Mission Change and Masters

New College of Florida

Mission: To offer an undergraduate liberal arts education of the highest quality in the context of a small, residential public honors college with a distinctive academic program which develops the student's intellectual and personal potential as fully as possible; encourages the discovery of new knowledge and values while providing opportunities to acquire established knowledge and values; and fosters the individual's effective relationship with society.

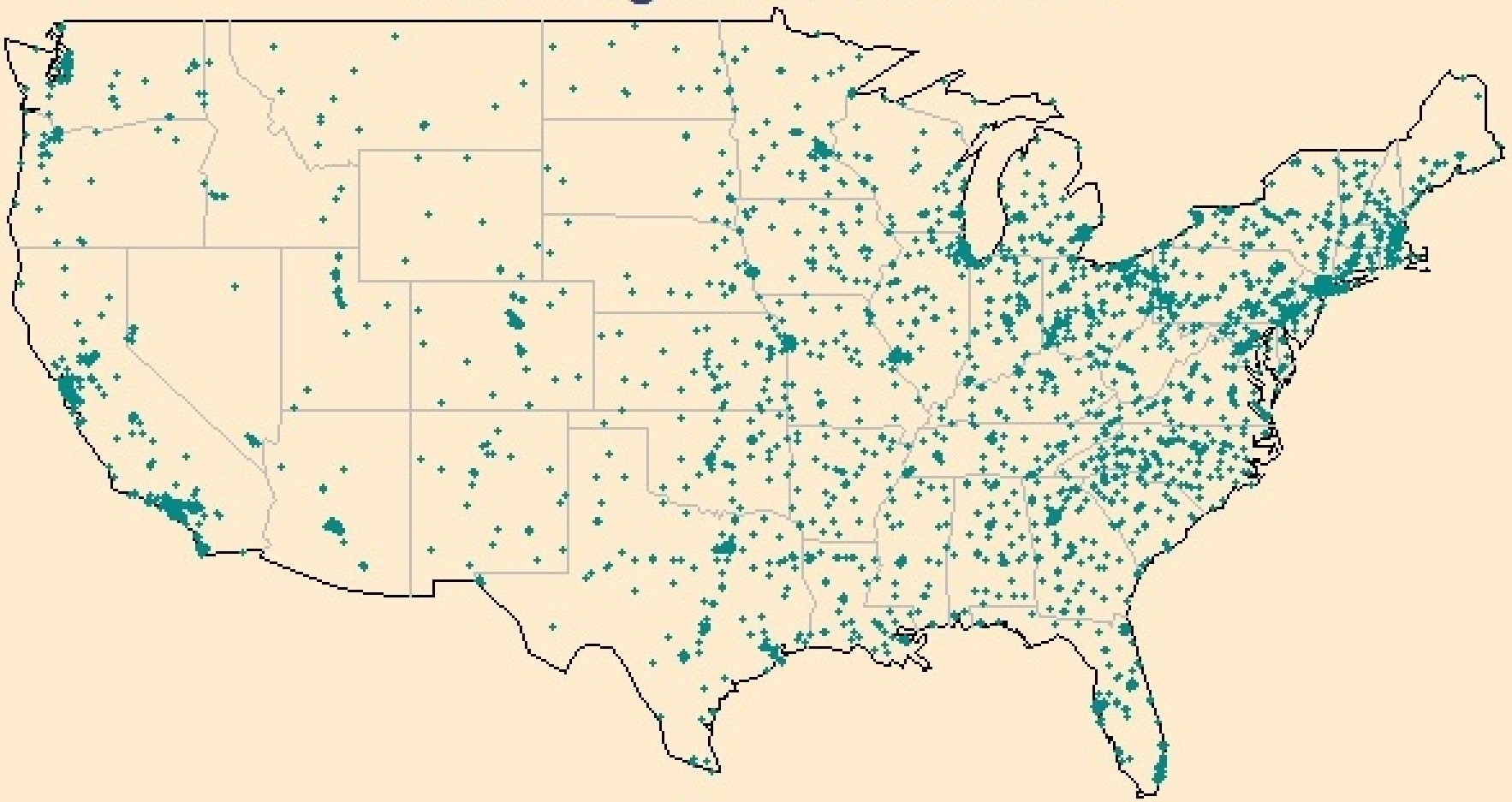
Mission: To offer a~~n undergraduate~~ liberal arts education of the highest quality in the context of a small, residential public honors college with a distinctive academic program which develops the student's intellectual and personal potential as fully as possible; encourages the discovery of new knowledge and values while providing opportunities to acquire established knowledge and values; and fosters the individual's effective relationship with society.

US Higher Ed

20 million students

4634 institutions

U.S. Colleges and Universities



Source: Education Sector

Carnegie Classification (2005)

296	Research Universities (RU/VH) – very high research activity (108) Research Universities (RU/H) – high research activity (99) Doctoral/Research Universities (DRU) (90)	>20 Docs/yr
727	Masters Colleges and Universities (>200 Master's L) (414) Masters Colleges and Universities (100-199 Master's M) (186) Masters Colleges and Universites (< 100 Master's S) (127)	< 20 Docs/yr > 50 Masters/yr
809	Baccalaureate Colleges – Arts & Sciences (Bac/A&S) (270) Baccalaureate Colleges – Diverse Fields (Bac/Diverse) (392) Baccalaureate/Associate's Colleges (Bac/Assoc0 (147)	50 Masters/yr > 10% Bacs
1920	Associate's Colleges	all Assoc or Assoc and < 10%Bac
882	Special Focus & Tribal Colleges and Universities	> 80% degrees in one or related areas

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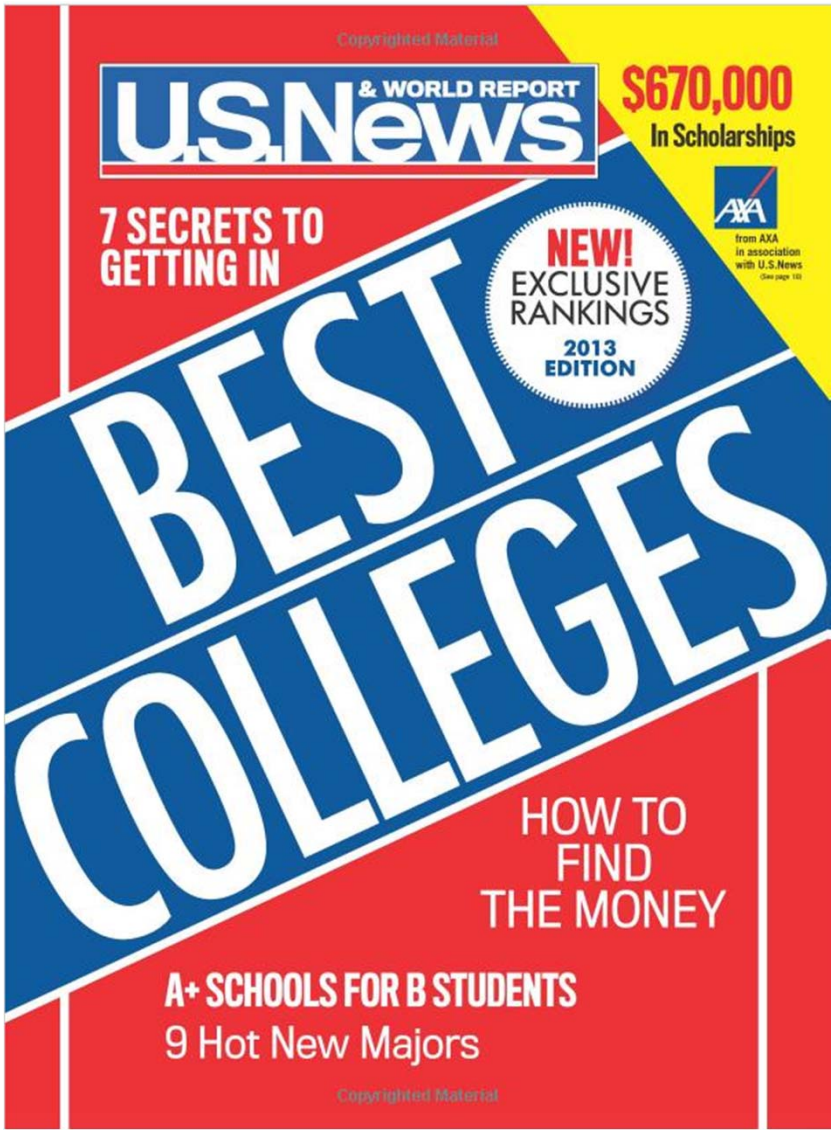


