

# George R. Brown School of Engineering



Ned Thomas, Dean of Engineering, September 23, 2014

# RICE Engineering: *The Vision*

- ***World-class research***
  - Address 21<sup>st</sup> century challenges in engineering for the benefit of society
- ***Unsurpassed education***
  - Innovate in education, both on-campus, on-line, off-campus
- ***Global impact***
  - Amplify our impact through internal and external collaborations in research and education

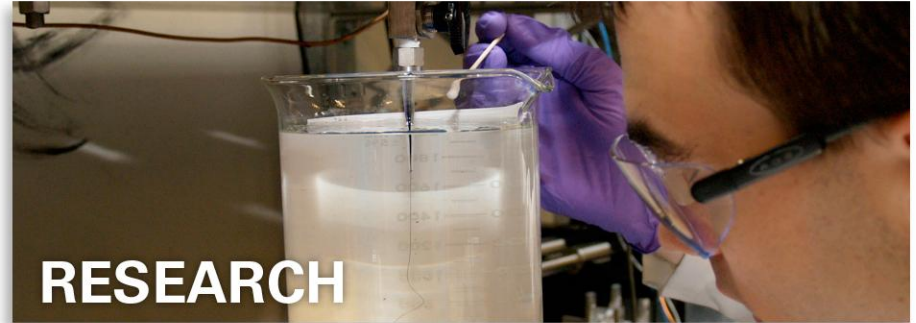
# Engineering at Rice:

## Boundary Conditions Matter

- Training professional engineering leaders
- Right topics, right equipment, right processes, right plan
- Mental attitude/culture of the place/set the right environment
- Be prepared to *work hard, to work in teams, to lead*
- Students are clients: need to advise them so they can excel
- Invest in research, smart people, smart ideas, be first, be competitive, punch above your weight class
- *Add VALUE to Rice experience*



