



Data Analysis Applications for Business and Finance ITP 499 (2 Units)

Objective This ITP 499 course provides students with the Microsoft Excel skills required to face real-world business problems. During class each week, students will analyze scenarios focusing on several different areas of business, including Finance, Accounting, Marketing, Sales, Operations Management, and Manufacturing. Weekly case studies further encourage students to apply the Excel skills learned to tackle business tasks on their own, such as performing stock analyses or creating cost estimate forms.

Concepts Major business problems that will be solved using Excel are:

- *Analyzing Costs and Projected Revenues for a New Product*
- *Evaluating Quality Control Data to Perform a Cost Benefit Analysis*
- *Analyzing Trends in a Given Industry*
- *Establishing a Credit Approval Process for Accounts Receivable*
- *Creating Product Order Forms for Equipment Purchases*
- *Forecasting Cash Flows for a Capital Project Analysis*
- *Transforming Raw data into Various Formats*
- *Analyzing the Profitability and Pricing Policies of a Potential Product*
- *Developing Solver Models to Allocate Production and Transportation Resources*
- *Creating Automated Income Statements*

These problems will be solved using Excel through the use of formulas, charts, PivotTables, statistical functions, Solver, Goal Seek, Scenario Manager, and others.

Prerequisite None

Recommended Preparation Basic computer knowledge

Lecture 1.5 hrs/week
Lab 1.5 hr/week
Textbooks 1. *Succeeding in Business with Microsoft Office Excel 2003*
ISBN: 0-619-26740-2

Grading The following grading structure will be used in determining the grade for the course.

Case Studies	30%
Homework	15%
Midterm	25%
Final	30%

Policies *Exams:* There are no make-up exams. It is the student's responsibility to take the exam on the scheduled day.

Projects: It is the student's responsibility to turn in lab projects on or before deadlines as set by the instructor. Late work is not accepted.

Academic Integrity The use of unauthorized material, communication with fellow students during an examination, attempting to benefit from the work of another student, and similar behavior that defeats the intent of an examination or other class work is unacceptable to the University. It is often difficult to distinguish between a culpable act and inadvertent behavior resulting from the nervous tension accompanying examinations. When the instructor determines a violation has occurred, appropriate action, as determined by the instructor, will be taken.

Though working together is encouraged, the projects must be your own effort. "Duplicate" projects will all receive zero points and possible referral to the Office for Student Conduct.

All students should read, understand and abide by the University Student Conduct Code
<http://www.usc.edu/dept/publications/SCAMPUS/governance/gov03.html>

Students with Disabilities Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to me (or to your TA) as early in the semester as possible. DSP is located in STU 301 and is open 8:30 a.m. - 5:00 p.m., Monday through Friday. The phone number for DSP is (213) 740-0776.

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Course Outline

Week 1 & 2 – Applying Fundamental Excel Skills in Problem Solving

Finance: Analyzing Costs and Projected Revenues for a New Product

- Working with multiple worksheets
- Understanding relative, absolute, and mixed cell referencing in functions
- Learning how to use the AVERAGE(), COUNT(), COUNTA(), MIN(), MAX() and SUM() functions
- *Case Study: Compiling Relocation Info for Devcon Finn, Inc.*
- *Case Study: Analyzing Regional Sales Info for CKG Auto*
- *Homework: Chapter 1 Conceptual Review*

Week 3 – Solving Problems with Statistical Analysis Tools

Manufacturing: Evaluating Quality Control Data to Perform a Cost Benefit Analysis

- Calculate basic statistics using functions such as COUNTIF(), LARGE(), MEDIAN(), MODE(), RAND(), RANDBETWEEN(), RANK(), SMALL(), STDEV() and others
- Managing large worksheets
- Including relational operators and wildcards in formulas to specify criteria
- Performing what-if analyses
- Performing reverse what-if analyses using the Goal Seek tool
- Analyzing data by category by combining functions
- Simulating data to evaluate different outcomes
- *Case Study: Determining Inventory Levels for CKG Auto*
- *Homework: Chapter 2 Conceptual Review*

Week 4 – Determining Effective Data Display with Charts

Marketing: Analyzing Trends in the Sporting Goods Industry

- Create various stock charts to display financial data
- Clarify data with trend-lines and moving averages
- Evaluate the stacked and 100% stacked sub-types
- Explore the Pie of Pie and Bar of Pie sub-types
- Explore chart types of area, bubble, doughnut, radar, stock, etc

