Afternoon Orientation: You & SCS

- (re)Introductions
- Class Statistics
- Survey Highlights
- Your Future (statistically)
- Community Building
- Advice

Quotes for the Day: Questions

It is important that students bring a certain ragamuffin, barefoot irreverence to their studies; they are not here to worship what is known, but to question it.

- J. Brownoski (Philosopher of Science)

Questions are the important thing, answers are less important. Learning to ask a good question is the heart of intelligence. Learning the answer -well, answers are for students. Questions are for thinkers.

- R. Schank (Computer Scientist, in *"The Connoisseur's Guide to the Mind"*)

Reintroductions: SCS Contacts

- Freshman Advisor for you (15-200/15-128): **Rich Pattis**
- Upperclass Advisor for you (15-123):   **Mark Stehlik**
- Assistant Dean of Undergraduate Education: **Mark Stehlik**
- Upperclass Advisor 2005 Freshmen(15-100):**Scott McElfresh**
- Undergraduate Program Administrator: **Cathy Fichtner**
- Career Consultant: **Kevin Collins**
- Generally faculty should **first** be addressed formally
  - Professor is a bit more generic than Doctor; both are good starting points
    - Herr Doctor Professor is the extreme form of European politeness
  - If they want to move to a more informal level, they will tell you
- Please call us: Rich, Mark, Scott, Cathy, and Kevin
  - If you are bold, you can address me as, "Oh Captain! My Captain!"
- Make use of CMU's human resources
  - Us, other faculty/staff, the upperclassmen, and your freshmen classmates
  - We have an amazing collection of backgrounds, experiences, and cultures
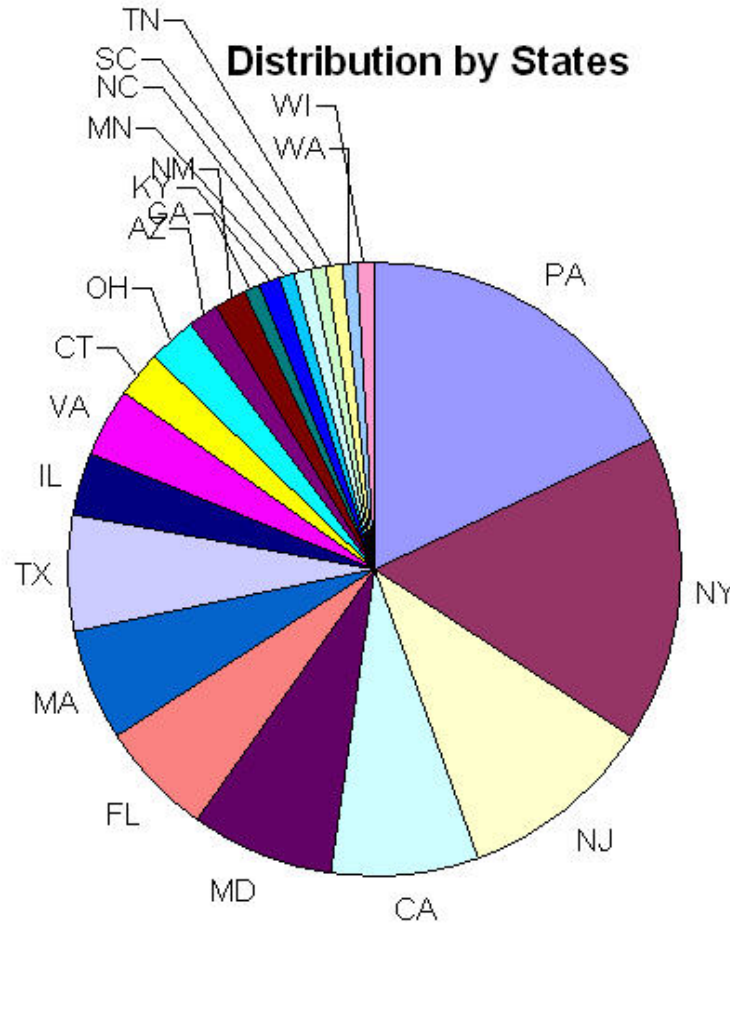
Introducing You to You

- Or, in Pittsburghese, "Introducing Yinz to Yinzesself."
    - Google "pittsburghese" for more details
    - In fact, always keep a browser running Google open!
- SCS History
    - The official undergraduate program started in 1994
        - Prior to that, about 400 students did CS degrees in MCS
    - Approximately 1,500 students have entered this program (before you)
- This Year
    - The class of 2010 is the 13th class of SCS freshmen
    - 1912 applied in SCS at CMU
    - 136 enrolled as freshmen
- You've done a spectacular job to earn your place here
- Everything starts anew next week
    - You were very successful in HS, but success may be different here
    - You may find "everything you know is wrong": explore don't entrench