239 National Universities

≈ half public

271 National Colleges

≈ fifth public

National Universities and Colleges

≈ 10%

≈ 1%

National Universities and Colleges

Core = Arts & Sciences.

Deliveries are different.

These two sectors produce:

> 90% of the nation's scientists

Over half of Fortune 500 CEOs

Most of MDs

All of supreme court justices

Almost all foreign service, military leaders

The national colleges outperform the rest

Publics

National Universities

1. UC Berkeley #20
2. UCLA #23
3. UVa #23
4. U. Michigan #28
5. UNC – Chapel Hill #30
6. William & Mary #32
7. Georgia Inst Tech #36
8. Penn State U.Pk. #37
9. UC Davis #39
10. UCSD #39

National Colleges

1. USNA (Annapolis) #12
2. USMA (West Point) #17
3. USAF Academy #25
4. VMI #65
5. New College Florida #89
5. St. Mary's C of Md #89
7. UNC-Asheville #146
8. U. Minn – Morris #154
9. SUNY – Purchase #156
10. Mass Coll Lib Arts #176

UF #49, FSU #91, UCF #170, USF #170

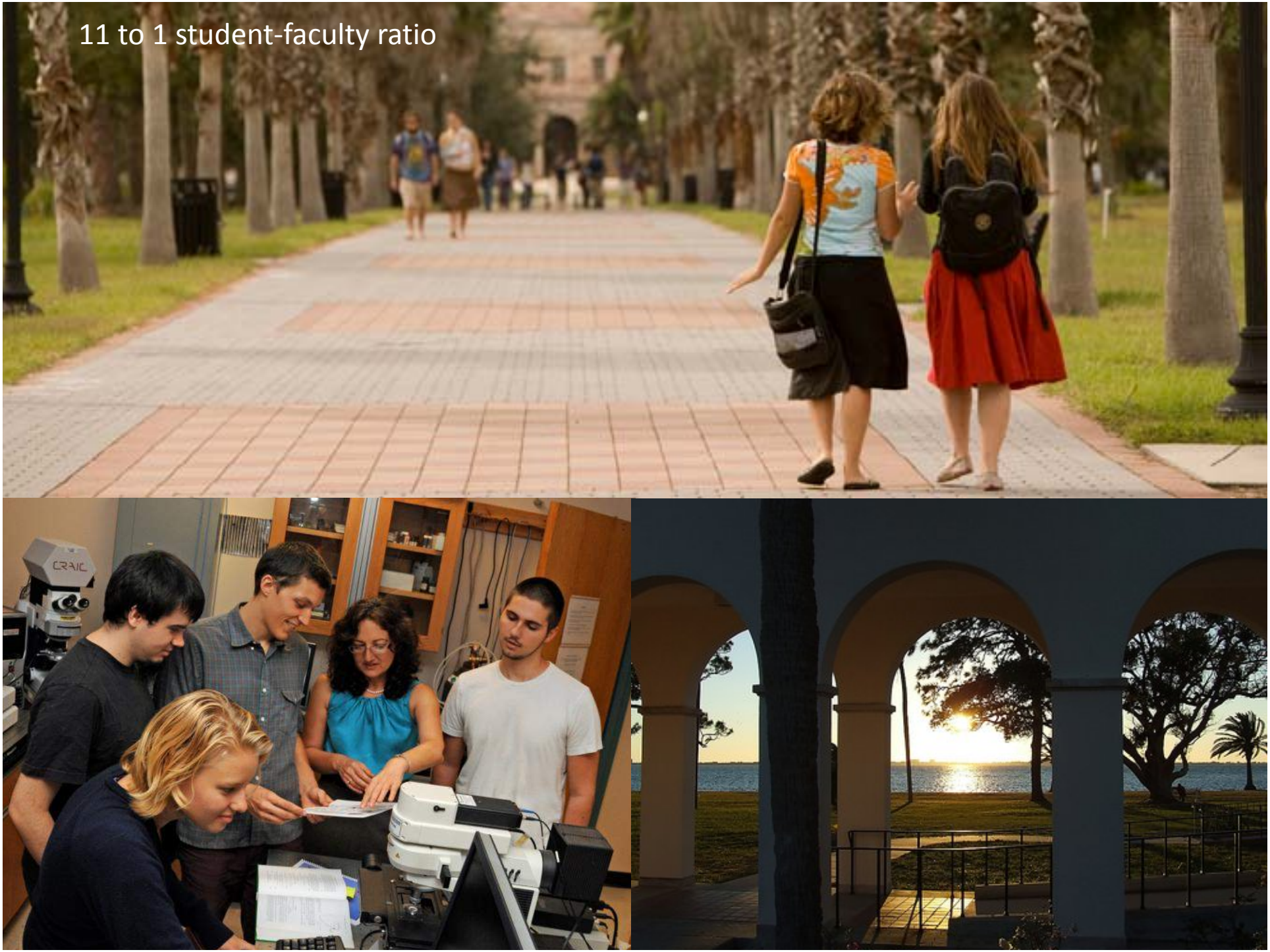
Top 10 – Publics and Privates

National Universities

1. Princeton
2. Harvard
3. Yale
4. Columbia
5. Stanford
5. Chicago
7. Duke
7. MIT
7. Penn
10. Caltech
10. Dartmouth

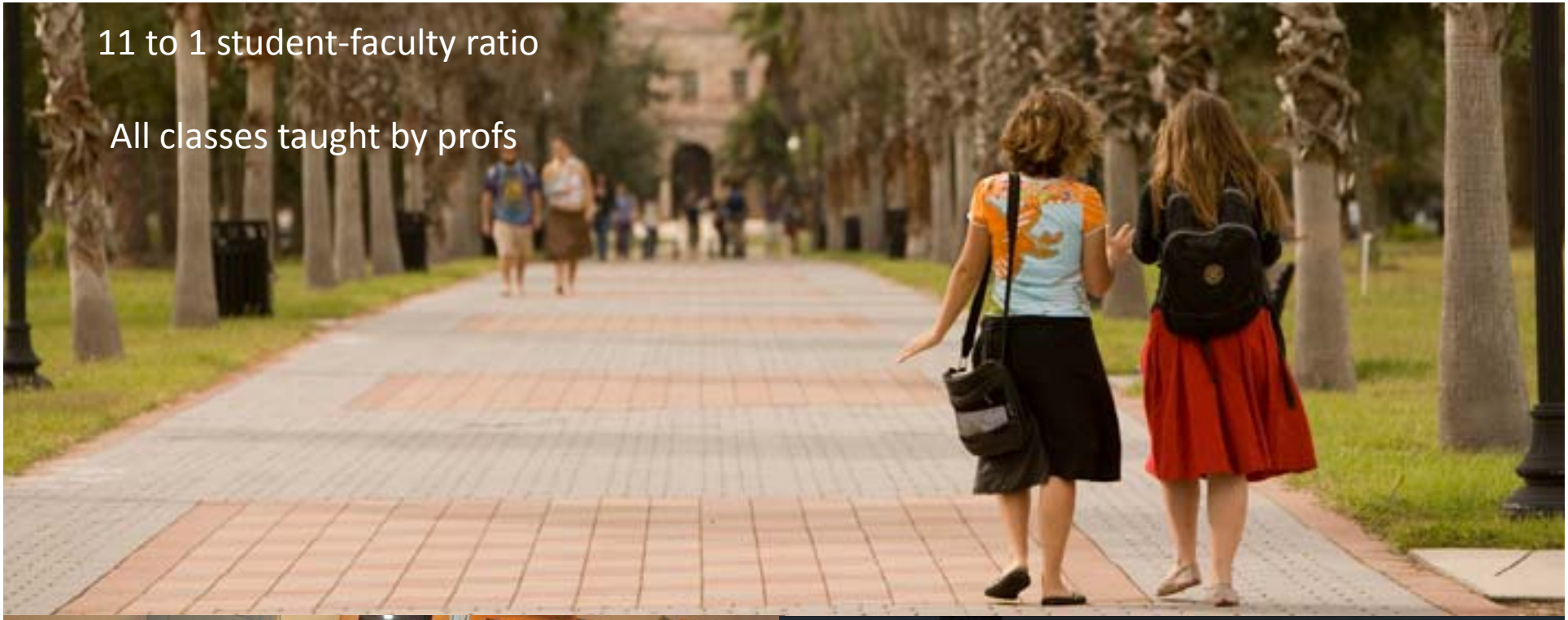
National Colleges

1. Williams
2. Amherst
3. Swarthmore
4. Bowdoin
4. Middlebury
4. Pomona
7. Carleton
7. Wellesley
9. Claremont McKenna
9. Davidson
9. Haverford


