

# Quantitative Reasoning at The New School

Saturday, October 12, 2012

Carol Overby

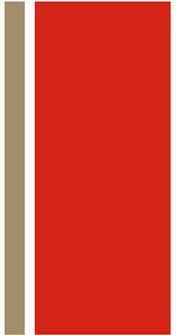
Laurie Tvedt



**+ Non-traditional students are best served by quantitative education that applies directly to their work and civic engagement**



# Quantitative Reasoning Students at The New School



- University has a mission of civic engagement
- Two different student populations
  - Traditional-aged students in a design setting: BBA Program
  - Non-traditional students in a degree-completion Bachelors Program
- Two different Quantitative Reasoning courses

# + Parsons BBA students are different

- They have art and design talents and training
- Their learning styles skew toward feeling rather than thinking (Kolb model);
- And toward visual/tactile rather than auditory (VARK model)
- They are embracing careers in design and innovation



# + Parsons curriculum is different

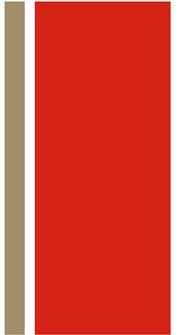
- Balance of design, liberal arts, and business courses
- Centrality of projects and internships
- Studio methods of teaching: demonstrate/create/critique
- Quantitative skills for research and modeling

# + Algebra/Stats and QR courses have fallen short

- “the material didn’t seem to have a practical application; it wasn’t specific to Design + Management”
- “the instructor is good at math but doesn’t communicate effectively with those who don’t understand” “...didn’t understand how creatives are different”
- “the readings helped me with concepts, but I’m better with hands-on or physical”
- Students come to later courses with poor quantitative skills



# The current curriculum does not integrate quantitative concepts

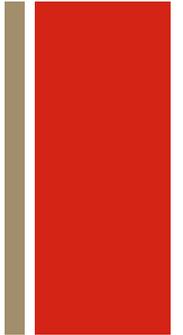


- Subsequent courses do not apply the quantitative concepts learned...
- until two years later (in Financial Management) very-basic quantitative skills have to be re-introduced

# + Two new courses, QR 1 and QR 2, address these issues with

- Visual methods of teaching and learning
- Emphasis on most-important concepts: proportions and variables
- Immediate applicability of concepts via research and modeling projects

# + Visual and studio learning methods improve student engagement



- QR1 and QR2 utilize the prototype/critique/iteration model of design learning
- Students use and create visuals each week in QR1

<b>QR1: Weekly</b>			
	<b>Topics</b>	<b>Mast readings</b>	<b>visualization</b>
<b>Week 1-2</b>	Problem Framing and Back of the Envelope Calculations; intro to Excel	Fermi, ch 1	<b>sketch</b>
<b>Week 3-4</b>	Estimation and Unit Conversion; Rates of Change	ch2 (ch4?)	<b>excel</b>
<b>Week 5</b>	Language of comparisons: compared to what; apples to apples	ch 3	
<b>Week 6-7</b>	Percentages: parts of a whole; additive (linear growth): Sales Tax and inflation (solving for previous value, rate, later value) Excel problems	ch 3	<b>pie charts</b>
	Linear Models of Growth (Rates of Change; Inflation)	ch 4	<b>bar &amp; line graphs</b>
<b>Week 8</b>	Intro to Data; Averages, Histograms and Visual Representations of Data	ch 5	<b>histogram</b>
<b>Week 9-10</b>	Organizing Data: Income Distribution, Percentiles, Measures	ch 6 inc distr	<b>bar &amp; pie charts</b>

# + Visual and studio learning methods improve student engagement

- Deliberate links are made to concurrent and later design courses

## THE WAY I SLEEP

★ - NIGHTS THAT I DON'T HAVE CLASS THE NEXT DAY      ALL NUMBERS REPRESENT HOURS      BY MIRIAM BRAEFMAN

MON 5	TUE ★ 8.5	WED 4	THU 10	FRI ★ 8.5
MON 1	TUE ★ 10	WED 6	THU 8	FRI ★ 9
MON 5.5	TUE ★ 8.5	WED 5	THU 6	FRI ★ 10
MON 5	TUE ★ 9.5			