Some Easy Statistics

- Of 136 incoming freshmen, there are
  - 108 men   (79%) – last year 78 %
  -   28 women (21%) – last year 22 %
- Names
  - First: 6 Alex[ander], 4 Daniel, 3 Andrew, Benjamin, David, Jonathan, Matthew, Paul, and 10 pairs (last year, 6 Andrew …)
  - Last : 2 Chang, 2 Feng, 2 Han, 3 Kim, 2 Shah (last year: 2 Kim)
- SAT Averages
  - Overall Math   767 (last year 756)
  - Overall Verbal 688 (last year 700)
- 800s
  - 47 Math, 11 Verbal (last year: 31 Math, 31 Verbal)
  - 4 students with both (last year: 2 with both)
- Distribution in Fall Programming Courses (approximate)
  - 15-100 (25%), 15-200 (45%), 15-123 (25%), 15-211 (5%)
  - In the spring, 70% of you will be in 15-211 (those in 15-200 and 15-123)
- Average Score on Discrete Math Exam: 9.5 (15 placeouts)

Geography - US

PA	21
NY	19
NJ	12
CA	9
MD	9
FL	7
MA	7
TX	7
IL	4
VA	4
CT	3
OH	3
AZ	2
NM	2
GA	1
KY	1
MN	1
NC	1
SC	1
TN	1
WA	1
WI	1
US Total	117

Distribution by States

Legend: PA, NY, NJ, CA, MD, FL, MA, TX, IL, VA, CT, OH, AZ, NM, GA, KY, MN, NC, SC, TN, WA, WI

Geography - International

South Korea	11
China	4
Singapore	3
India	2
Peru	1
Turkey	1
International	22

Distribution by Countries (not including US)
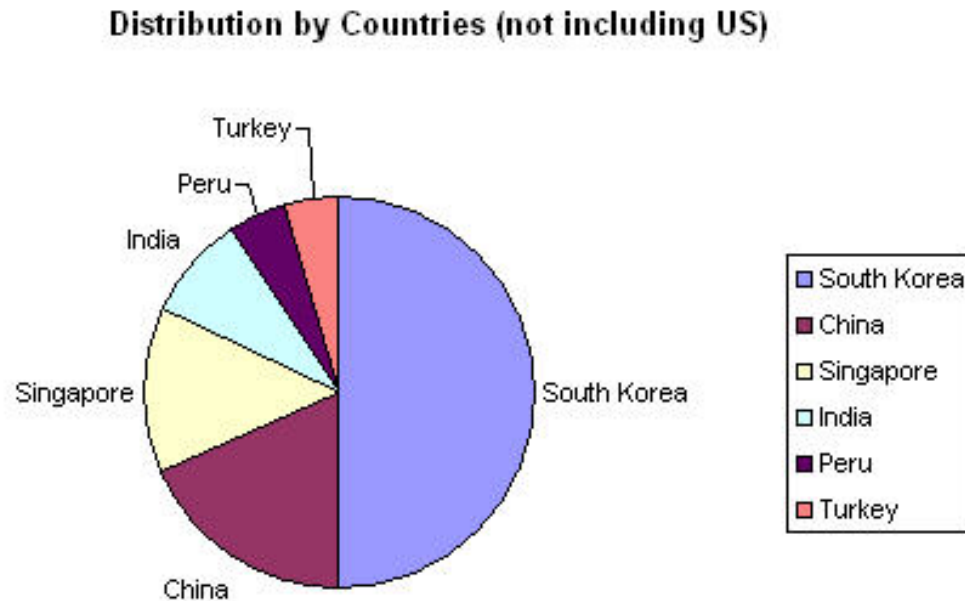
Survey I: Highlights

