

# BEE/CSS 371 Business of Technology Winter 2017

Nicole Hamilton

<https://faculty.washington.edu/kd1uj>

# Lectures

UW2 131

Mondays and Wednesdays

5:45 pm to 7:45 pm

*Attendance is required.*



## Nicole Hamilton

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Office hours TBD and by appointment.  
(I do not have an on-campus office.)

### Education

BS & MS EE, Stanford, 1973.

MBA, Boston University, 1987.

### Background

Most of it as an entrepreneur  
selling a C shell I wrote for  
Windows.

Also worked at IBM, Microsoft  
and RealNetworks.

At Microsoft, I wrote the ranker  
and query language for the first  
release of what's now Bing.

Here at UWB for 3 years, initially  
as a Capstone advisor.

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# Hamilton C shell

From Wikipedia, the free encyclopedia

**Hamilton C shell** is a clone of the Unix C shell and utilities<sup>[1][2]</sup> for Microsoft Windows created by Nicole Hamilton<sup>[3]</sup> at Hamilton Laboratories as a completely original work, not based on any prior code. It was first released on OS/2 on December 12, 1988<sup>[4][5][6][7][8][9]</sup> and on Windows NT in July 1992.<sup>[10][11][12]</sup> The OS/2 version was discontinued in 2003 but the Windows version continues to be actively supported.

**Contents** [hide]

- Design
  - Parser
  - Threads
  - Windows conventions
- References
- External links

## Hamilton C shell



64-bit Hamilton C shell on a Windows 7 desktop.

**Original author(s)** Nicole Hamilton

**Initial release** December 12, 1988; 27 years ago

**Stable release** 5.2 / September 15, 2014; 20 months ago

**Written in** C

**Operating system** Windows

**Type** Unix Shell on Windows

If interested, download a free copy from my faculty page.

# Organization

This is a course about technology entrepreneurship. It's about how people create businesses (and maybe change the world.)

# Topics we'll cover

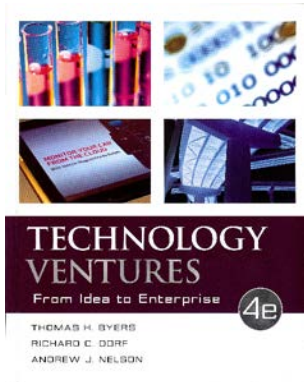
1. Why people become entrepreneurs.
2. Ideas versus opportunities.
3. Competitive strategy.
4. Marketing.
5. Intellectual property.
6. Accounting.
7. The business plan.
8. Time value of money.
9. Negotiations.
10. Ethics.

# Upside-down order

An MBA program usually starts with accounting and ends with competitive strategy and entrepreneurship.

But I need to get you started at once on thinking about choosing a business opportunity.

# Required texts



*Technology Ventures: From Idea to Enterprise, 4th edition*

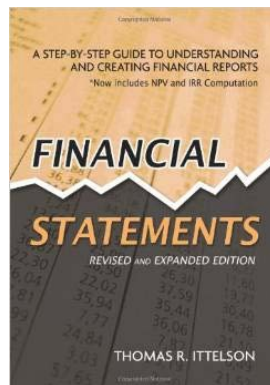
Thomas H. Bryers

Richard C. Dorf

Andrew J. Nelson

McGraw-Hill Education, 2015

ISBN 978-0-07-352342-2



*Financial Statements: A Step-by-Step Guide to Understanding and Creating Financial Reports, Revised and expanded edition*

