

# INTRODUCTION TO SPREADSHEETS & MODELS

Don Huesman

*Module 1: Spreadsheets as a tool for thinking with numbers*

*Lecture 1 Objectives & a little spreadsheet history*



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# Course organization

- Module 1 – the spreadsheet as a tool for thinking with numbers, and a little history
- Module 2 – moving from spreadsheets to models
- Module 3 – statistical operations in Excel & Sheets
- Module 4 – linear programming in Excel & Sheets

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# Lecture 1 Learning objectives

- Understand the context in which spreadsheets and personal computers first emerged as tools for individuals
- Review the differences between ledgers & spreadsheets
- Identify the tools needed to complete the course, and where to find them

# The spreadsheet as the original “killer app”



# The spreadsheet as the original “killer app”



Dan Bricklin & Bob Frankston, circa 1979

# From ledgers

A photograph of a ledger page from 1925 to 1932. The page is organized into columns for dates, descriptions, and monetary amounts. The ledger shows several entries, primarily for 5-year periods ending in 1931 and 1932.

|      |                    |           |     |
|------|--------------------|-----------|-----|
| 1925 | add                |           |     |
| 1923 | 5 yrs Apr 11       | 1928      | ver |
| 1926 | 5 yrs July 26 1931 | 20 00     |     |
| 1926 | add                | add 3000  |     |
| 1926 | add July 26 1931   | tot 5000  |     |
| 1926 | add Sept 28 1928   | tot 10100 |     |
| 1926 | add                | add 250   |     |
| 1927 | 5 yrs Mar 19 1932  | 36 10     |     |
| 1927 | add                | 500       |     |
| 1928 | 5 yrs May 20 1930  | tot 3550  |     |
|      | 5 yrs June 2 1932  | 4500      |     |

# To models



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# Resources

- Software used in this Specialization
  - [Excel](#)
  - [Google sheets](#)
  - Data analysis toolpak for Excel
  - XLMiner Analysis Toolpak for Sheets

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Lecture 2 Navigating a spreadsheet and crafting formulas*



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# Lecture 2 Learning objectives

- Gain familiarity and comfort in navigating a spreadsheet,
- Identify the different types of data used in a spreadsheet and options for displaying them
- Use spreadsheet notation for mathematical operations on cells and arrays
- Understand and control the order of processing in formulas
- Use shortcuts for copying data and formulas

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## **Exploring a new job opportunity by thinking through the numbers**



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Lecture 3 Using functions*



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# Lecture 3 Learning objectives

- Learn to use built in functions, including those included in the Business & Financial Modeling specialization
- Understand the different uses of the sum and sumproduct functions
- Use basic statistical functions of average, min, max and standard deviation

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# **Exploring a new business opportunity by thinking through the numbers**



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# INTRODUCTION TO SPREADSHEETS & MODELS

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*Lecture 4 Using conditional expressions in formulas*



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# Lecture 4 Learning objectives

- Use conditional expressions within the logic of your formulas
- Understand some applications of conditional logic

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*Lecture 5 Common errors in spreadsheets*



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# Lecture 5 Learning objectives

- Understand relative and absolute references in formulas
- Recognize errors in formulas
- Identify and correct circular references
- Audit formulas

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*Lecture 6 Differences between Sheets and Excel*



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# Excel & Sheets

- Differences between Excel & Sheets
- Creating a Google account to use Sheets
- Installing add-ins for statistical computation