- Expected High School GPA
  - Predicted average = 3.7 (actual average 3.8)
- Actual High School Rank
  - Reported average = top 13%
- Students reported on average, working hardest in 11th grade
  - Now is the time for "senior vacation" to end
- Expected Rank at CMU
  - 49 % said top 25% (96% said the top 50%)
- Expected CMU GPA (at the end of the year)
  - Predicted average = 3.2 (actual average, at the end of last year, 3.2)
- Expected Hours/Week Coursework at CMU
  - Predicted average = 51 (actual reported by CMU freshmen last year 46)
- All the raw data will be posted tomorrow in **.xls** and **.doc** files
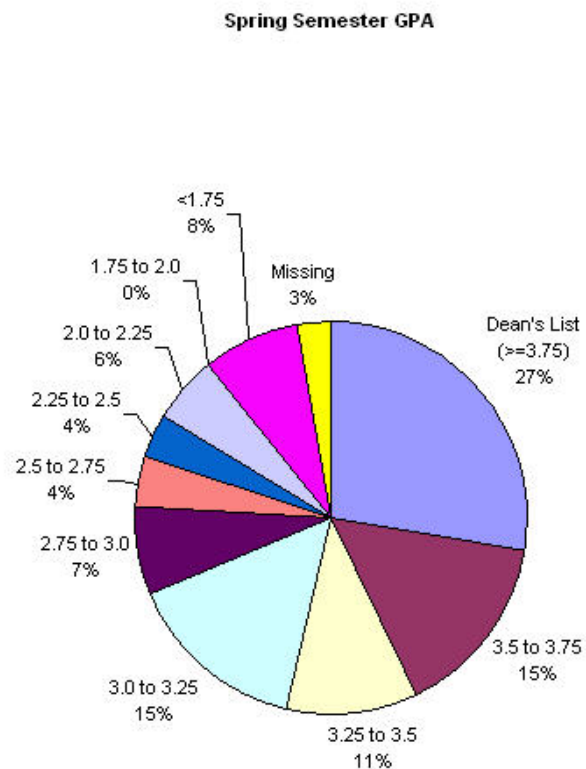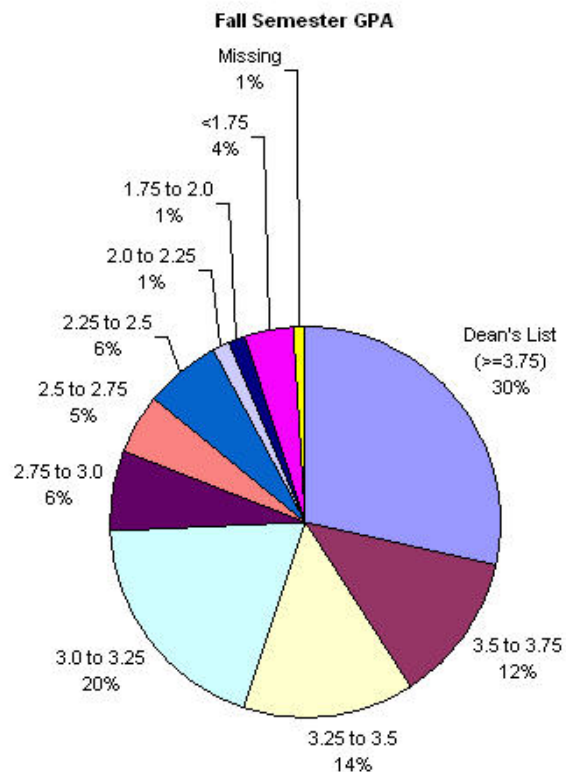 - A link will be on the advising page

Survey I: Conclusions

- Everyone here is smart
  - What does it mean to be "average" at CMU?
- Everyone here has high expectations for themselves
- What are your Goals? Here is my answer
  - Short term: pass your classes
  - Long term: graduate
- How should you measure accomplishment at CMU?
  - Grades are one way (and they are important), but not the only way
  - The World's Most Famous "C" (Frederick W. Smith)
  - Working on research projects (paid or not)
  - 24 senior theses
  - The CMU Race
- Predicting the Future
  - The first few semesters: review vs. reach – who has the advantage
  - Personal stories: from Stanford; from the University of Washington
  - (next page shows some freshman statistics from last year's students)

Fall Semester GPA

- Missing 1%
- <1.75 4%
- 1.75 to 2.0 1%
- 2.0 to 2.25 1%
- 2.25 to 2.5 6%
- 2.5 to 2.75 5%
- 2.75 to 3.0 6%
- 3.0 to 3.25 20%
- 3.25 to 3.5 14%
- 3.5 to 3.75 12%
- Dean's List (>=3.75) 30%

Spring Semester GPA

- <1.75 8%
- 1.75 to 2.0 0%
- Missing 3%
- 2.0 to 2.25 6%
- 2.25 to 2.5 4%
- 2.5 to 2.75 4%
- 2.75 to 3.0 7%
- 3.0 to 3.25 15%
- 3.25 to 3.5 11%
- 3.5 to 3.75 15%
- Dean's List (>=3.75) 27%