- *Case Study: Analyzing Stock Performance for Universal Investments*
- *Homework: Chapter 3 Conceptual Review*

Week 5 & 6 – Applying Logic in Decision Making

Accounting: *Establishing a Credit Approval Process for Accounts Receivable*

- Building formulas with relational operators and nested functions
- Understanding the Boolean logical values
- Applying conditional formatting to highlight key information
- Writing IF functions to evaluate TRUE/FALSE values
- Creating complex logical constructs for solving problems
- *Case Study: Estimating Painting Job Costs for RJ Construction*
- *Case Study: Analyzing Dealership Promotions for CKG Auto*
- *Homework: Chapter 4 Conceptual Review*

Week 7 & 8 – Retrieving Data for Computation, Analysis, and Reference

Sales: *Creating Product Order Forms for Equipment Purchases*

- Organizing and evaluating data in vertical and horizontal lookup tables
- Understanding the VLOOKUP and HLOOKUP algorithms
- Using named range references in formulas
- Preventing errors in data retrieval
- Retrieving data by matching the relative position of an item in a list
- Learning how to use the CHOOSE(), INDEX(), ISBLANK(), and MATCH() functions
- *Case Study: Evaluating Tax Rates for the Arlington Group*
- *Case Study: Creating a Cost Estimate Form for CKG Auto*
- *Homework: Chapter 5 Conceptual Review*

Week 9 – Midterm

Content: *Chapters 1-5, Case Studies, Homework*

- Format will be half written, half practical
- Written section will be similar to the homework
- Practical Section will be similar to a “mini” case study, requiring you to complete an Excel worksheet during class based on certain business requirements
- Closed note, closed book

Week 10– Evaluating the Financial Impact of Loans and Investments

Finance: *Forecasting Cash Flows for a Capital Project Analysis*

- Calculating values for financial transactions
- Creating a projected cash flow estimate and amortization table

- Evaluating the financial viability of alternative project options
- Calculating depreciation and taxes
- Setting up a worksheet to analyze profitability
- Calculating the return on an investment
- *Case Study: Analyzing Purchasing vs. Leasing Options for CKG Auto*
- *Homework: Chapter 6 Conceptual Review*

Week 11 – Organizing Data for Effective Analysis

Marketing: Transforming Raw data into Various Formats

- Creating, sorting, and filtering data in an Excel list
- Import data stored in a database into Excel
- Analyzing data using a PivotTable report, creating a PivotChart
- Importing information from the Web into Excel using a Web Query
- Understanding markup languages and XML
- Importing and exporting XML data
- *Case Study: Analyzing Manager Performance at Home Station*
- *Homework: Chapter 7 Conceptual Review*

Week 12 – Using Data tables and Excel Scenarios for What-If Analyses

Marketing: Analyzing the Profitability and Pricing Policies of a Potential Product

- Conducting a break-even analysis
- Conducting a sensitivity analysis
- Understanding and planning scenarios
- Use the SUMPRODUCT() function
- Using the Scenario Manager
- Using Excel's data tables to create a simulation
- *Case Study: Evaluating Expansion Financing Options for Granite City Books*
- *Homework: Chapter 8 Conceptual Review*

Week 13 – Enhancing Decision Making with Solver

Operations Management: Developing Solver Models to Allocate Production and Transportation Resources

- Analyzing data by creating and running a Solver model
- Solving Product Mix questions using Goal Seek and Solver
- Enhancing the Production Plan with Solver
- Managing Transportation Problems with Solver
- Interpreting answer reports
- Identifying feasible, infeasible, and unbounded solutions
- Building a Solver model that uses binary constraints
- *Case Study: Managing Purchases for Brightstar Toy Company*
- *Homework: Chapter 9 Conceptual Review*

Week 14 – Troubleshooting Workbooks and Creating Excel Applications

Accounting: Creating Automated Income Statements

- Validating data entry
- Protecting workbooks using security
- Auditing formulas for accuracy and validity
- Plan and record macros to automate repetitive tasks and create Excel applications
- Edit macros using the Visual Basic Editor
- Add buttons to a worksheet
- *Case Study: Projected Sales and Commissions for CKG Auto*
- *Homework: Chapter 10 Conceptual Review*

Week 15 – Automating actions with Macros

- An introduction to Macros
- Recording and running a macro
- Create a custom function
- Form controls
- Excel toolpack add-ins

Week 16

- Final Exam
- Cumulative
- Same format as the midterm
- Half written, half practical
- Closed note, closed book