

# **MGMT 675**

# **AI-ASSISTED FINANCIAL ANALYSIS**



**RICE | BUSINESS**  
Jones Graduate School of Business

## **INTRODUCTION**

# MEET YOUR PROF

- At Rice since 2009, in Jones and in Econ Dept.
  - teach core finance, quantitative investments, investments theory, and python for business research
  - to PhDs, MBAs, and Masters in Data Science students
- Previously at Northwestern, Indiana, Washington Univ. in St. Louis, and Texas A&M. Associate dean at Wash U.
- Former and current editor and associate editor of several journals. Two textbooks (derivatives and PhD asset pricing theory). Materials and info at [kerryback.com](http://kerryback.com)

# COURSE OUTLINE

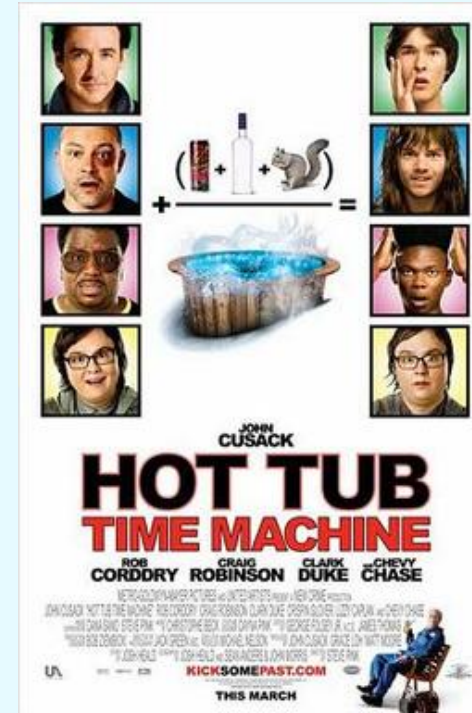
- Weekly assignments: use AI to do something, submit a report of the results
- Seated final exam: use AI to do something, submit a report of the results
- Syllabus, slides, data sets, assignments, links to conversations at [mgmt675.kerryback.com](https://mgmt675.kerryback.com)
- Submit assignments through Canvas

# COURSE TOPICS

1. Simulation
2. Data handling
3. Cost of capital and performance evaluation
4. Visualization
5. Optimal portfolios
6. Autocorrelation and autoregression
7. Machine learning

**WHY ARE WE HERE?**

# LET'S DO SOME TIME TRAVELING





First hand-held calculator, introduced by Texas Instruments in 1972





First financial calculator, introduced by HP in 1973



C11 (L) TOTAL				C1
				25
	A	B	C	D
	ITEM	NO.	UNIT	COST
	-----	----	----	----
	HUCK RAKE	43	12.95	556.85
	BUZZ CUT	15	6.75	101.25
	TOE TONER	250	49.95	12487.50
	EYE SNUFF	2	4.95	9.90
				-----
			SUBTOTAL	13155.50
			9.75% TAX	1282.66
				-----
			TOTAL	14438.16

VisiCalc, released for Apple II in 1979

A:A1: 'EMP' MENU

Worksheet Range Copy Move File Print Graph Data System Quit  
Global Insert Delete Column Erase Titles Window Status Page Hide

A	A	B	C	D	E	F	G
1	EMP	EMP NAME	DEPTNO	JOB	YEARS	SALARY	BONUS
2	1777	Azibad	4000	Sales	2	40000	10000
3	81964	Brown	6000	Sales	3	45000	10000
4	40370	Burns	6000	Mgr	4	75000	25000
5	50706	Caeser	7000	Mgr	3	65000	25000
6	49692	Curly	3000	Mgr	5	65000	20000
7	34791	Dabarrett	7000	Sales	2	45000	10000
8	84984	Daniels	1000	President	8	150000	100000
9	59937	Dempsey	3000	Sales	3	40000	10000
10	51515	Donovan	3000	Sales	2	30000	5000
11	48338	Fields	4000	Mgr	5	70000	25000
12	91574	Fiklore	1000	Admin	8	35000	---
13	64596	Fine	5000	Mgr	3	75000	25000
14	13729	Green	1000	Mgr	5	90000	25000
15	55957	Hermann	4000	Sales	4	50000	10000
16	31619	Hodgedon	5000	Sales	2	40000	10000
17	1773	Howard	2000	Mgr	3	80000	25000
18	2165	Hugh	1000	Admin	5	30000	---
19	23907	Johnson	1000	VP	1	100000	50000
20	7166	Laflare	2000	Sales	2	35000	5000