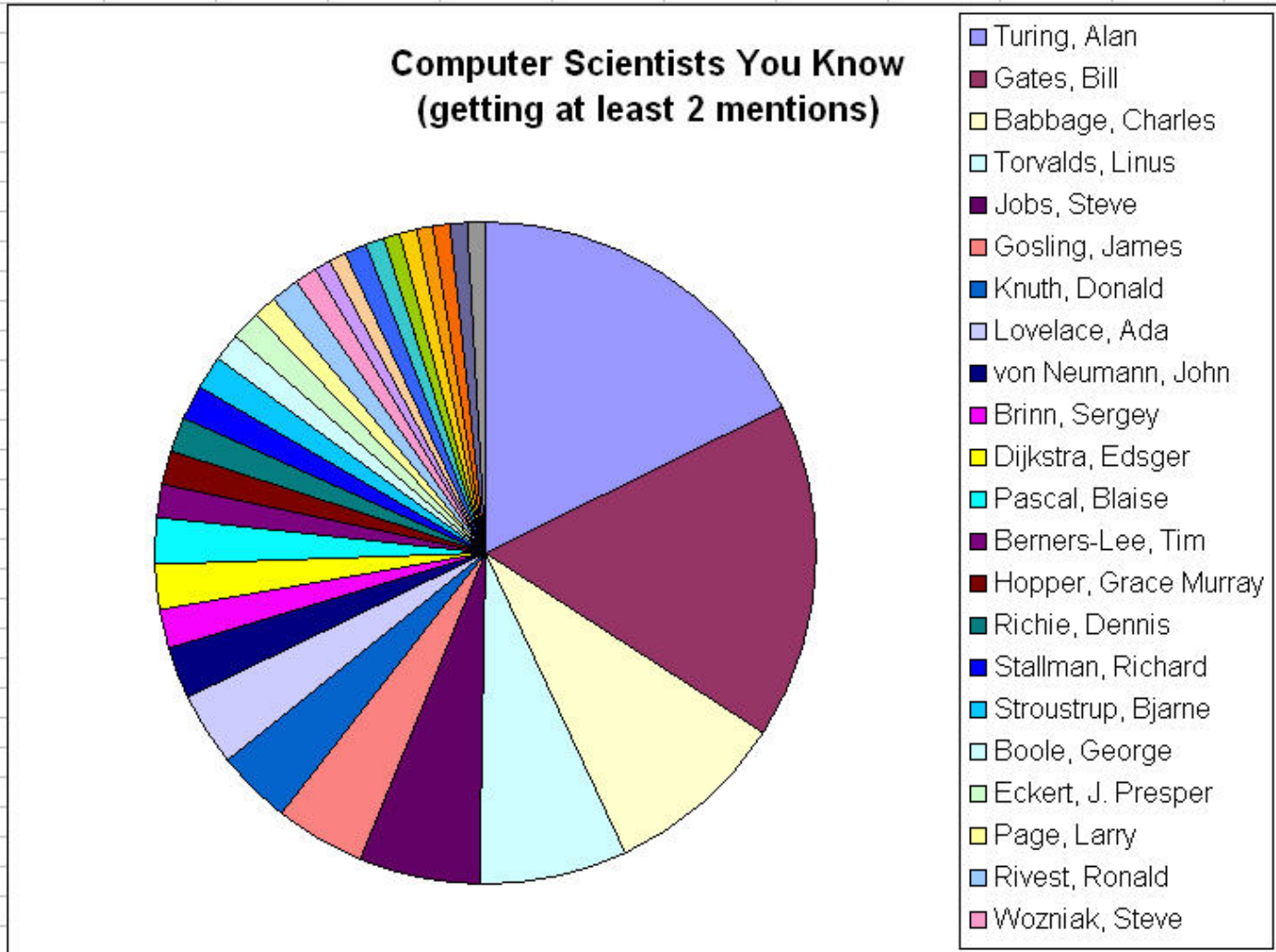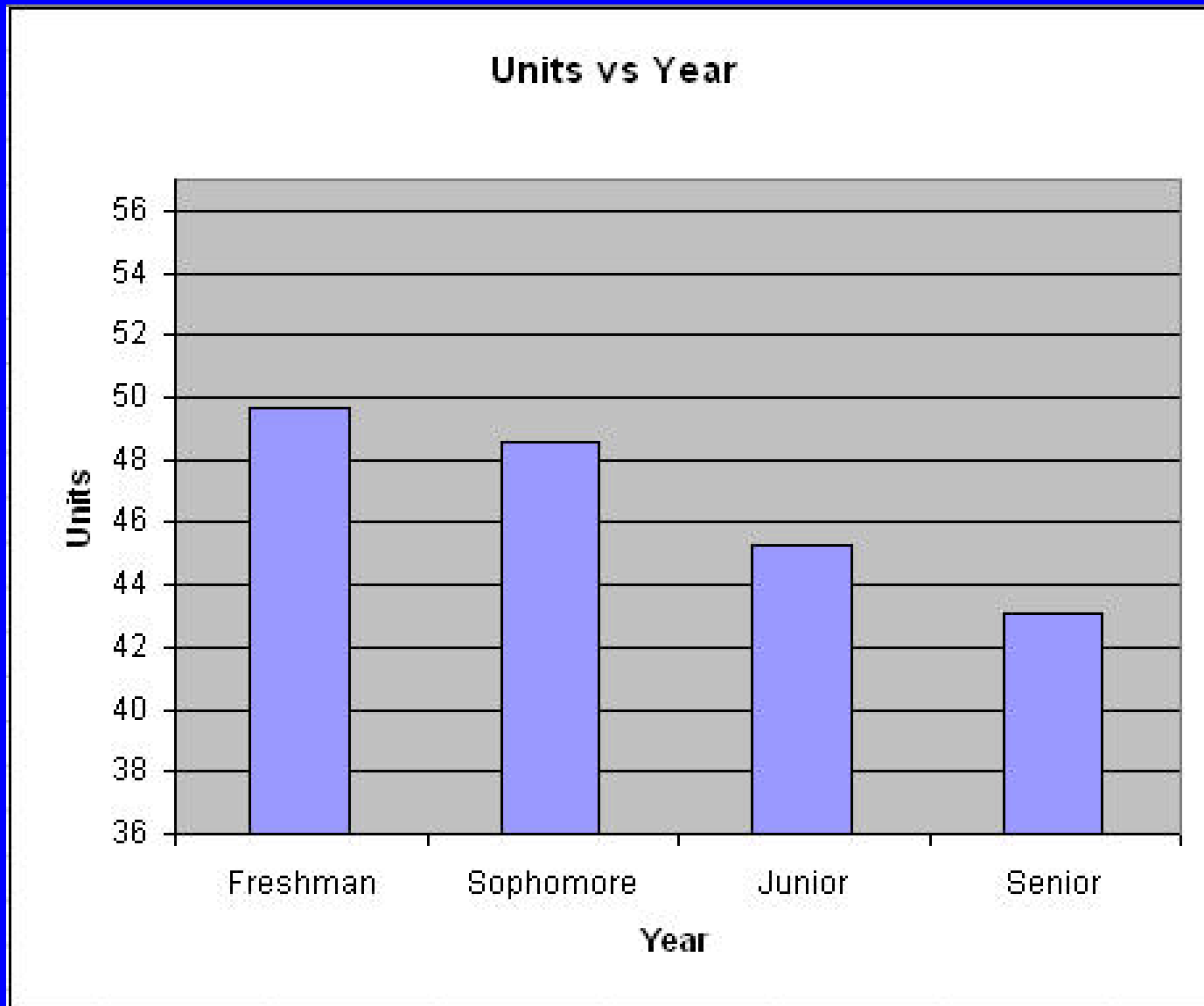|	Fall Semester	Spring Semester
Probation	6	8
Suspended		2
Reinstated		3
Other Action		1
4.0 Both Quarters		14