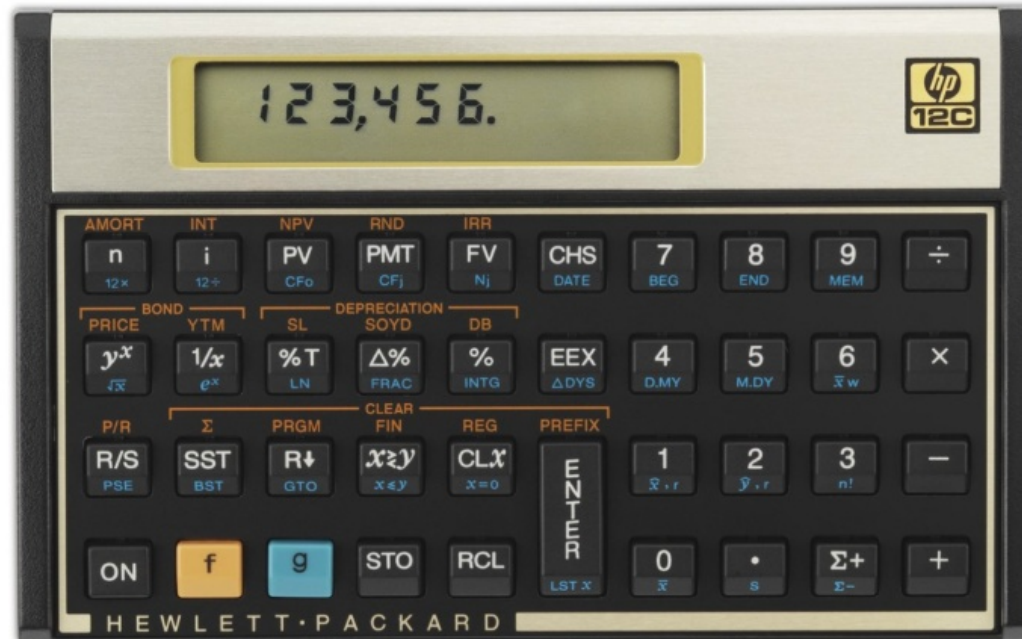
Thomas R. Ittelson

The Career Press, Inc., 2009

ISBN 978-1601630230



# Financial calculator



Make time value of money calculations really easy.

HP-12C is still the only one to buy.

Cost: \$50 new (Amazon) / \$15 to \$30 used (eBay).

# Individual work

1. *You must participate in class.* We will be discussing cases and ideas and quality of your contribution will matter.
2. You will also be graded on your performance on our negotiation games.
3. Written assignments will include both traditional homework and a small number of essay assignments.
4. There will be a midterm and a final, both will be unproctored. I find that people tend to rise to your expectations or not at all.

# Lots of team activity

1. A lot of your work will be in teams of 4 or 5, driving toward a business plan which you will present at the end of the term.
2. You should assume that all members of a team will all get the same grade on every team submission.
3. You need to begin choosing your groups *immediately*.

# Grading

Here is the grading I will follow.

Class participation	10%
Individual assignments	20%
Group assignments	10%
Business plan	20%
Midterm	20%
Final	20%

I grade on the curve. I expect most students will fall between 2.7 and 4.0 with a mean around 3.3.

# the details

1. I grade subjective matter in tiers and, realistically, I'm an easy grader on this stuff.
2. The top tier (the ones hard to choose between) all get 100. The next tier gets 95, etc.
3. Most people do well on the individual and group assignments.
4. The exams are harder and the scores lower.
5. Most of the difference in grades is determined by the exams.

	Individual	Group	Midterm	Final	Exams
Mean	93.37	92.50	86.82	68.08	77.45
High	100.00	98.00	96.00	90.00	93.00
Low	54.00	88.50	68.00	23.00	53.00
Mode	96.00	98.00	93.00	84.00	83.50
Std deviation	8.04	3.16	6.26	16.43	9.82