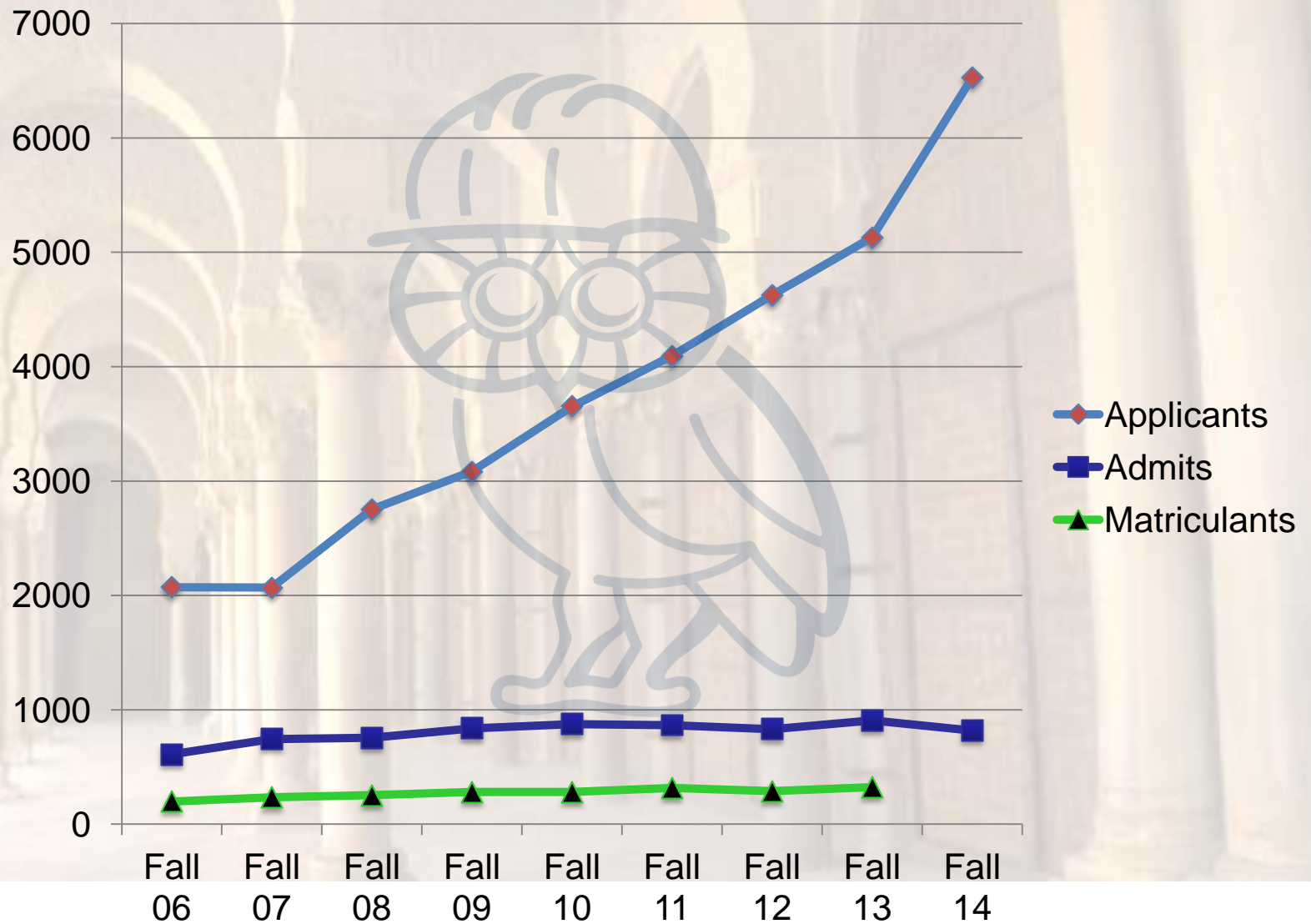
# Rice Engineering



# School of Engineering

Tenured & Tenure Track Faculty	117
Undergraduate Students	1364
Graduate Students (Phd + PMEng)	867
Postdoctoral Researchers	93
Research Expenditures (FY 2014)	\$ 54 M

# UG Engineering Admissions: 2006 - 2014





### *Leiden World's Top Universities (2013)*

- No. 1 in natural sciences and engineering
- No. 6 for all sciences

### *US News & World Report (2015)*

- Rice is among top 20 national universities since 1988
- No. 19 in 2015 ranking, down from No. 17 tie in 2013, No. 18 tie in 2014
- George R. Brown School of Engineering is tied for 18 (UCLA, Duke, Penn State)
- Bioengineering is 5 (ahead of Stanford) [2014 ranking was 8]
- Electrical and Computer Engineering is 17 [2014 ranking was >20]

### *Max Planck Society in Germany (2013)*

- No. 1 for material sciences and chemistry
- No. 2 for engineering
- No. 4 physics and astronomy
- No. 8 in computer science