Survey II: Highlights

- 1/3 reported knowing about "academic violations in their HS
  - A quick CMU perspective (more in the IC)
- Top Academic Issues
  - Time management/Not procrastinating (the sooner you get behind …)
  - Work load
  - Non CS (or non-technical) Courses
    - The first week will set an academic pattern for the next 4 years
- Top Social Issues
  - Finding/Making friends
  - Balancing work/life
    - Social patterns can change more readily than academic patterns
- About 1/3 listed some kind of job dealing with computers
- On average, each of you listed 2.1 famous "computer scientists"
  - Develop a historical/cultural awareness
  - Start a file of names/accomplishments (in 4 years it will be huge)
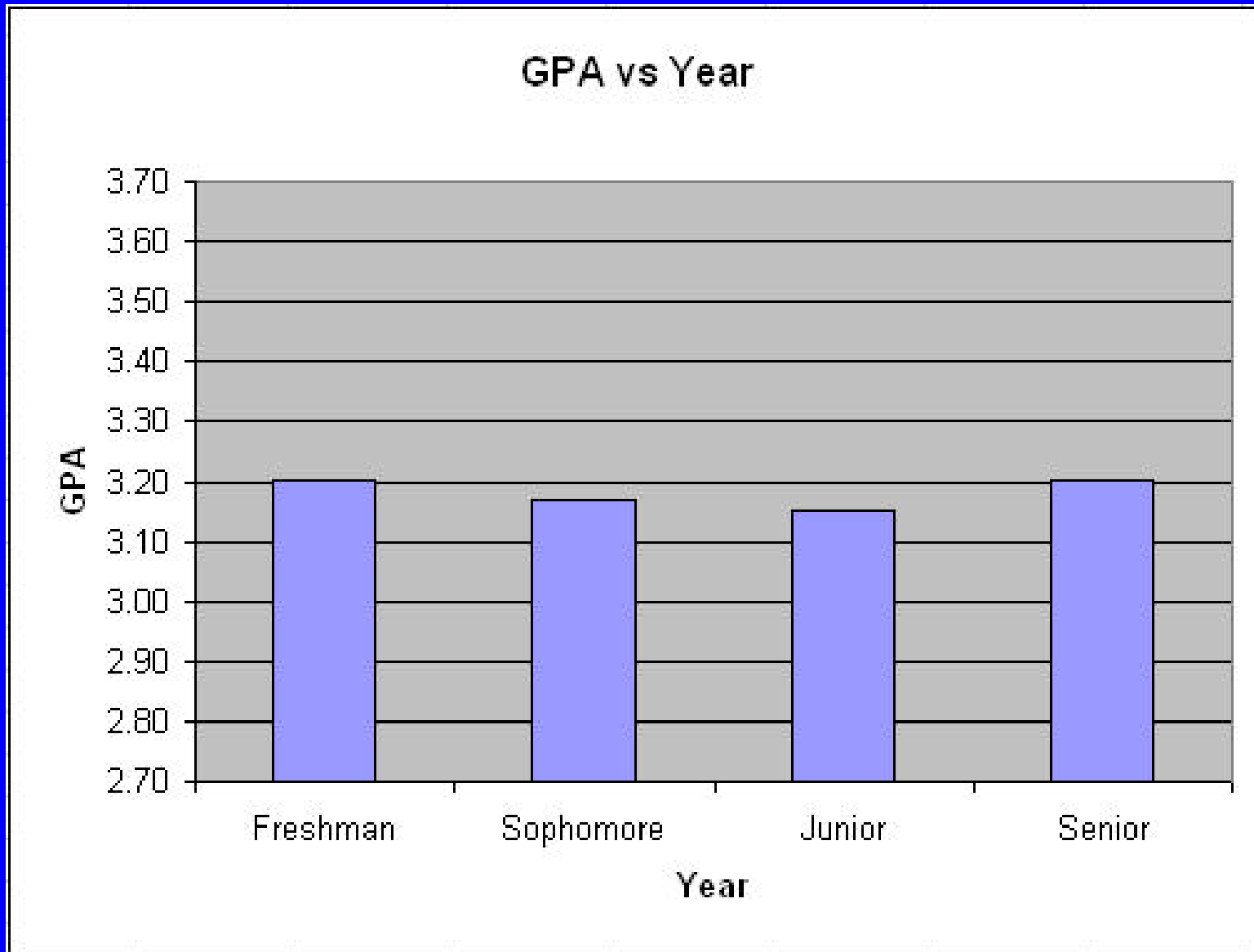
Famous "Computer Scientists"