*Example: Winter 2016*

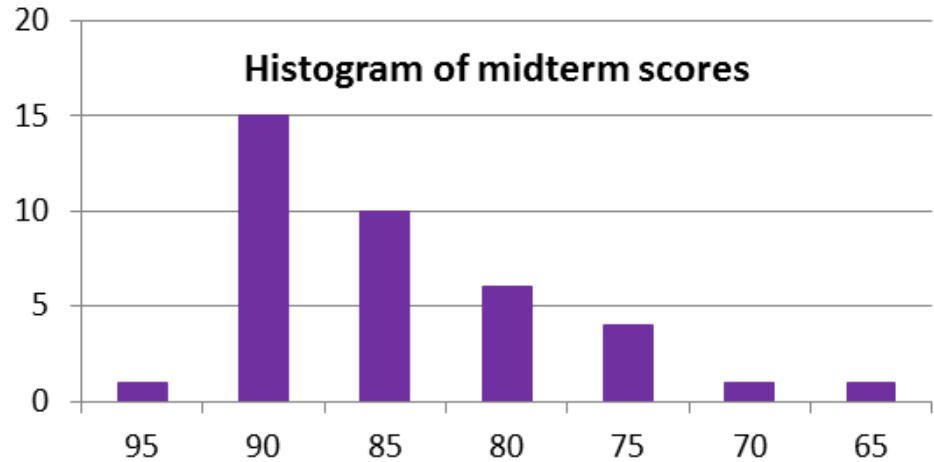
# Exams

1. Unproctored, 2 hours.
2. I will ask you to copy and sign your name to an honor statement.
3. Intended to be *comprehensive* and *fine-grained*.
4. No one has ever gotten 100 on one of my exams.
5. Typically 33 questions, each worth 3 points.
6. Some questions may be hard, some may be easy.
7. None are intended to be trick.
8. I am as interested in measuring me as I am you.
9. If no one gets one of the questions, that's on me.

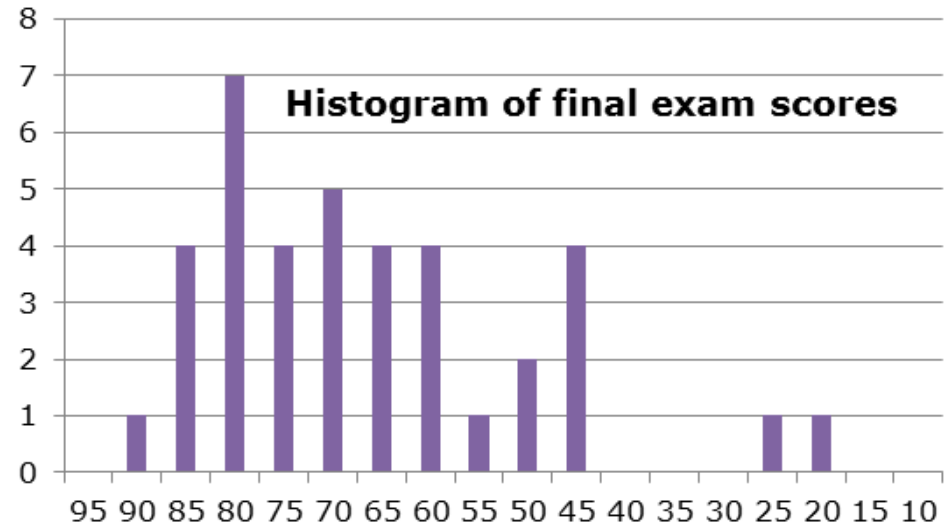
# Exams scores tend to be widely distributed.

## Example: Winter 2016

Mean 87  
Std deviation 6  
High 96  
Low 68



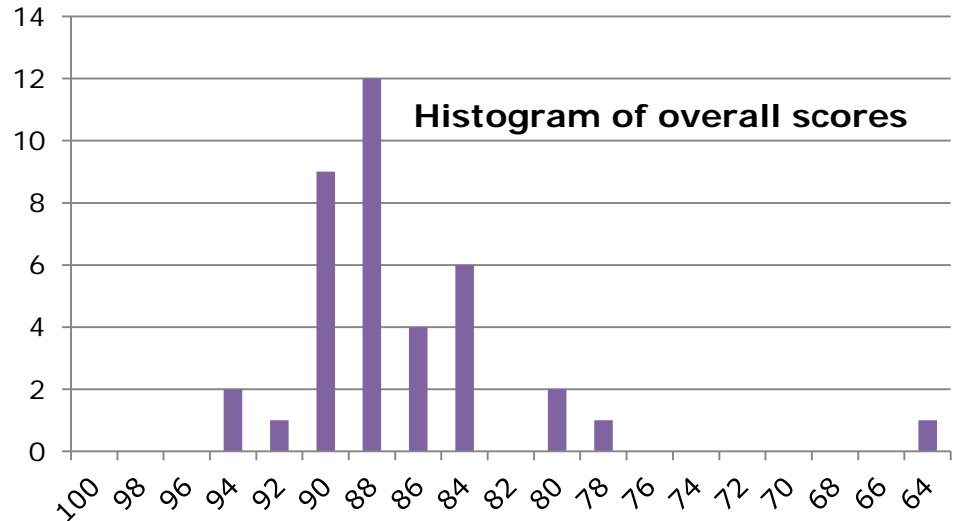
Mean 68  
High 90  
Low 23  
Mode 84  
Std deviation 17