### SOME STATS

AVERAGE <b>7.43</b>	MOST SLEEP <b>10</b>	LEAST SLEEP <b>1</b>	MOST FREQUENT # <b>8</b>
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### SOME SUGGESTIONS FOR YOU:

<h4>PREVENTION:</h4> <p><b>100pts</b> EARN Get your annual physical (100 PTS) Get the flu shot (100 PTS)</p> <p><b>1000 PTS/YR</b> * 5% OFF ESTIMATEDLY FEES IN 2012</p>	<h4>WELLNESS:</h4> <p><b>SAVE \$60/mth</b> Check in another 2 hours a week at the gym and you could save \$60 on your monthly fee next month.</p>	<h4>INSURANCE COSTS:</h4> <p><b>SAVE \$500/yr</b> Switch to a pharmacy that is contracted with us (\$300/yr) Switch to a dermatologist that is contracted with us (\$200/yr)</p>
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### TIP OF THE MONTH:

**CUT YOUR HEART ATTACK RISK BY 92%**

Did you know that more than 41 million women in America have Heart disease? And that more women than men will die from it? In fact, it's the leading health problem that kills women.

**FUTURE SAVINGS UP TO \$878/YR**

TIPS	PERCENTAGE
add cholesterol lowering sterols on your bread	20%
get 7-8 hours of sleep	33%
have one serving of fish that is high in omega 3	52%
make time for 2.5 hours of exercise a week	33%
add flaxseed to your diet	46%

### YOUR MONTHLY FEE:

**\$ 429.27**

LAST PAID: March 1st, 2012      NEXT PAYMENT DUE: April 1st, 2012

### MAXIMUM OUT OF POCKET COSTS FOR 2012:

<b>\$2750</b> for services contracted with us	<b>\$5000</b> for services not contracted with us
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### YOUR RESPONSIBILITY FOR MEDICAL BILLS THIS YEAR:

<b>\$ 450 left</b> Left to pay for services contracted with us:
<b>\$ 850 left</b> Left to pay for services not contracted with us:

**HOW CAN I IMPROVE?**

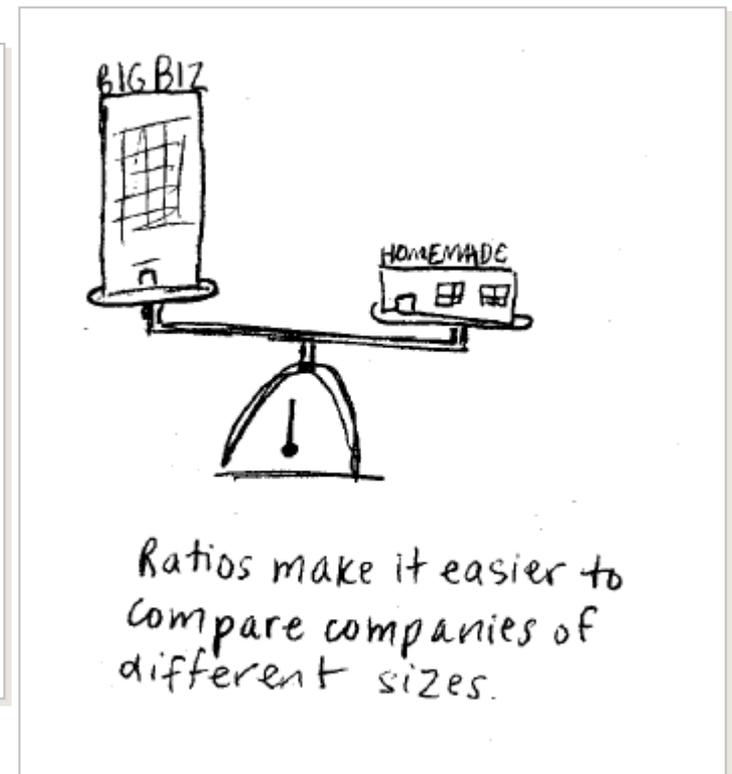
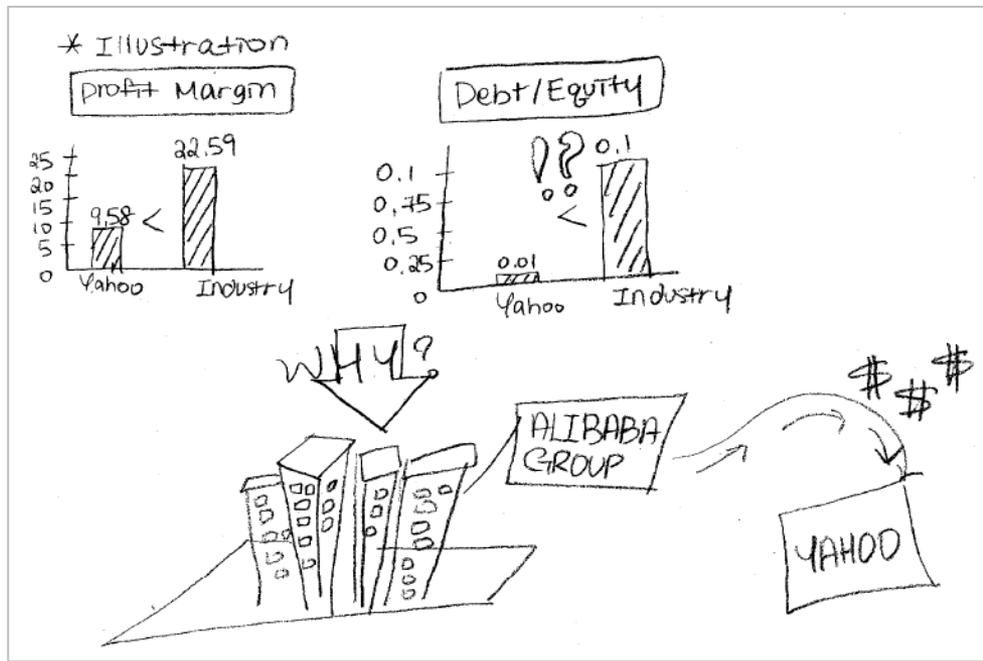
We wanted to give you some small suggestions so you could lower your cost and improve your long term health.

**WHAT ARE YOUR OVERALL COSTS?**

Just a reminder of your monthly costs.

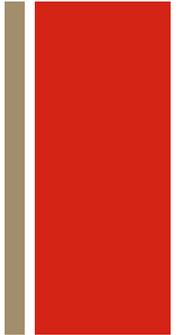
# + Visual and studio learning methods improve student engagement

- Later management courses incorporate graphing and sketching





# Both courses show immediate applicability of concepts



- QR1 emphasizes and illustrates proportions and growth
- QR1 models the use of variables
- QR2 presents research methodologies within projects
- QR2 is directly followed by qualitative/blended research methodology courses

# + New School Bachelors Program Students are Different

- They are working adults who need to apply skills immediately
- Their curriculum is completely self-designed with no prerequisites
- Most are completing an interrupted degree
- They have identified specific skills they are lacking



# + Students' reasons for taking the course are different

- They want to feel more comfortable with the numbers they encounter at their current jobs
- They've noticed that numerate colleagues are more likely to be promoted
- As entrepreneurs, they need to understand their business's numbers



# How to Convince with Numbers, a new course in 2011, addresses these issues

- Relates directly to their current work or passion
- Students choose their own research topics
- Students acquire specific research and spreadsheet skills
- Focus is on understanding numeric relationships rather than formulas

Got a great idea?

Make your case!