11 to 1 student-faculty ratio

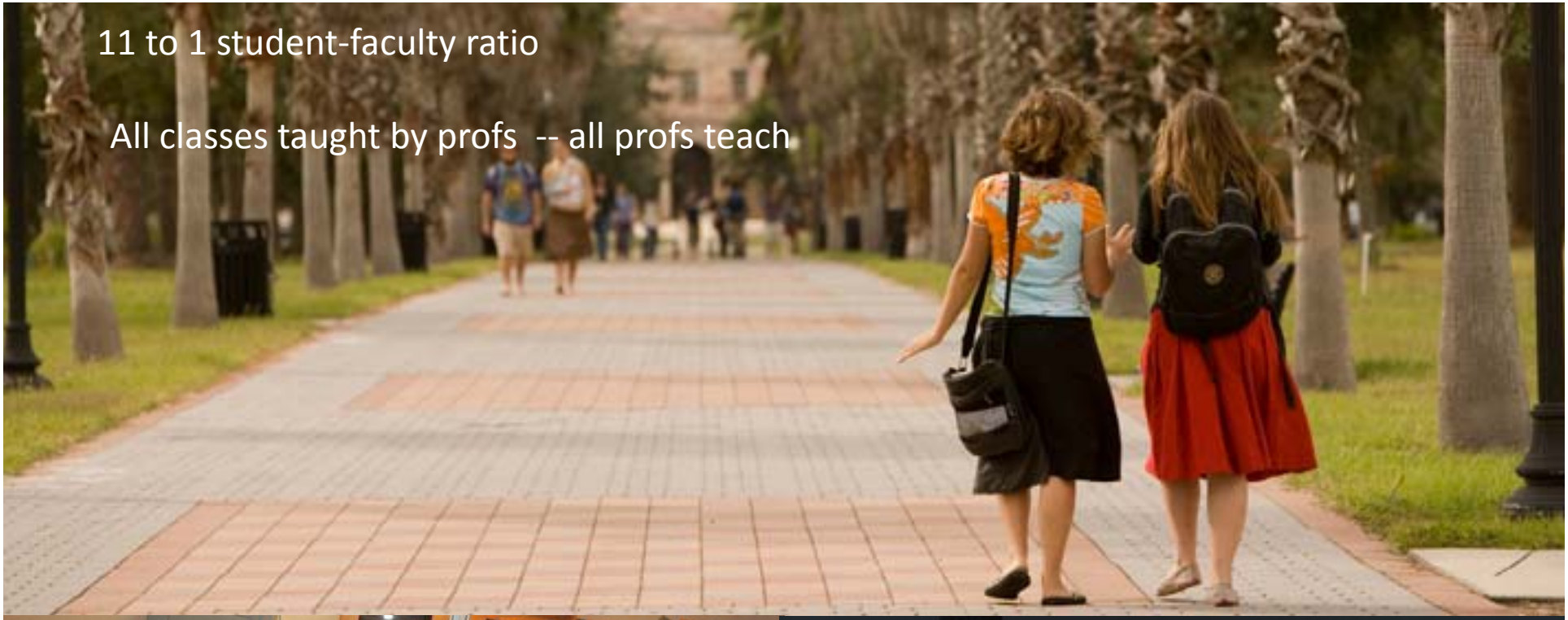
11 to 1 student-faculty ratio

All classes taught by profs



11 to 1 student-faculty ratio

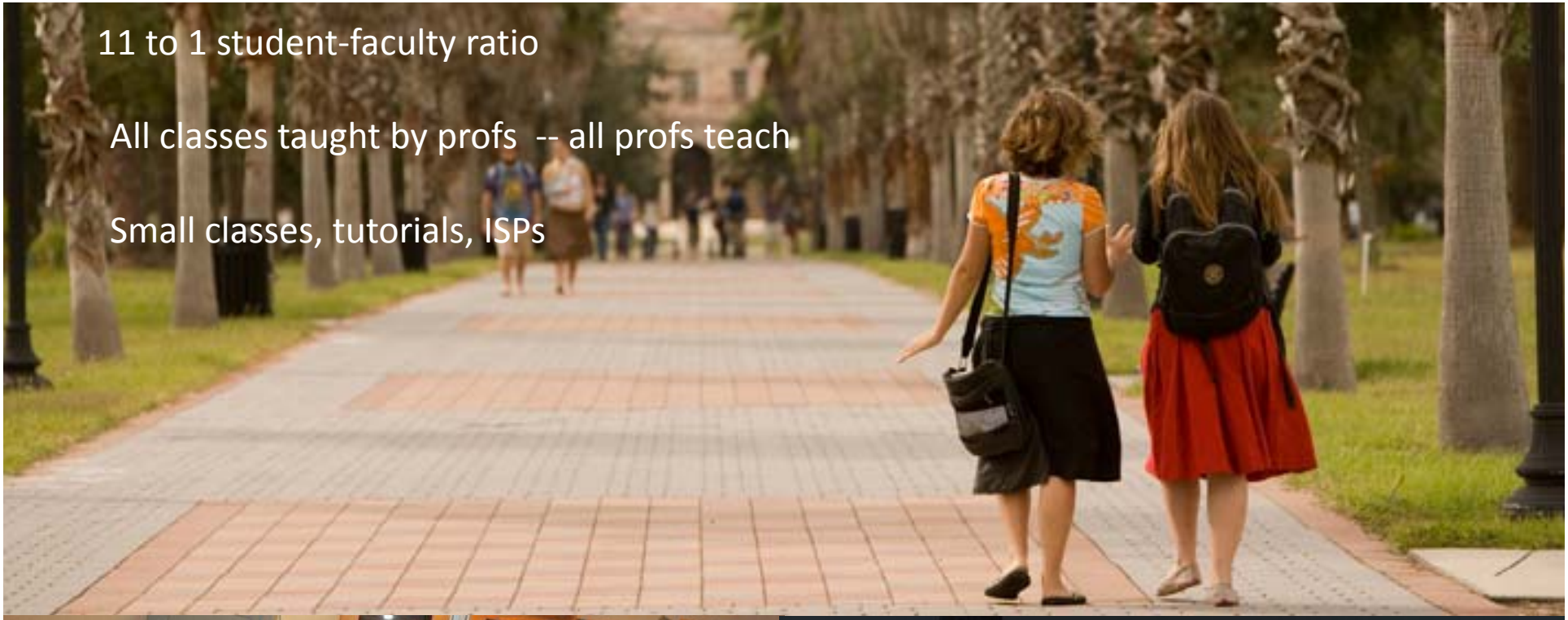
All classes taught by profs -- all profs teach



11 to 1 student-faculty ratio

All classes taught by profs -- all profs teach

Small classes, tutorials, ISPs



11 to 1 student-faculty ratio

All classes taught by profs -- all profs teach

Small classes, tutorials, ISPs

Each student completes three independent study projects and a substantive senior thesis or project

11 to 1 student-faculty ratio

All classes taught by profs -- all profs teach

Small classes, tutorials, ISPs

Students complete three independent study projects and a substantive senior thesis or project

> $1million external research funding/yr

11 to 1 student-faculty ratio

All classes taught by profs -- all profs teach

Small classes, tutorials, ISPs

Students complete three independent study projects and a substantive senior thesis or project

> $1million external research funding/yr