# I curve the final grades.

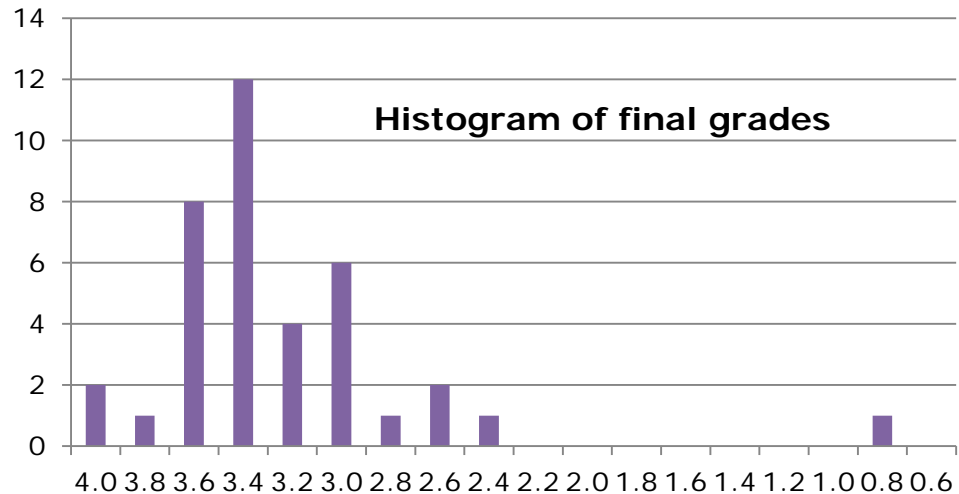
## Example: Winter 2016

I compute overall weighted scores, then curve them to put most grades between 2.7 and 4.0 with a mean around 3.3.



## Grade

Mean	3.33
High	4.00
Low	0.91
Mode	3.52
Std deviation	0.54





# All the work must be your own

1. Copying answers from another student or off the internet will get a zero, even if you're clear about where you got them.
2. If you omit the attribution, submit work that's not your own or try to deceive me, you will, in addition, find yourself reported for academic misconduct.
3. I'm good at spotting misconduct and very good at reporting it.
4. ***I do not give warnings. I report everything.***

# Your first essay assignment

1. You are to submit a *one-page* essay that finishes the sentence, “*Someday, I would like to ...*”.
2. You may finish it any way you like.
3. Your essay will be graded based on literary considerations including *creativity, uniqueness, depth, human interest, insight, reflection, humor, impact, overall quality*, etc.
4. Due Friday Jan 6.

# Your first team assignment

Form a team of 4 or 5.

Select a name for your team and submit a group photo.

1. You may not spend any money on this.
2. Your faces have to be clearly visible.
3. Each person must be named in the photo.
4. Your group name must appear in the photo.
5. Due Mon Jan 16.

1. You will be graded based on ***creativity*** and ***execution***.
2. The assignment is competitive.
3. Your grade will depend on how well you did compared to other teams.
4. It gets harder every quarter.