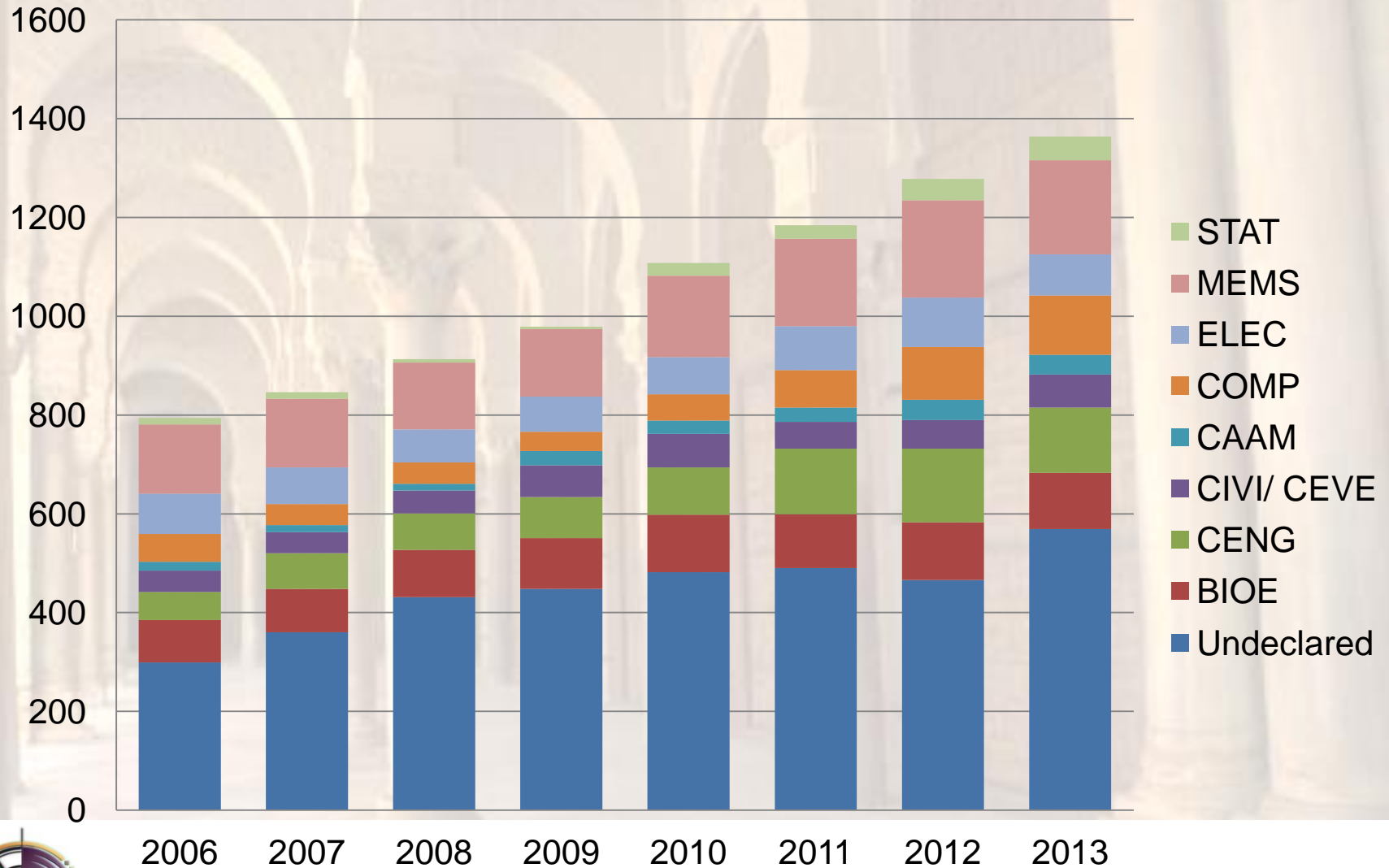


# Rice Engineering: Traditional & Computational Fields

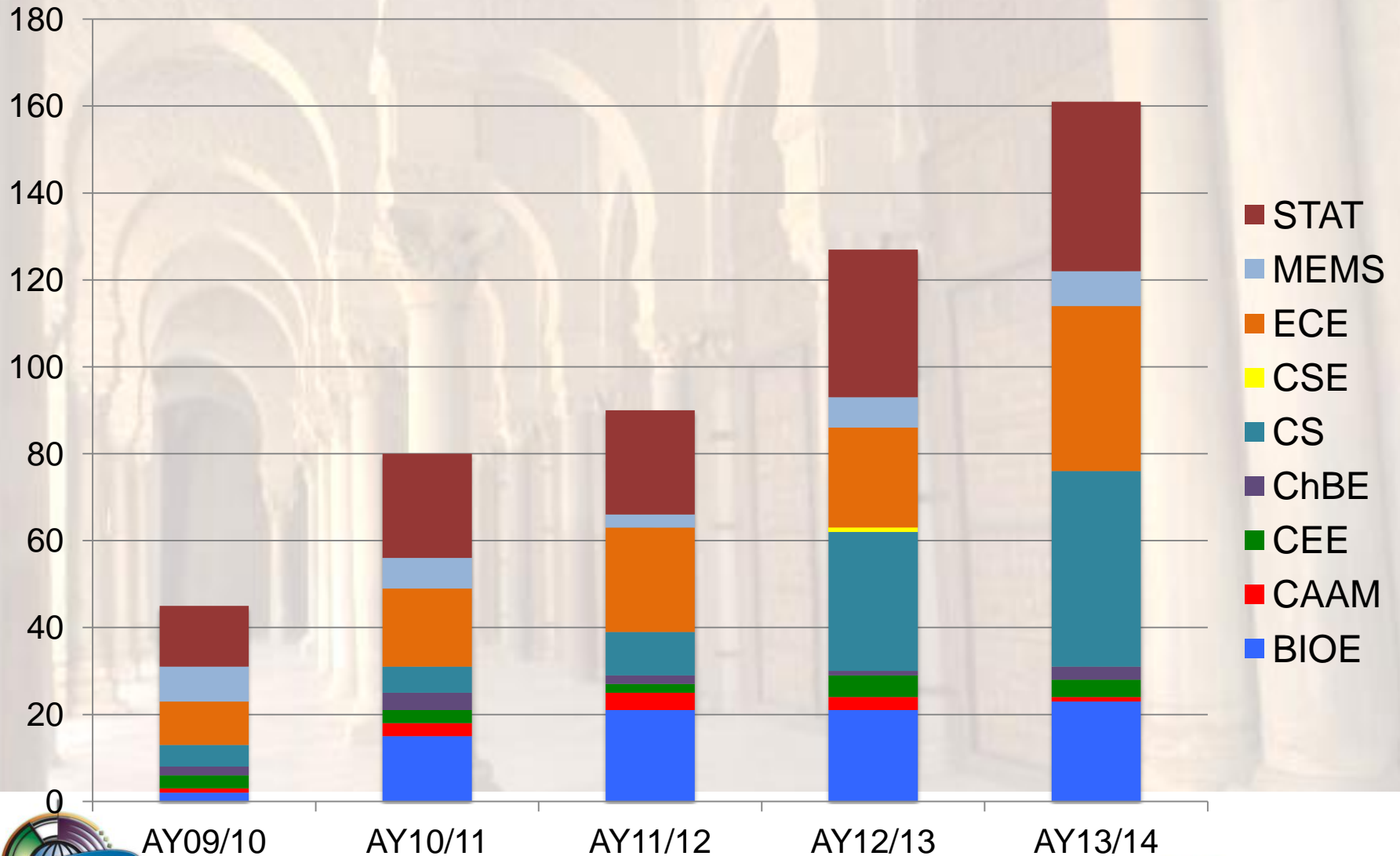
Traditional Departments	Computational Departments
Bioengineering	Computational & Applied Mathematics
Chemical & Biomolecular	Computer Science
Civil & Environmental	Statistics
Electrical & Computer Engineering	
Materials Science & NanoEngineering	
Mechanical Engineering	