Computer Scientist	Student Count
Turing, Alan	42
Gates, Bill	38
Babbage, Charles	21
Torvalds, Linus	17
Jobs, Steve	14
Gosling, James	10
Knuth, Donald	9
Lovelace, Ada	8
von Neumann, John	6
Brinn, Sergey	5
Dijkstra, Edsger	5
Pascal, Blaise	5
Berners-Lee, Tim	4
Hopper, Grace Murray	4
Richie, Dennis	4
Stallman, Richard	4
Stroustrup, Bjarne	4
Boole, George	3
Eckert, J. Presper	3
Page, Larry	3
Rivest, Ronald	3
Wozniak, Steve	3
Allen, Paul	2
Cohen, Bram	2
Conway, John Horton	2
Godel Kurt	2
Kernighan, Brian	2
Mauchly, John	2
Metcalfe, Robert	2
Pajitnov, Alexey	2
Thompson, Ken	2
Wall, Larry	2
Mentioned by 1 other	41

Computer Scientists You Know (getting at least 2 mentions)

Legend:
Turing, Alan; Gates, Bill; Babbage, Charles; Torvalds, Linus; Jobs, Steve; Gosling, James; Knuth, Donald; Lovelace, Ada; von Neumann, John; Brinn, Sergey; Dijkstra, Edsger; Pascal, Blaise; Berners-Lee, Tim; Hopper, Grace Murray; Richie, Dennis; Stallman, Richard; Stroustrup, Bjarne; Boole, George; Eckert, J. Presper; Page, Larry; Rivest, Ronald; Wozniak, Steve
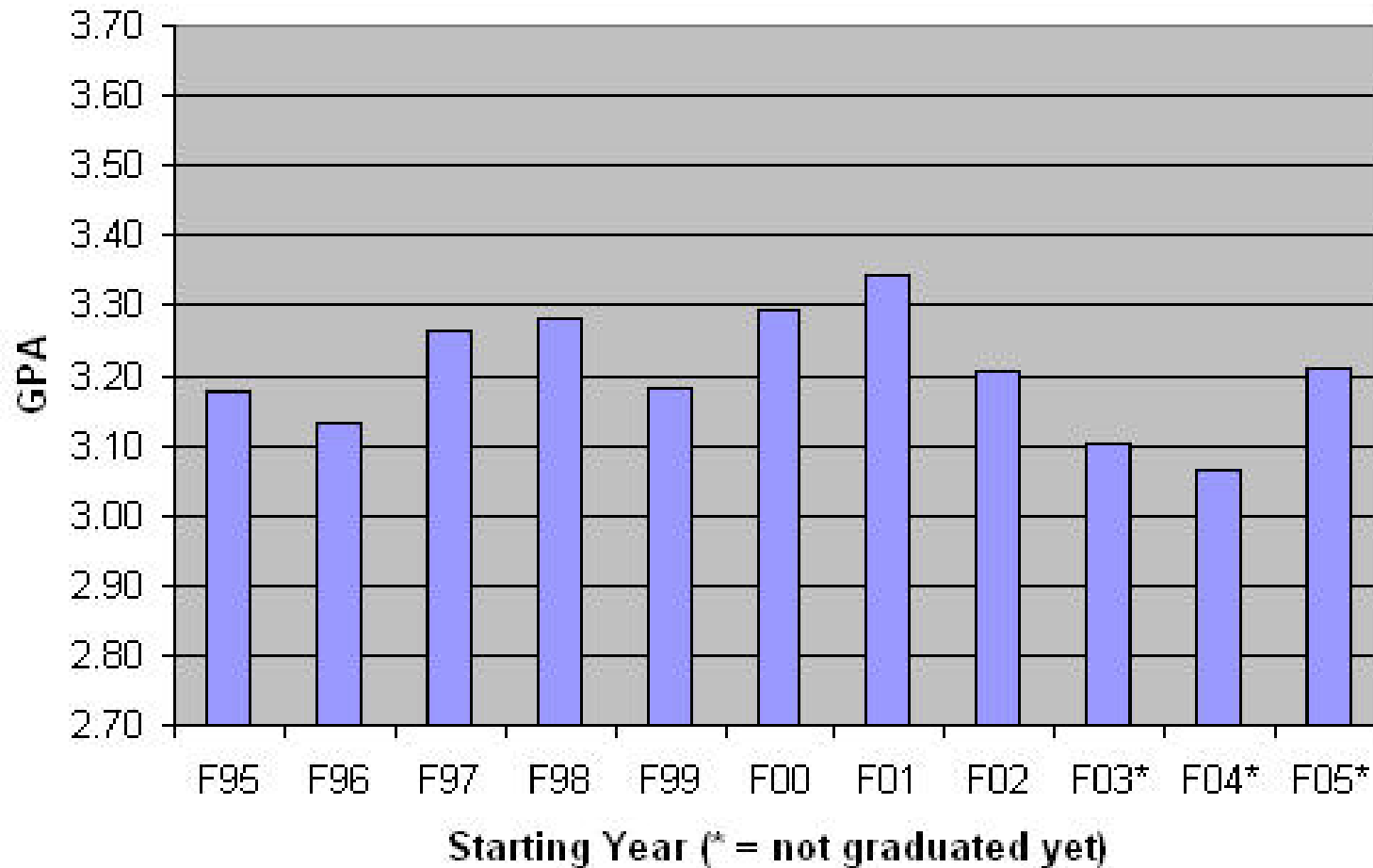
Unit Distribution over 4 Years

GPA Distribution over 4 Years

GPA Trends

GPA for Classes (by Starting Year)

Graduation Spring 2005

- **30% to Graduate School**
  - 15% to PhD
    - 2 each to Brown, MIT, Berkeley, and U. of Washington
    - 1 to Stanford, CMU, and 8 other places (all "top" schools)
  - 15% to CMU for Masters (can't get rid of these folks)
- **60% to Jobs**
  - 25% to Google(9), Microsoft(4), Goldman Sachs(4), and Amazon(3)
  - 35% to other name high tech companies (1 or 2 hires)
    - Apple, Intel, NVIDIA, Oracle, etc.
- **10% not reporting**
- **Salaries: Top $90K, Average $70K, Median $74K**