# Examples of past submissions

# BoT Hustlers



# Pied Piper

Bethel

Bartosz

Nabiha

Flynn

Eric



Building 1

19-4-2015 :: 15:47

Camera 4

Eric Detert

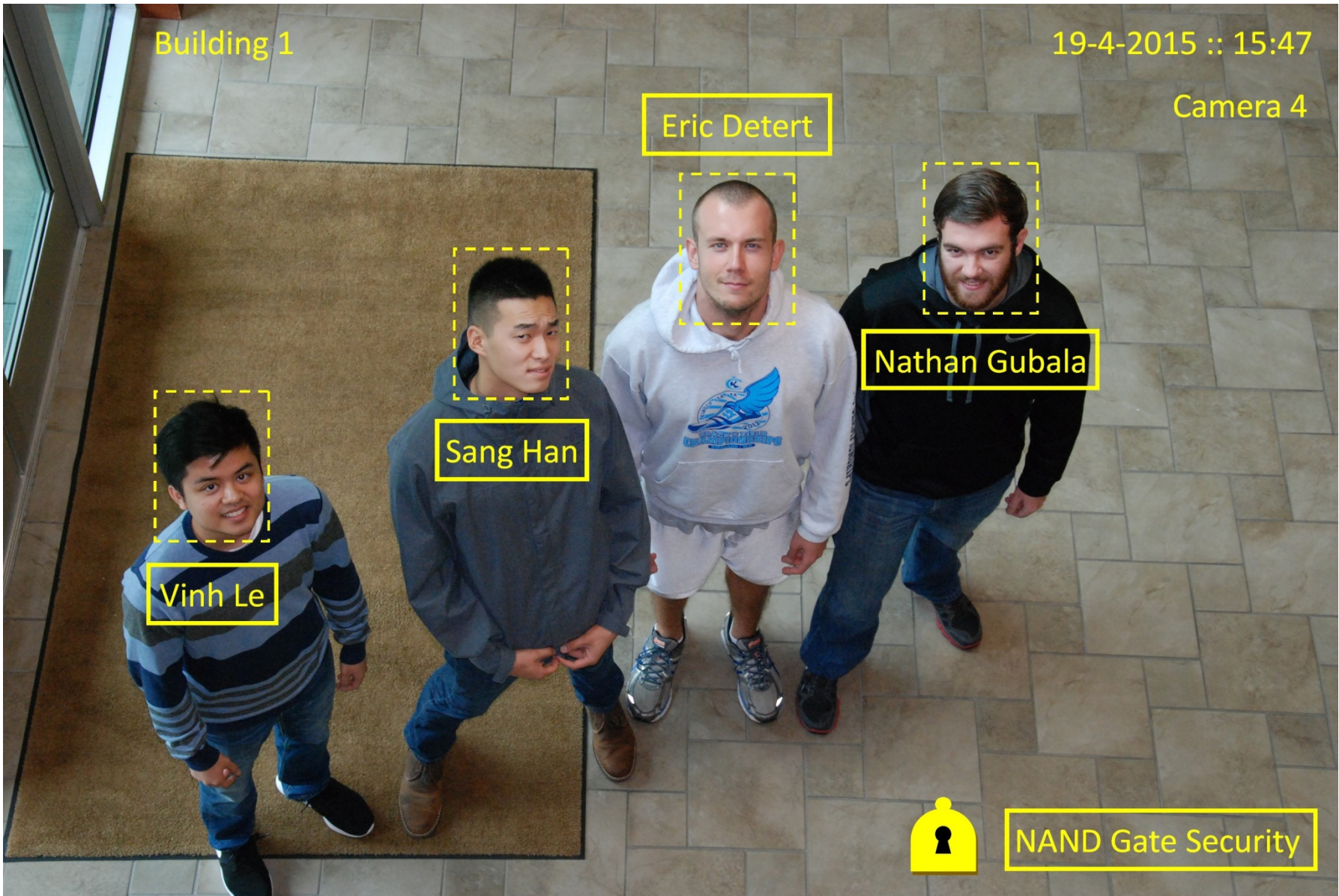
Nathan Gubala

Sang Han

Vinh Le



NAND Gate Security







JACK ELDRIDGE



DREW BYLAND



JOEY GUINASSO



KRISTY CULLEN



HERBERT TRAUT



RAINBOWFISH

# THE MORITURI GANG

**WANTED**  
YUNIAN CHEN



\$10,000

**WANTED**  
RANDY HANG



\$20,000 REWARD

**WANTED**  
PETERSON NGUYEN