High (> 50%) participation in internships and in community service

11 to 1 student-faculty ratio

All classes taught by profs -- all profs teach

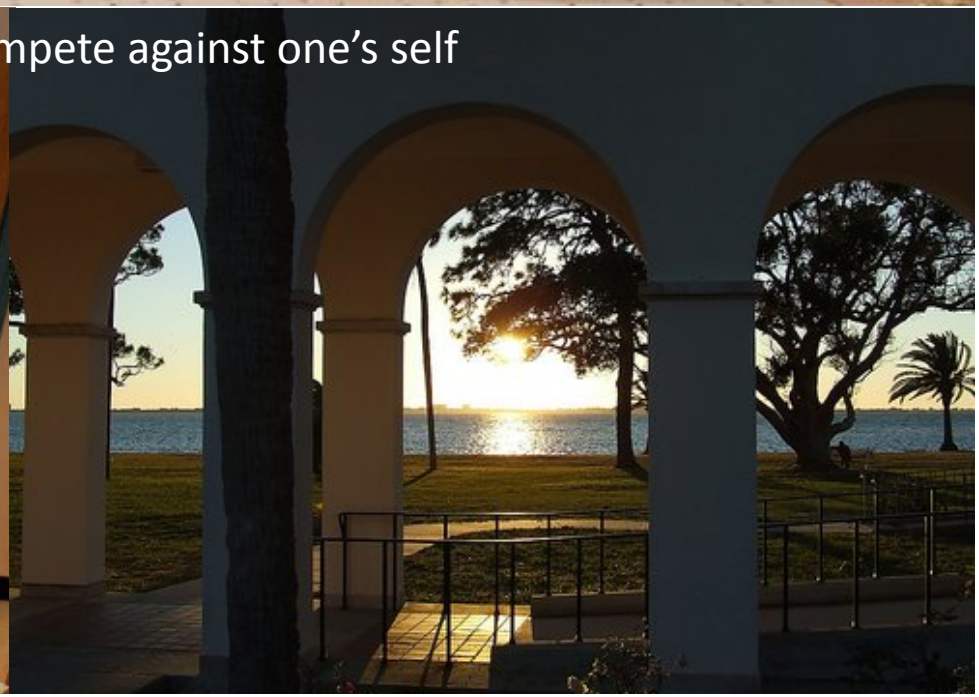
Small classes, tutorials, ISPs

Students complete three independent study projects and a substantive senior thesis or project

> $1million external research funding/yr

High (> 50%) participation in internships and in community service

Students supportive of one another – compete against one's self



Outsized outcomes

Outsized outcomes

Outsized outcomes

Top STEM producer

Highest % in SUS

80% to grad school

30% to PhD or MD

XXL # of scientists

Outsized outcomes

Pell grant students do exceptionally well.

Outsized outcomes

Top 10 – Publics and Privates

National Universities

1. Princeton
2. Harvard
3. Yale
4. Columbia
5. Stanford
5. Chicago
7. Duke
7. MIT
7. Penn
10. Caltech
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National Colleges

1. Williams
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3. Swarthmore
4. Bowdoin
4. Middlebury
4. Pomona
7. Carleton
7. Wellesley
9. Claremont McKenna
9. Davidson
9. Haverford