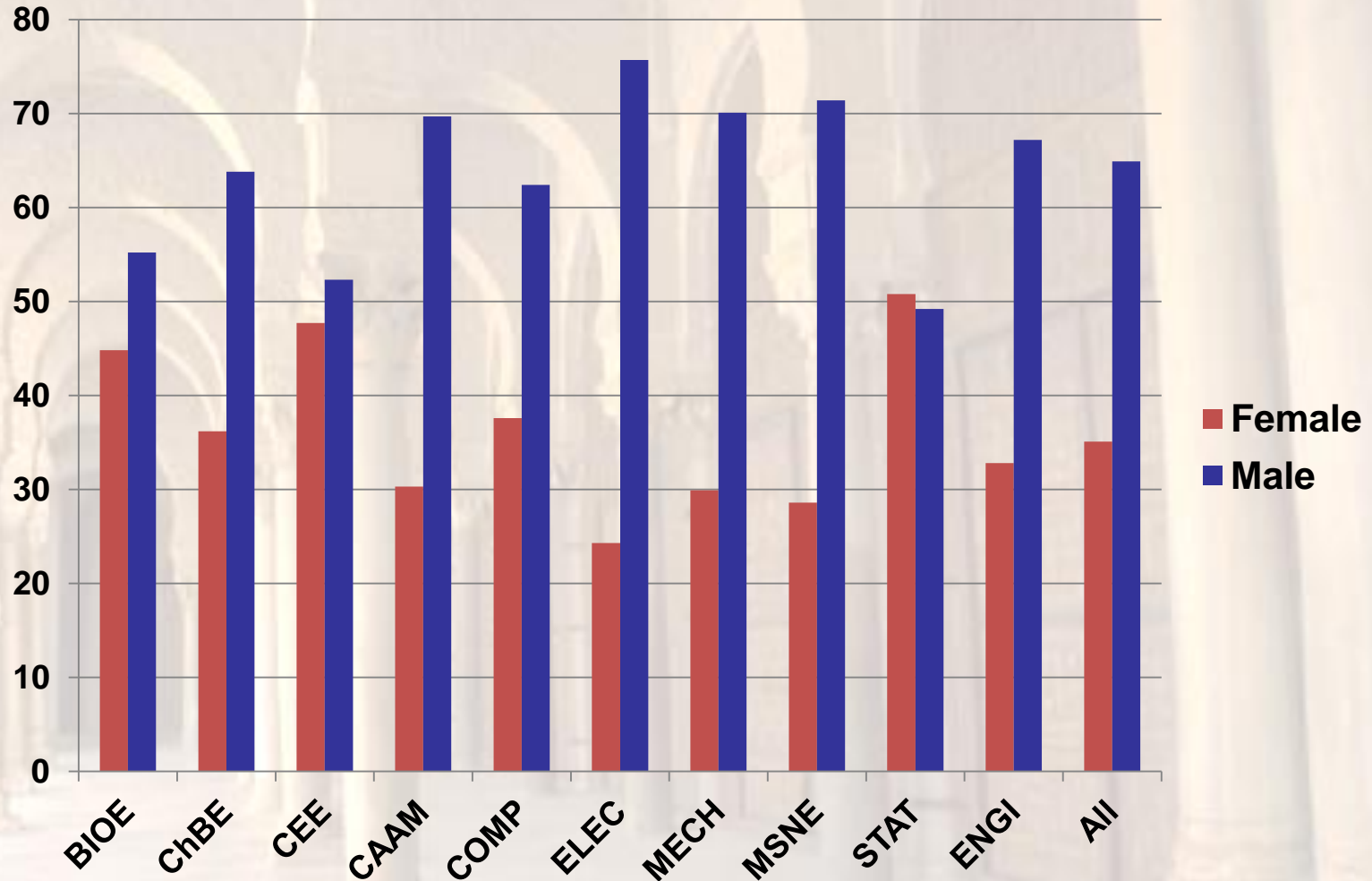
# Fall UG Engineering Enrollments



# Professional Masters Students in Engineering



# Engineering Majors by Gender as Percentages



# FEEDBACK FROM INDUSTRY LEADERS:

=> Rice: Big, Big Brains...smart, energetic...BUT ...