Regression Analysis: GPA vs Salary

GPA vs Salary
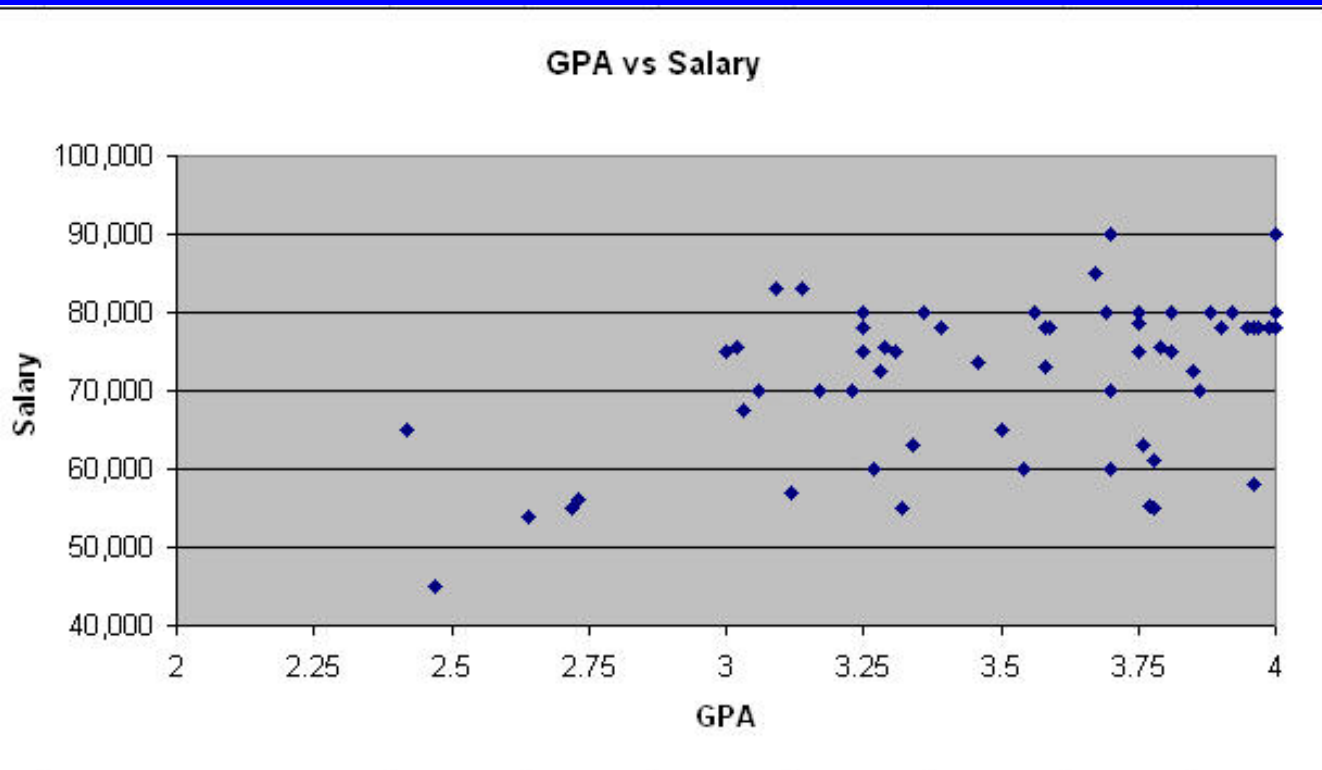
All sorts of "inconsistencies" in the 3.0 to 4.0 GPA area.

Salaries must be based on more than just grades!

Salary is not the whole story either in terms of good jobs

- Regression Analysis
  - Salary ≈ 11K * GPA + 33K
  - What is involved in raising your GPA from 3 to 3.5
  - Is it worth 5.5K/year? (e.g., making $66K vs $71.5K)

We are family…

- "We are Family" (Sister Sledge), was the theme song for the world-series winning 1979 Pittsburgh Pirates baseball team
- CMU might seem like a big place
  - The School of Computer Science is smaller
    - The Computer Science Department is smaller still
      - The undergraduate program in CSD is even smaller
        - The freshman class, all 136 of you, is yet smaller
- If you look out for all your classmates, you will also have 136 classmates looking out for you
- CMU can be warm and wonderful, or cold and lonely
  - You (singular and plural) will create the environment that you will live in for the next four years
  - Choose wisely; help improve it; when it breaks help repair it
- As in any family
  - Ask for help if you need it; supply it if you are asked.
  - You don't have to follow my advice; but I'll feel better if you ask.

Failure: Don't Be Afraid To Try

- You may fail if you try, but you won't succeed unless you try
- The best way to get a good idea is to get a lot of ideas.
  - L Pauling – Chemist
- If you want to increase your success rate, double your failure rate.
  - T. J. Watson – Founder of IBM
- You have to honor failure, because failure is just the negative space around success.
  - R. Nelson – Pixar
- I, myself, have had many failures and I've learned that if you are not failing a lot, you are probably not being as creative as you could be -you aren't stretching your imagination.
  - J. Backus – Inventor of Fortran
- Good judgment comes from experience; experience comes from bad judgment.
  - F. Brooks – Developed OS/360 for the IBM/360
- Drop a class before "drop day" and it disappears from your record

A Dozen Things to Do Every Day

- Wake up on time (and get to class on time, if you have one)
- Eat well
- Exercise
- Read something (even just email)
- Learn something (always keep a Google window open)
- Work hard at something
- Cross a new threshold
- Help or compliment someone (for a genuine reason)
- Leave some place better than you found it
- Enjoy being alive
- Prepare for tomorrow
- Get to bed on time

Closing Thoughts

A man's reach should exceed his grasp, or what's a heaven for.

- R. Browning

Learning is never done without errors and defeat.

- V. Lenin

The voyage of discovery is not in seeking new landscapes but in having new eyes.

- M. Proust

Some Further Topics (not shown)

- Books
  - The World is Flat
  - Blink
  - Wisdom of Crowds
  - The Long Tail
  - The Tipping Point
  - Freakonomics