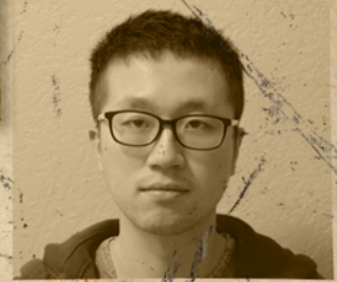
\$10,000 REWARD

**WANTED**  
DEAD OR ALIVE  
DAVID BECKMAN



\$15,000 REWARD

**WANTED**  
ZHAN SHI



\$15,000 REWARD

Farhood Mogharrabin

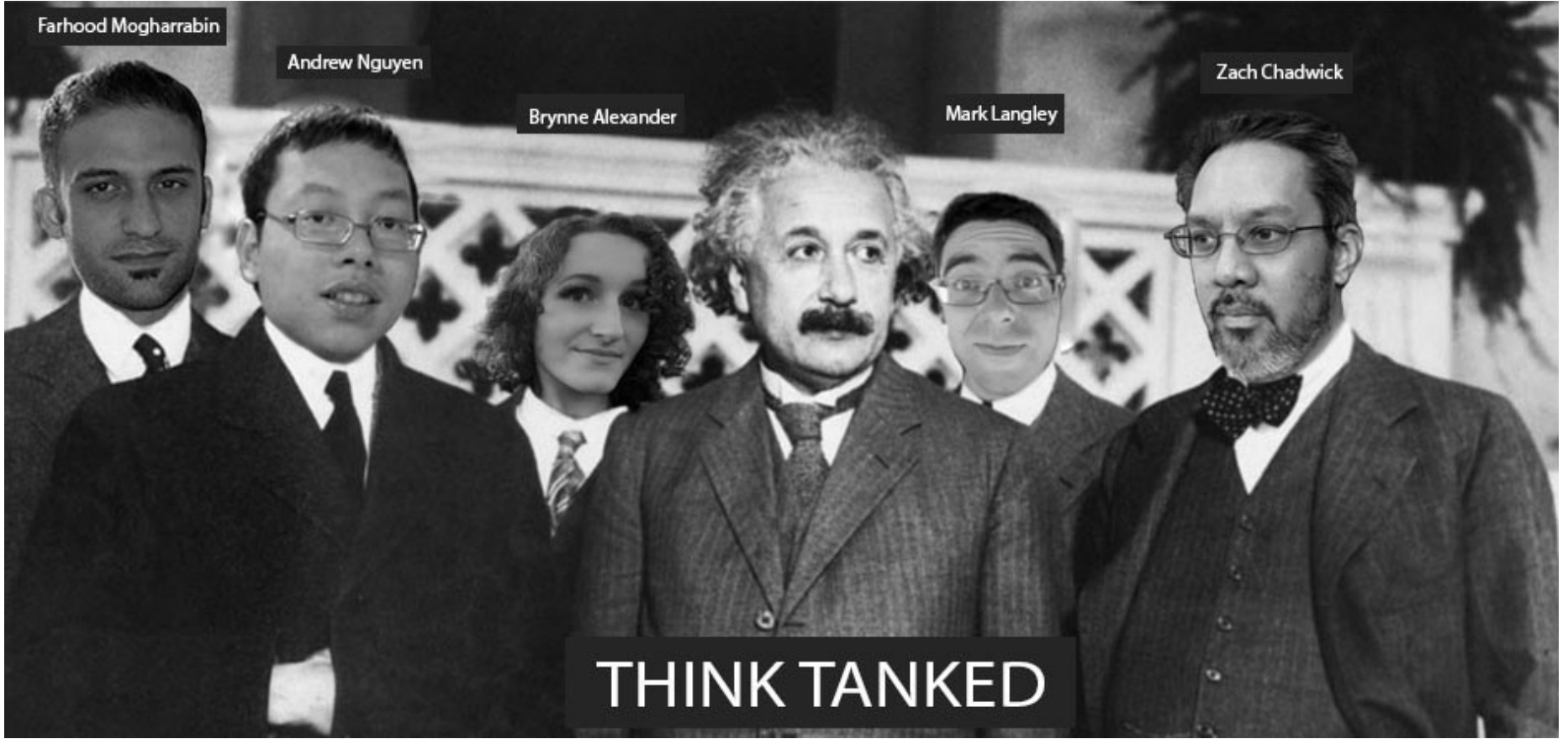
Andrew Nguyen

Brynne Alexander

Mark Langley

Zach Chadwick

THINK TANKED



# Tonight

1. Wordless negotiation.
2. What is a business plan.
3. Entrepreneurs.

# Wordless negotiation

This game invented by Bill Samuelson at Boston University.