**Success** not so much determined by technical abilities as *what you do with them*

**Effectiveness** depends on character, motivation, determination, communication, teamwork, strategizing, taking responsibility, commitment to: “*get it done no matter what*”



*Just Finished:*

## ***OEDK II: “The Kitchen Sink”***

- \$1.8 million, ~6,000 square feet addition  
Increased project tables from 34 to 60  
Status: **COMPLETELY FULL**

## *ENGI 120: Intro to Engineering Design*

- 2X expansion # freshmen enrolled: 160/year
- Class of 2014 first class that had design as freshmen
- => Awesome improvements in their capstone projects!
- **NEXT: OEDK III:**

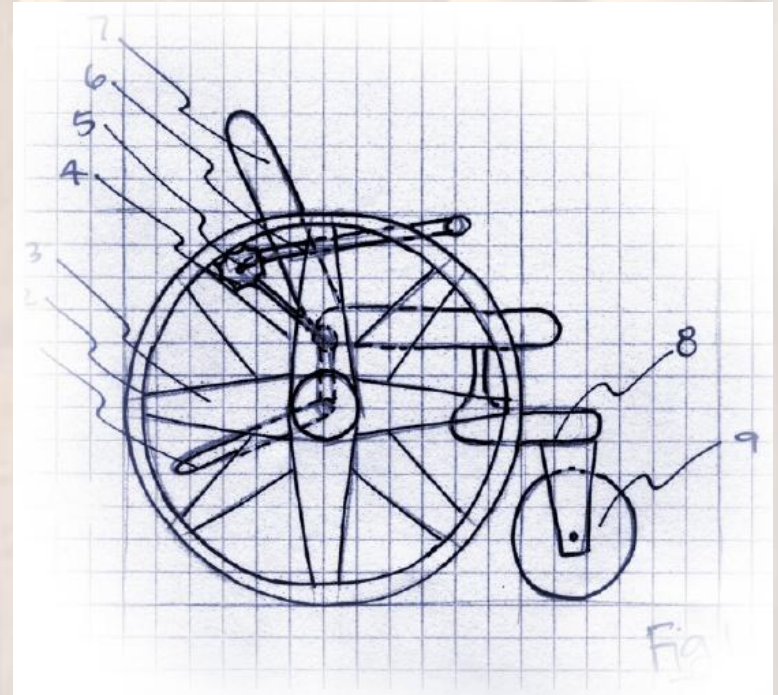
**Garage Space for BIG Projects !**



# What is ENGI 120?

## ENGI 120 is Introduction to Engineering Design

- Began spring 2011
  - One semester course
    - Fall & spring
  - Just first year students
  - Target all ENG majors
  - ~50% ENG students
- ELECT to take this course!



project sketches by Allison Garza

# What Do Students Do?

- Work on AUTHENTIC, CLIENT-BASED projects.
- Learn and execute the engineering design to solve ONE problem.
- Work in MULTIDISCIPLINARY teams.
- COMMUNICATE constantly.





# Who are Clients in ENGI 120?

## 40+ Different Clients

- GE
- Shell Oil Company
- Houston Zoo
- Shriners Hospital
- Cameron
- Rice Facilities Engineering & Planning
- Beyond Traditional Borders
- NASA
- Schlumberger