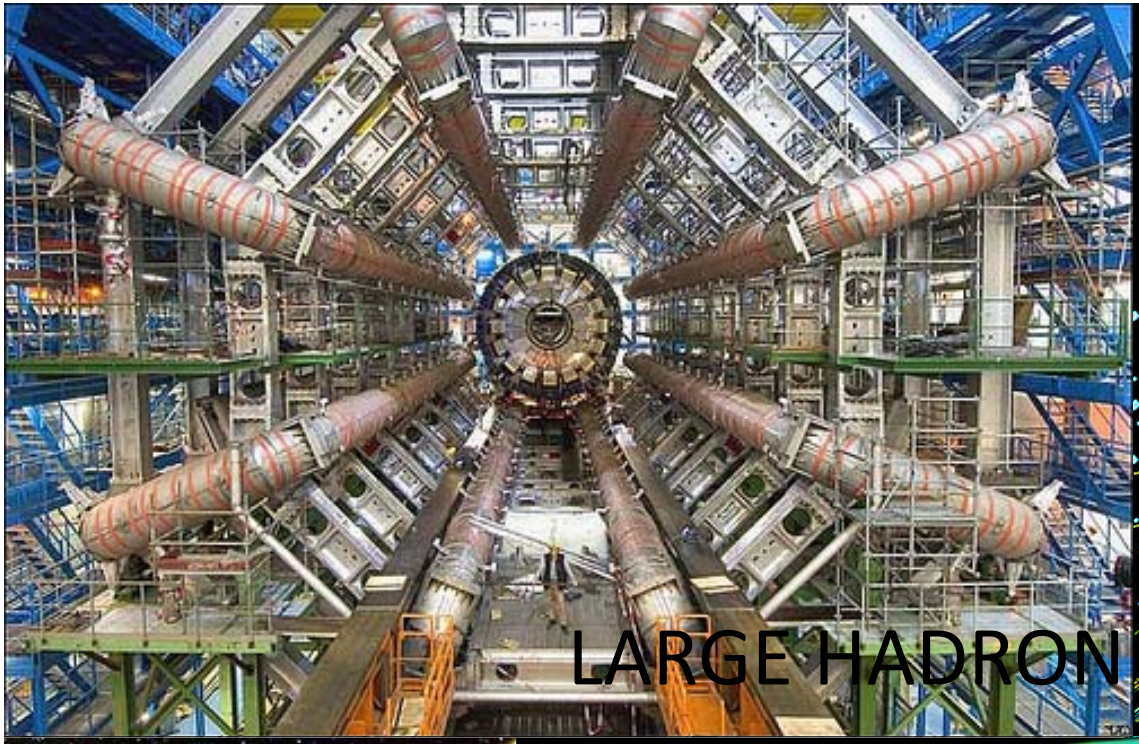
Niche, market share, and Carnegie

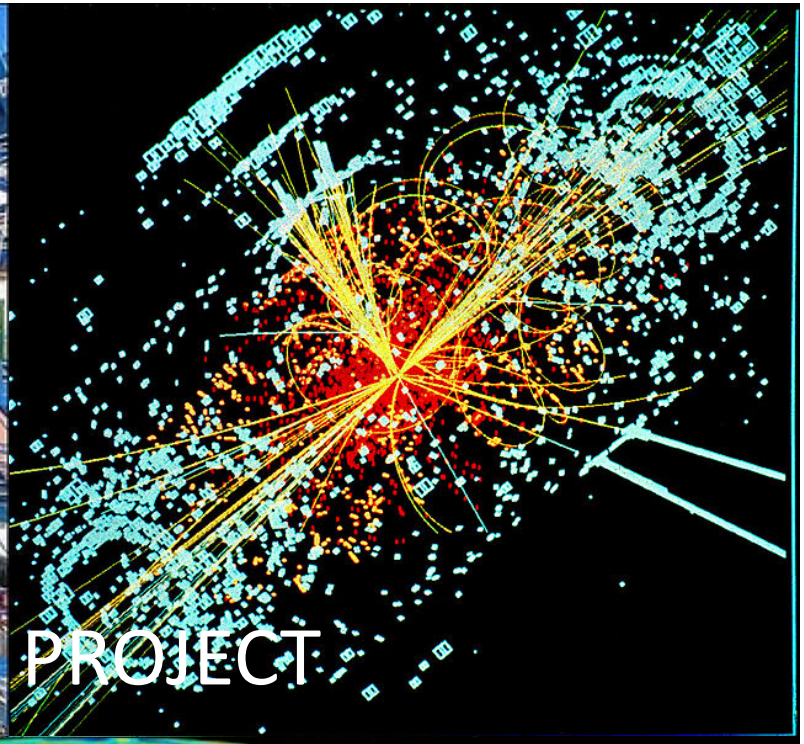
New College: Bac/A&S; A&S/NGC; None; ExU4; FT4/MS/LTI; VS4/HR

Williams: Bac/A&S; A&S/SGC; Post-Bac/A&S; VHU; FT4/MS/LTI; S4/HR

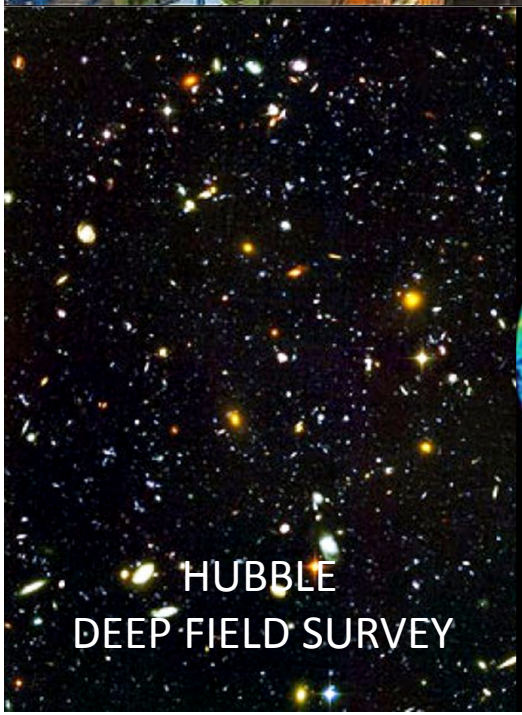

Masters Program
Data Analytics with emphasis on big data

What is big data?