DATA.WK3

Lotus 1-2-3, released for IBM PC in 1983

Microsoft Excel								
File Edit Formula Format Data Options Macro Window				Help				
D10		=SUM(D6:D9)						
CASHBUDG.XLS				BREAKEUN.XLS				
	A	B	C	A	B	C	D	
38	Telephone & Telex	\$3,372		5	Fixed Expenses			
39	Office Supplies	\$900		6	Administrative Personnel	\$50,614		
40	Office Postage	\$864		7	Publicity	\$48,012		
41	Equipment	\$2,000		8	General Operating	\$30,333		
42	Shipping	\$46,875		9	Interest	\$10,009		
43	Samples	\$480		10	Total	\$138,968		
44	Legal & Accounting	\$2,700		11				
45	Travel & Entertainment	\$1,350		12				
46	Training	\$500		13	Variable Expenses			
47	Bank Charges			14	Cost Of Goods Sold	\$231,793		
48	Credit Card Fees	\$7,760		15	Shipping	\$46,875		
49	Other	\$1,440		16	Operating Personnel	\$5,791		
50	Taxes & Licenses	\$229		17	Total	\$284,460		
51	Interest	\$10,009		18				
52	Miscellaneous	\$1,323		19	Gross Margin	0.00%		
53	Total	\$143,623		20	Cost Of Goods Margin	0.00%		
54								

Ready

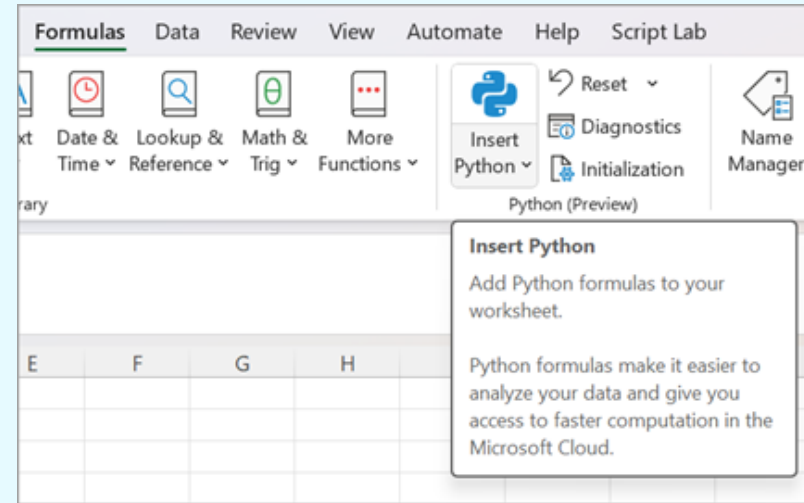
Microsoft Excel, released for Windows in 1987

# TODAY'S TOOLS



- Will Excel survive?
- Will Excel retain its dominance?

# MAYBE ...





# THE BEST WE HAVE TODAY (I THINK)



# WHAT JULIUS DOES

- Python interpreter and proprietary LLM
- Julius executes and debugs code
- Provides links to images, tables, datasets it creates
- Provides download of conversation (and code) as Jupyter notebook or Word doc
- Allows us to upload our own data
- Can get some online data
- Can install any python libraries not pre-installed

# GET A JULIUS ACCOUNT

- Free account has very strict message limit
- Basic allows 250 messages per month. Maybe enough?
- Essential allows unlimited messages.
- 50% academic discount. Sign up using your Rice email and enter the promo code STUDY2024.

# WARM-UP

- Ask Julius to plot the function  $y = x^2$ .
- Ask Julius to plot the payoff diagram of a call option with a strike of 100.
- Ask Julius to use pandas datareader to get the 10-year Treasury yield from FRED, plot it, and save as a jpeg.
- Ask Julius to use yfinance to get AAPL's adjusted closing price from Yahoo Finance, plot it, and save as a jpeg.