1. Each of you will negotiate with a partner, facing across a table.
2. Take your partner's hand as if to arm wrestle.
3. Close your eyes. You may not speak.

1. The exercise will take 40 seconds during which you may either win or lose points by arm wrestling.
2. A win is +2 points, a loss is -1.
3. You may play as many rounds as you like within the 40 seconds. You may quit whenever you want.
4. Your goal is the *highest positive score in the class*.
5. You now have 40 seconds. Go!

# Outcomes

1. How many people scored minus?  $> -5, -10, \text{etc.}$ ?
2. How many people scored positive?  $> +5, +10, \text{etc.}$ ?
3. What was the strategy to win?
4. How did you communicate that to your partner?

# Typical outcomes

1. In some pairs, a student achieves a quick pin, and then they stop. Their scores are: 2 versus -1.
2. For a few, evenly matched pairs, a pin might take 20 or more seconds (or there might be no winner).
3. In some cases, one student pins the other over and over again. So, the scores might end up +20 versus -10.
4. “Optimal” play is to engage in the fastest possible flip-flopping, therefore, trading pins. This win-win strategy might end up with net scores of 25 and 25 (i.e., 50 pins each).

Only about 1 in 5 pairs discovers the win-win pattern.



# What's to be learned

Most negotiations are about whether, when and how to cooperate.

# Business plans

# What is a business plan?

Simply enough, it's plan for how you'd start a business, answering basic questions like:

1. What is your product or service?
2. How will you create it and what will it cost you to create it?
3. How will you sell it?
4. Can you make money doing it?

# Hypothetical case

## Aunt Sarah's Sassy Salsa

Everyone agrees that Aunt Sarah makes a salsa that is simply out of this world.

Made by hand with only the best organic ingredients.

Can this be turned into a commercial product?

What would need to know?

# Aunt Sarah's salsa recipe

3 cups chopped tomatoes  
1/2 cup chopped green pepper  
1 cup diced onion  
1/4 cup minced cilantro  
2 tbsp fresh lime juice  
4 tsp chopped jalapeno  
1/2 tsp ground cumin  
1/2 tsp Kosher salt  
1/2 tsp ground black pepper

What does it cost to make this?

Actual source: <http://allrecipes.com/recipe/214893/the-best-fresh-tomato-salsa/>





How would you sell it?



# Refrigerated or not?



What would you have to do  
to make it work?

# What else?

Packaging,  
labels,  
warehousing,  
distribution,  
advertising,  
...

# Your business plan

1. It does not have to be a technology business.
2. It does have to be a good, well-researched, well-thought-out plan for a business that could actually succeed.
3. One of the best so far was for a new microbrewery in Wallingford, Shark Brewing, *“Beer with bite!”*
4. I’ve posted some past student submissions.
5. We will analyze my own 1987 plan for Hamilton Laboratories – *a plan I did not follow.*

# Chapter 1.

## Entrepreneurs

Almost all variation in living standards is explained by productivity.

What is an entrepreneur?

# From Technology Ventures

**Entrepreneurs** are people who identify and pursue solutions among problems, possibilities among needs, and opportunities among challenges.



They can be any age but a lot of them start in the 20s or 30s.

**TABLE 1.1 Selected entrepreneurs and the enterprises they started.**

<b>Entrepreneur</b>	<b>Enterprise started</b>	<b>Age of entrepreneur at time of start</b>	<b>Year of start</b>
Bezos, Jeff	Amazon.com (USA)	31	1995
Brin, Sergey	Google (USA)	27	1998
Dell, Michael	Dell Computer (USA)	19	1984
Gates, William	Microsoft (USA)	20	1976
Greene, Diane	VMWare (USA)	42	1998
Hewlett, William	Hewlett-Packard (USA)	27	1939
Ibrahim, Mo	Celtel (Africa)	42	1998
Lerner, Sandra	Cisco (USA)	29	1984
Li, Robin	Baidu (China)	32	2000
Ma, Jack	Alibaba.com (China)	35	1999
Plattner, Hasso	SAP (Germany)	28	1972
Rottenberg, Linda	Endeavor (Chile, Argentina)	28	1997
Sasaki, Koji	AdIn Research (Japan)	43	1986
Shwed, Gil	Check Point (Israel)	25	1993
Tanti, Tulsi	Suzlon Energy (India)	37	1995
Yunus, Muhammed	Grameen Bank (India)	36	1976
Zuckerberg, Mark	Facebook (USA)	20	2004