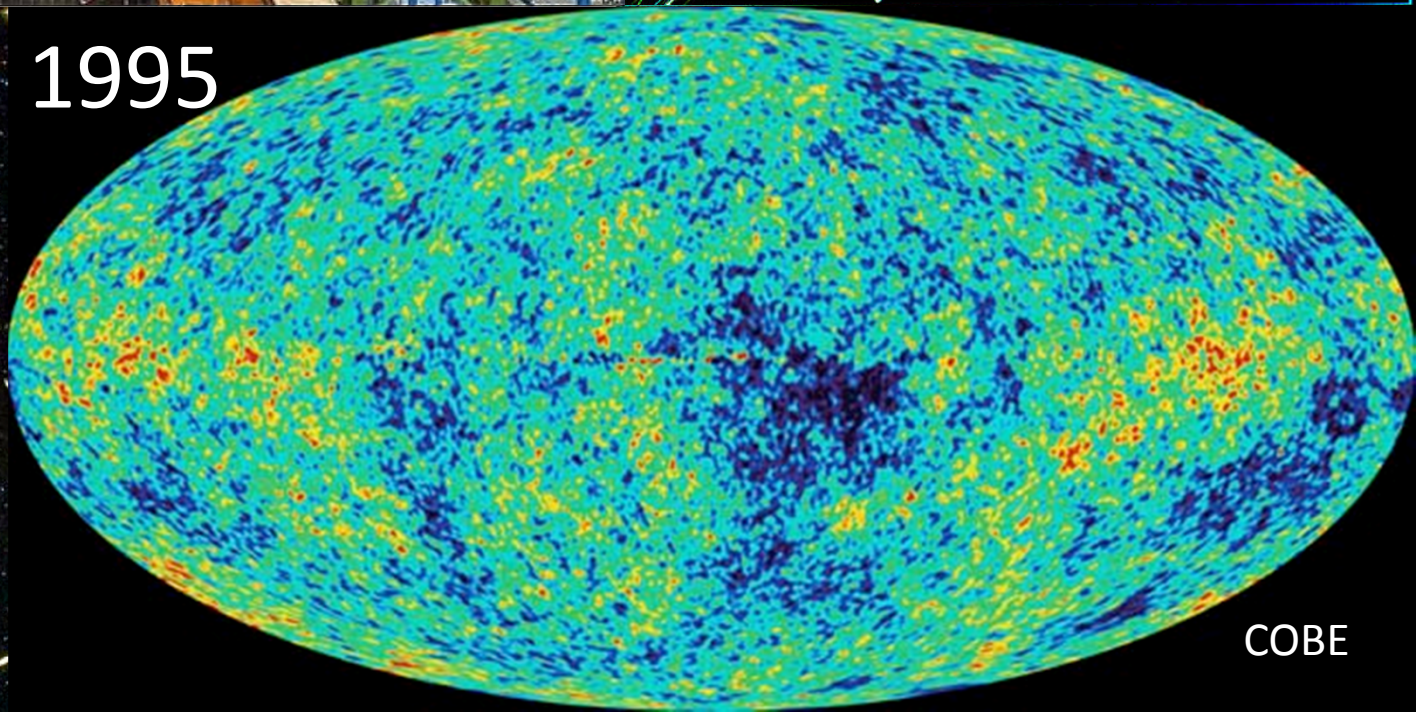


LARGE HADRON PROJECT

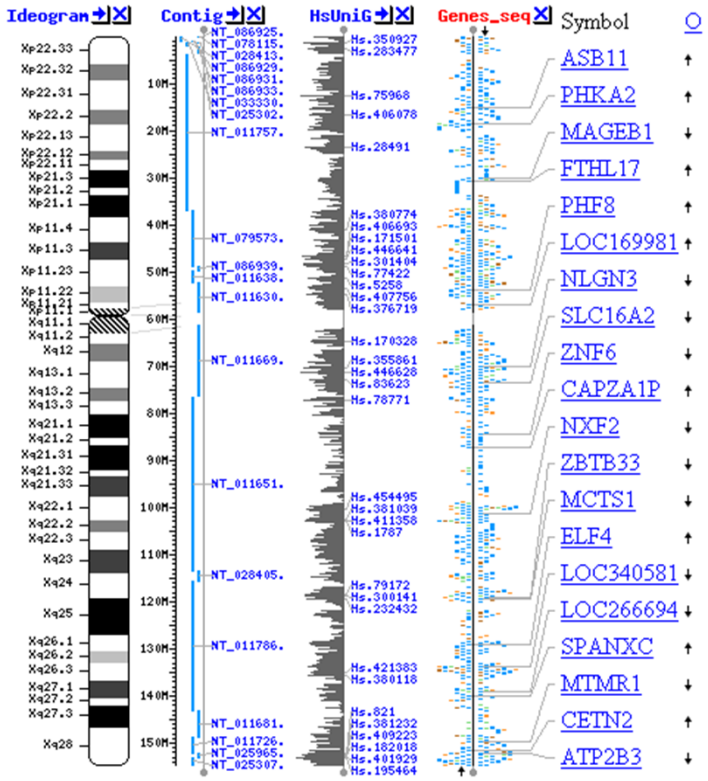


HUBBLE
DEEP FIELD SURVEY

1995



COBE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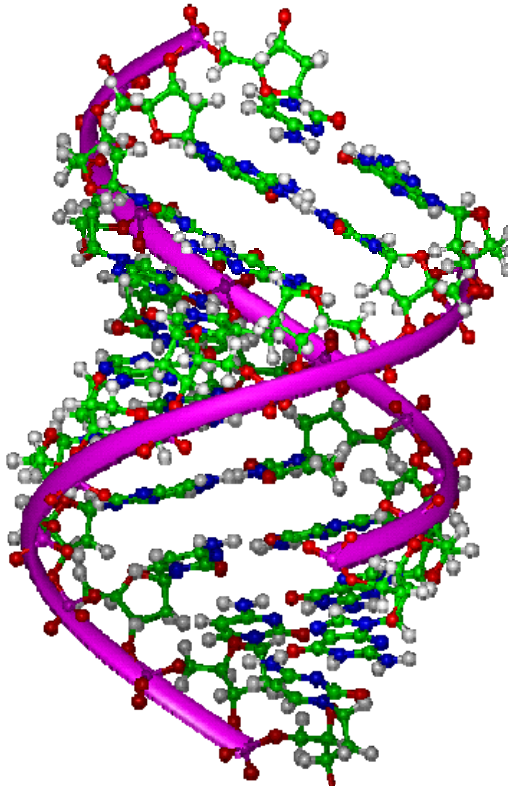
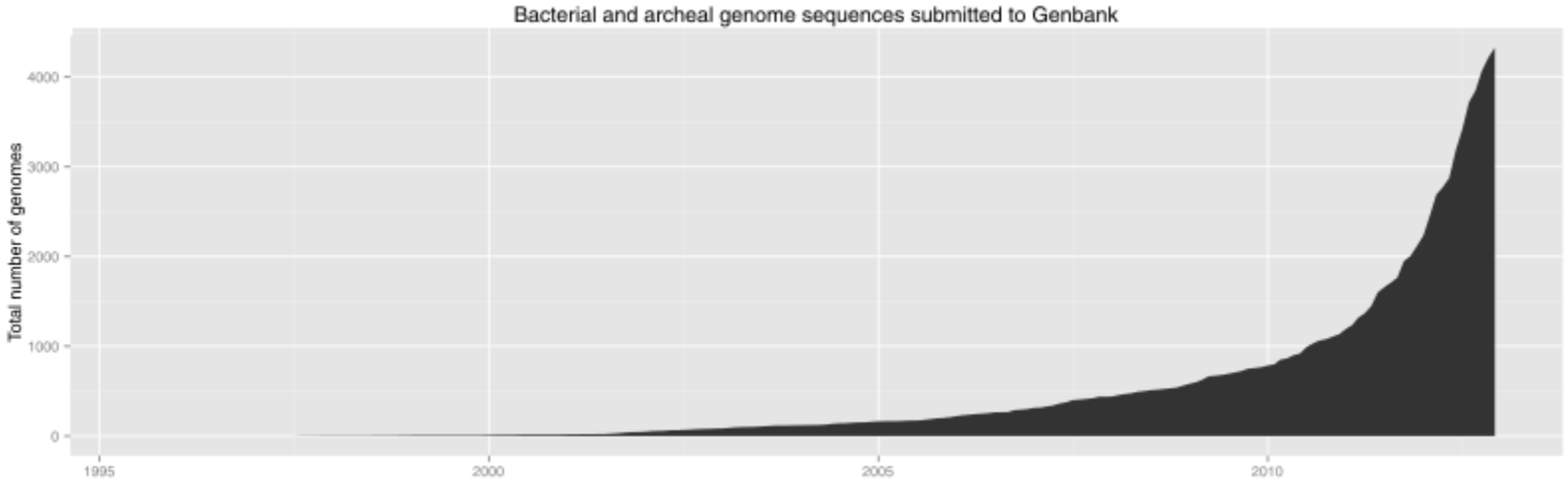
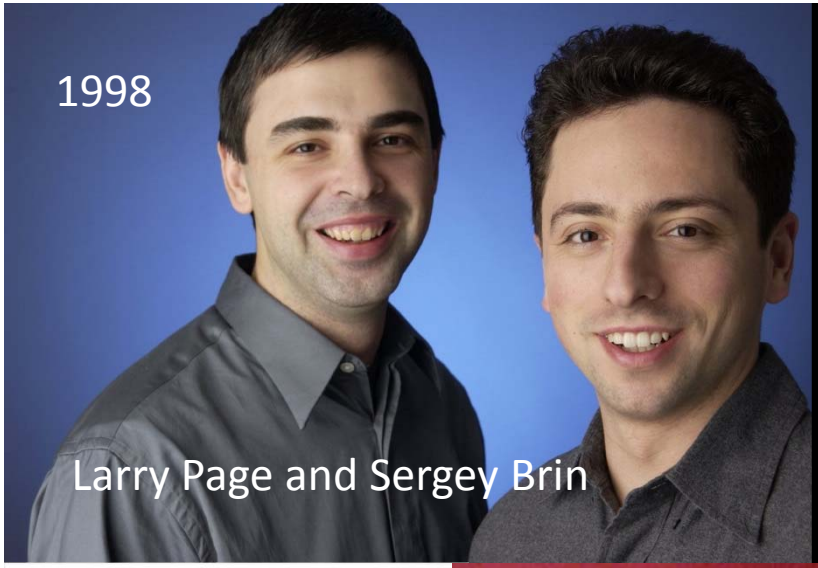
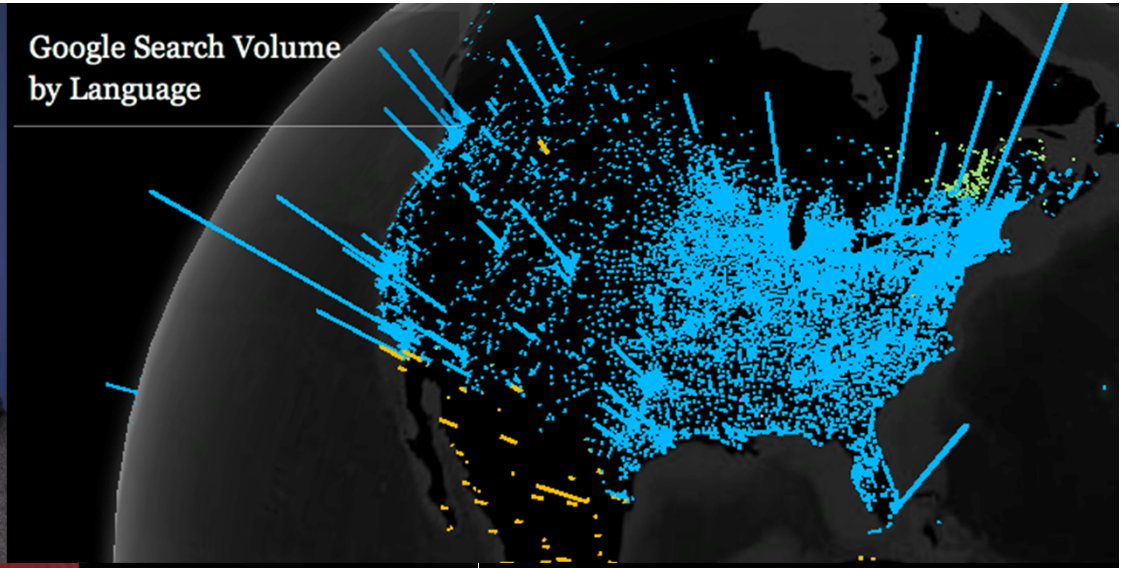
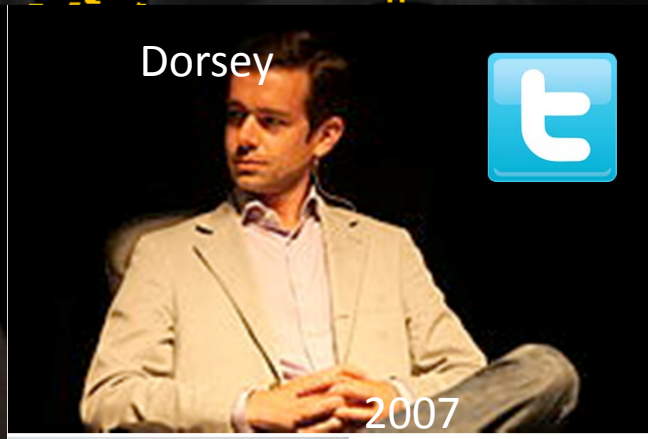
Contig
HsUniG
Genes_seq
Symbol
ASB11
PHKA2
MAGEB1
FTHL17
PHF8
LOC169981
NLGN3
SLC16A2
ZNF6