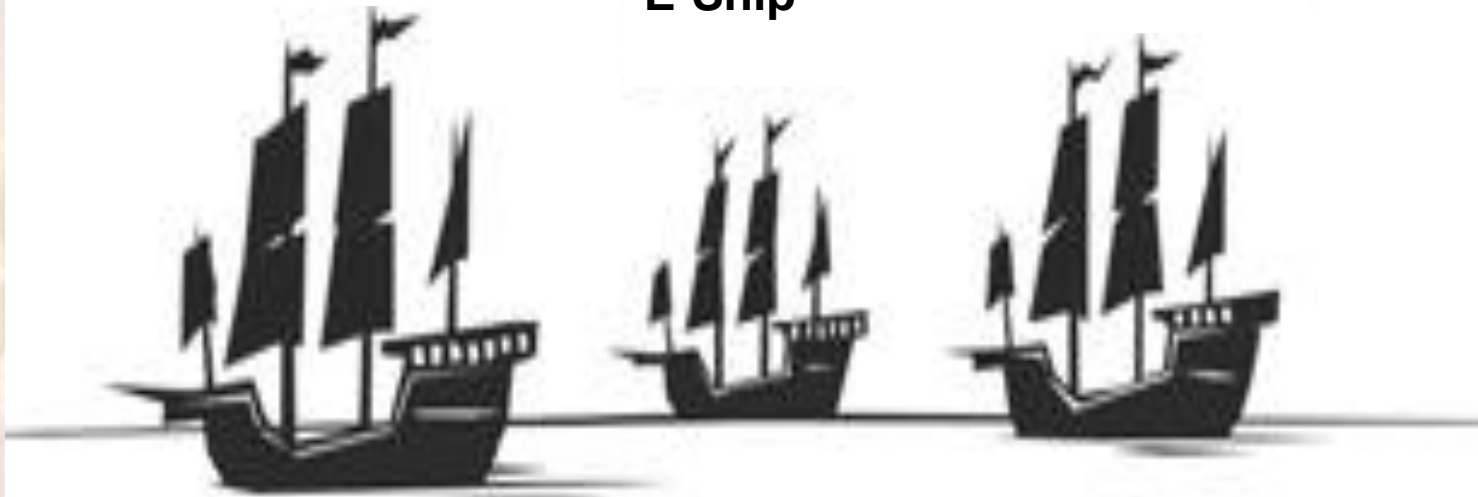




**L-Ship**

**I-Ship**

**E-Ship**



**The Three Ships:**

**Leadership, Entrepreneurship, Internship**

Helps us attract the best students and faculty and  
produce superior graduates

# Rice Center for Engineering L-Ship:

Executive Director: Kaz Karwowski

- 150 freshman and 50 upper class mentors - Saturday Sept 6 practicing leadership skills at the Engineering Liftoff
- About 200 undergraduates attended Internship (I-ship) workshop
- Capacity number of students signed up for new *Leadership Certificate program*
- 4-year curriculum including weekly Leadership Labs, Leading Teams and Innovation course, Internships
- Highly successful COMPLETE Conference March 21/22, 2014  
14 Schools; NAE President; Chairman Rice BOT, NASA-JSC, Boeing...



2014 Rice Global E&C Forum XVII



# 2014 RICE GLOBAL E&C ANNUAL FORUM

## *The Impact of the North American Energy Boom on the Global E&C Industry*

### CROSSFIRE: Competing Views of the Future

#### MODERATORS:

- Jerry Kavalieratos: Alvarez & Marsal Business Consulting
- Dick Westney: Westney Consulting Group, Inc.

2:15pm Today

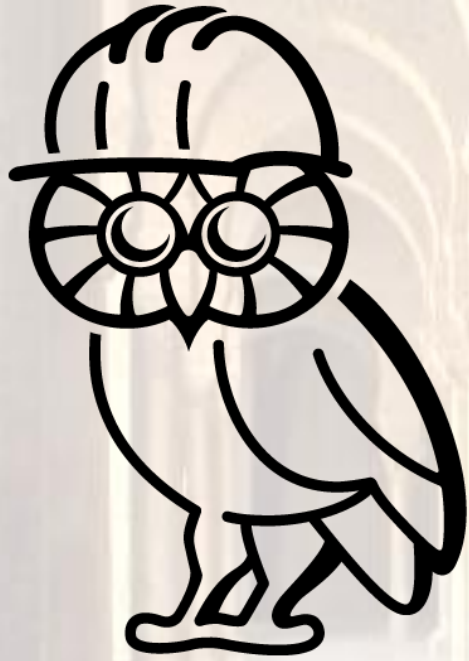
#### PANELISTS:

- **Chuck McConnell: Leader - Rice**  
University Energy & Environment Initiative
- Greg Sills: Chief Development Officer and EVP – Cobalt Energy
- Bob Tippee: Editor, Oil & Gas Journal
- Curt Watson: President, Process Plants & Industrial, Wood Group Mustang



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# Questions?

## Internships !

elt@rice.edu

Thank you !

