</td>
<td>MS</td>
<td>Lesson 9</td>
<td>Using PivotChart Reports. Writing reports with fancy charts.</td>
</tr>
<tr>
<td>10/15</td>
<td>MS</td>
<td>Lesson 10</td>
<td>Printing and editing charts. Long-run economic growth of major Asian and European countries.</td>
</tr>
<tr>
<td>10/29</td>
<td>MS</td>
<td>Lesson 14</td>
<td>Matrix algebra. Comparative static analysis in economics.</td>
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<tr>
<td>11/2</td>
<td></td>
<td></td>
<td><strong>Second Mid-term Exam - 100 points (20%)</strong></td>
</tr>
<tr>
<td>11/5</td>
<td>MS</td>
<td>Lesson 17</td>
<td>Integrating MS Office programs. Business cycle model of Samuelson and Hicks.</td>
</tr>
<tr>
<td>11/12</td>
<td>MS</td>
<td>Lesson 18</td>
<td>Working with macros.</td>
</tr>
<tr>
<td>11/19</td>
<td>LN</td>
<td>Lesson 19</td>
<td>Manipulating and summarizing lists.</td>
</tr>
<tr>
<td>11/26</td>
<td>LN</td>
<td>Lesson 20</td>
<td>Dynamic system- how to generate chaos.</td>
</tr>
<tr>
<td>12/3</td>
<td>LN</td>
<td>Lesson 21</td>
<td>A complex system of chaos.</td>
</tr>
</tbody>
</table>

**FINAL EXAM** Saturday December 15, 2001 (10:30-1:00) **COMPREHENSIVE - 100 points (40%)**

**PLEASE COME IN AND TALK WITH YOUR INSTRUCTOR ABOUT ANY PROBLEM RELATED TO THIS COURSE, ESPECIALLY IF YOU HAVE WORKED HARD, LET THE INSTRUCTOR KNOW.**
NOTES:
1. Please prepare two 3½ inch diskettes. One for storing the homework, quizzes and class exercises and one for tests. Any brand of diskette will work.
2. There are weekly homework assignments.
   a. Homework - 10 points. Late homework will not be accepted.
   b. The first page of the homework should begin with the following:
      HW#x, due date, your name.
      Homework will be returned and handed in on every Friday. Please keep the returned homework.
   c. Check your homework record with the instructor at the end of the semester to make sure all your homework is properly recorded.
   d. Homework sheets MUST be stapled (no staple, no grade), and paginated.
3. Quiz/attendance: will be given frequently in the class. Please fill in the text box: Quiz #; Today’s Date; and Your Name.
4. Semester Grading: Semester grades consist of two parts: exam scores (80% = 20% + 20% + 40%); homework and exercise scores (15%), attendance and quiz scores (5%). Probable cutoff points are in the vicinity of 90% (A-), 80% (B-), 70% (C-), 60% (D-). Some curving may be used.

GENERAL REMARKS:
1. Please attend the classes regularly. We expect every student to participate in all classes.
2. Test dates are firm. Please prepare for the tests long before the test dates.
3. If you are going to miss or have missed an exam, hand in an explanatory statement and documentation to the instructor or call the instructor for approval of excused absence within 24 hours after the test time. Otherwise, no make-up test and a zero grade will be given to unexcused absences for exams.
4. Please come to talk with (or call) the instructor about any problems related to the course.

Students with disabilities who may need academic accommodations should discuss options with their professors during the first two weeks of class.

SOME REFERENCES:


REFERENCES ON GAME THEORY


REFERENCES ON INPUT-OUTPUT ANALYSIS