## How to Convince with Numbers

New for Fall 2011  
Wed 8:00 – 9:50 pm  
Course #NMG2200 CRN6354

Improve your persuasive abilities and get the backing you need by using numbers to make a compelling case for your idea. In this class you will learn how to:

- Find data that reinforces the importance of your idea.
- Assess and analyze the research to make the best case.
- Create a presentation with visuals that make it easy for anyone to understand.

Open to all undergraduate and CE students.

# + Projects provide experiential learning

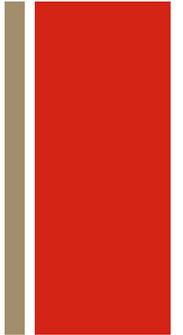
- Primary research projects include executing a survey and analyzing results
- Weekly assignments incorporate research findings that will be used in the final project
- Students present and defend a thesis using secondary research data

# + Students report immediate outcomes

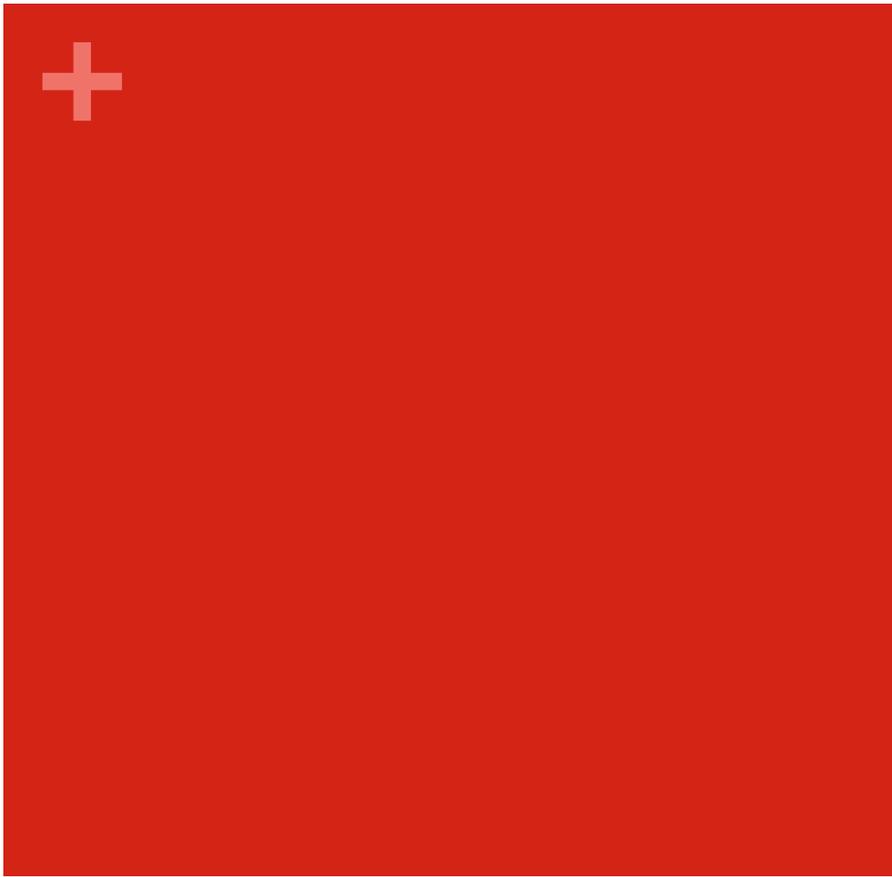
- “Since taking this course, I’ve become a better listener, especially in meetings at my job, to ask the right questions and take the next step”
- “I question sources and what they’re trying to sell me”
- “The final project opened up my mindset beyond a longstanding idea and changed my perspective by my really looking at the research”



# Students attributed success to several elements



- [It was very important that] “our instructor was knowledgeable about industry. She had good stories about clients, and had applied these quantitative methods herself.”
- “Stepped assignments helped me learn time management.”
- “The most important things I learned were research skills and how to apply information.”



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