CAPZA1P
NXF2
ZBTB33
MCTS1
ELF4
LOC340581
LOC266694
SPANXC
MTMR1
CETN2
ATP2B3




Bacterial and archeal genome sequences submitted to Genbank
Total number of genomes
0
1000
2000
3000
4000
1995
2000
2005
2010







tumblr.

Social media and search

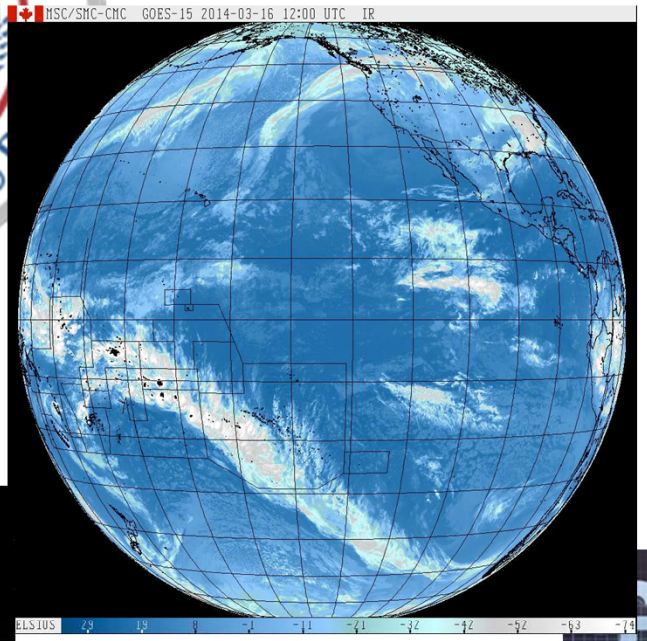

NATIONAL SECURITY AGENCY
UNITED STATES OF AMERICA


U.S. DEPARTMENT OF
HOMELAND SECURITY


ups
TM


DELTA


TARGET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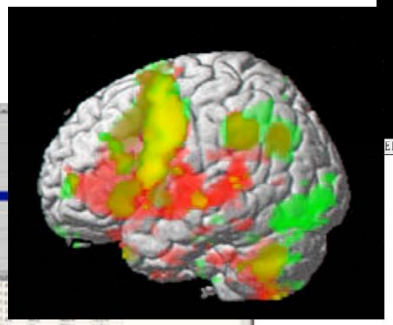