## A little more usefully sorted by age

<b>Entrepreneur</b>	<b>Enterprise started</b>	<b>Age</b>	<b>Year</b>
Dell, Michael	Dell Computer (USA)	19	1984
Zuckerberg, Mark	Facebook (USA)	20	2004
Shwed, Gil	Check Point (Israel)	25	1993
Erin, Sergey	Google (USA)	27	1998
Huateng, Ma	Tencent Inc. (China)	27	1998
Plattner, Hasso	SAP (Germany)	28	1972
Rottenberg, Linda	Endeavor (Chile, Argentina)	28	1997
Lerner, Sandra	Cisco (USA)	29	1984
Dorsey, Jack	Twitter, Square (USA)	30	2006
Bezos, Jeff	Amazon.com (USA)	31	1995
Goyanechea, Rosalia	Zara (Spain)	31	1975
Li, Robin	Baidu (China)	32	2000
Benioff, Mark	Salesforce.com (USA)	35	1999
Ma, Jack	Alibaba.com (China)	35	1999
Yunus, Muhammed	Grameen Bank (India)	36	1976
Tanti, Tulsi	Suzlon Energy (India)	37	1995
Zennstrom, Nikalas	Skype, Kazaa (Sweden)	37	2003
Greene, Diane	VMWare (USA)	42	1998
Ibrahim, Mo	Celtel (Africa)	42	1998
	Average age	31	

# Characteristics of entrepreneurs

## The Elements of Overcoming a Challenge

- Able to deal with a series of tough issues
- Ability to create solutions and work to perfect them
- Can handle many tasks simultaneously
- Resiliency in the face of set-backs
- Willingness to work hard and not expect easy solutions
- Possess well-developed problem solving skills
- Able to learn and acquire the necessary skills for the tasks at hand

# Motivations

Why would anyone want to become an entrepreneur?

**TABLE 1.6 Factors people use to determine whether to act as entrepreneurs.**

<b>Positive factors or benefits</b>	
■ Independence: Freedom to adapt and use their own approach to work and flexibility of work, autonomy	■ Self-realization: Recognition, achievement, status
■ Financial success: Income, financial security	■ Innovation: Creating something new
	■ Roles: Fulfilling family tradition, acting as leader
<b>Negative factors</b>	
■ Risk: Potential for loss of income and wealth	■ Work effort and stress: Level of work effort required, long hours, constant anxiety

**TABLE 1.7 Five questions for the potential entrepreneur.**

---

- Are you comfortable stretching the rules and questioning conventional wisdom?
  - Are you prepared to take on powerful competitors?
  - Do you have the perseverance to start small and grow slowly?
  - Are you willing and able to shift strategies quickly?
  - Are you a good deal closer and decision maker?
-

What does the world need?



# Ideas

The way to get good ideas is to get lots of ideas and throw the bad ones away.

-- Linus Pauling, Nobel Prize winner in Chemistry and Peace

A lot of people will go their entire lives without a single original idea of their own. I can have as many as I want. When I want another, I just make one up.

-- Richard Vrba, inventor of the IBM OPD  
Miniprocessor

Plan to throw one away, you will anyway.

-- Fred Brooks, *The Mythical Man-Month*

If you ever want to sell this thing, you're going to have to be able to tell people what it is.

-- Richard Wolfson, inventor of Harvard Project Manager

# For next time

1. Begin reading chapters 1 and 2 of Technology Ventures.
2. Form teams and begin brainstorming your group photo.
3. You can borrow a camera from UWB.  
<http://www.uwb.edu/it/services/articles/equipment-checkout>
4. Watch Jack Dorsey's talk, "*The Power of Curiosity and Inspiration*", at Stanford's ecorner.  
<http://ecorner.stanford.edu/authorMaterialInfo.html?mid=2635>
5. Submit answers to the 10 questions about Dorsey's talk.