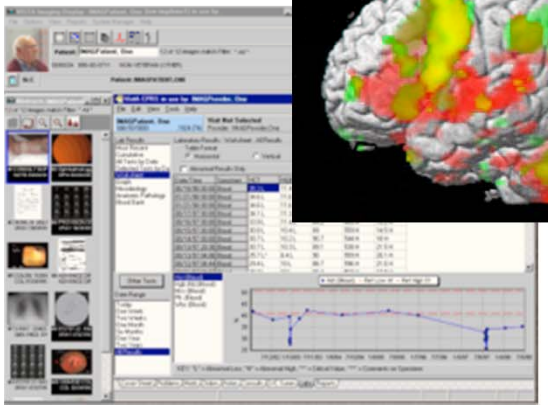


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McKinsey&Company

McKinsey Global Institute

June 2011

Big data: The next frontier for innovation, competition, and productivity

Big Data, Big Impact

Lashing Education to Jobs, Technology and Cloud Infrastructure in Florida

November 30, 2012

F.L. Fuller
Britton Alexander

Introduction

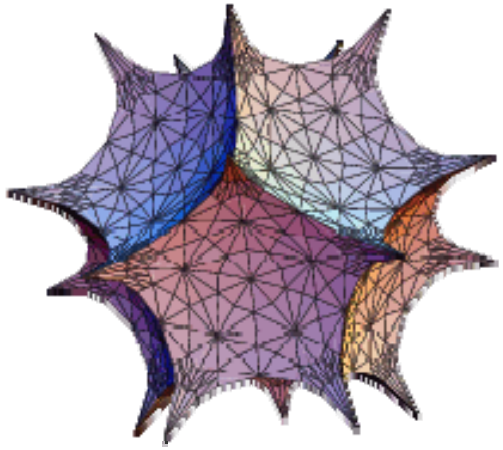
With The Great Recession came a change in America's job market – The Great Job Restructuring – and an acceleration of the Digital Revolution. Exponential expansion, as outlined by Moore's Law, increased the affordability, availability and functionality of digital technologies, and now they are present globally in almost every market and region. For example, more than 1 billion individuals are using smartphones throughout the world, a 47 percent increase from 2011, and this amount is predicted to rise to 2 billion by 2015. The prevalence of these devices and many similar tools clearly reflect the world's increased reliance on new digital technology and the knowledge it provides.

Through these advances have come alterations to our fundamental rights and way of life. Privacy as we know it, now, is destined to collapse, and companies and governments that regulate data mining, or data processing using sophisticated data search capabilities and algorithms to discover patterns, will fail because of America's economic dependence on analytics and Big Data. These new resources enable industries, governments and individuals to collect more information than ever before, but the infrastructure must be put into place to analyze and manage today's vast amount of collected data. The use of this digital information is seeping into every facet of our economy, and this shift is why our students and educational institutions need the job tools and knowledge to face the Digital Revolution head on.

Data Analytics (emphasizing Big Data) is ideal for New College

Data Analytics (emphasizing Big Data) is ideal for New College

1 We have lots of gifted students – very self –directed, who can code, are good with math, good with computers, and data-driven. The work is project based.



PhD route does not interest many.

Data Analytics (emphasizing Big Data) is ideal for New College

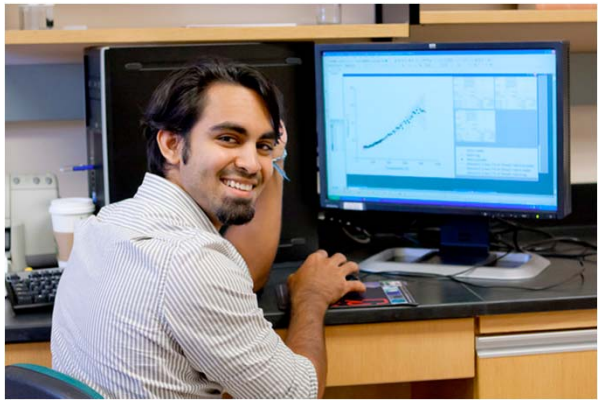
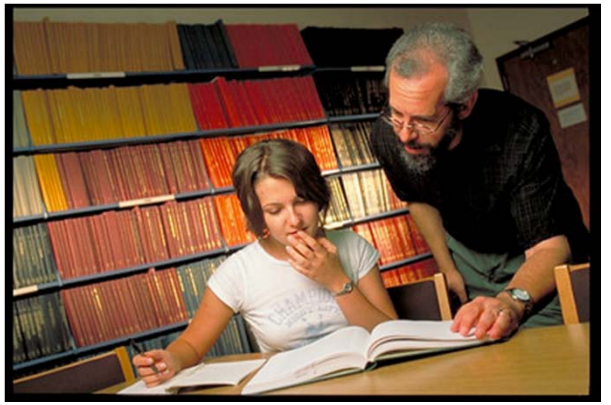
2

Our small scale works for us. Big data analytics is not math, not stats, not CS. Bar to entry is high. Need big chunks of math degree, stats degree, CS degree. At most universities, the expertise exists, but is not just in different depts, but different buildings, and schools

New College is one school, has one faculty, and interactions are frequent.

Data Analytics (emphasizing Big Data) is ideal for New College

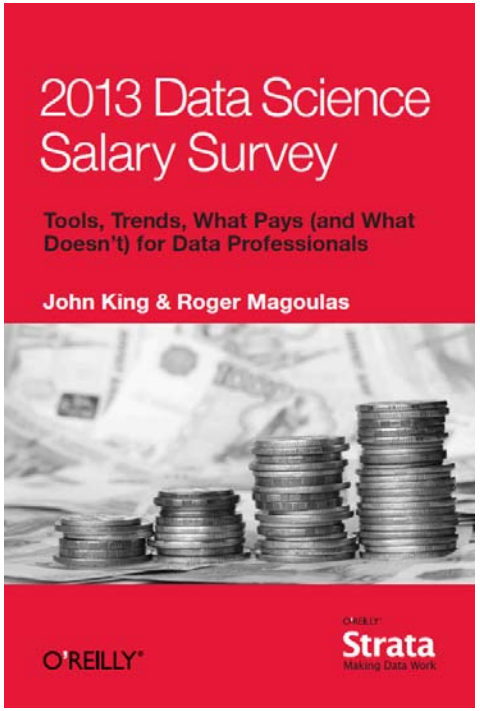
3 The program would enhance our undergraduate offerings. We've been teaching elements of big data analytics in tutorials for years, but do not have majors in stats or CS. This will allow us to add them.

Programs are starting to spring up over the country. No one knows what best will look like. We were set up to experiment, and ours will be among the best in the US.

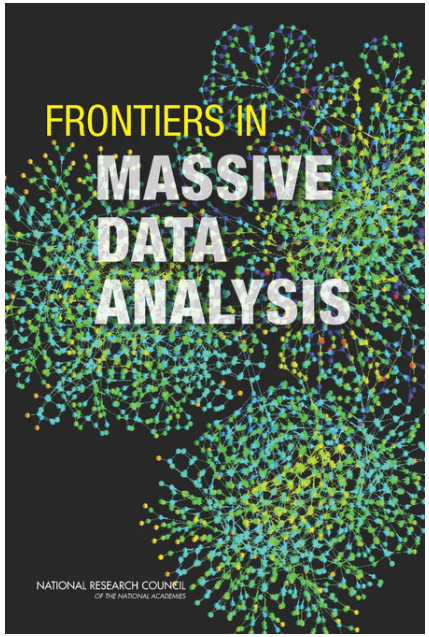
Data Analytics (emphasizing Big Data) is ideal for New College

4. Big data analysts are in high demand. Biggest opportunities and largest salaries, are in open source, and this is what we emphasize.



Data Analytics (emphasizing Big Data) is ideal for New College

6. The information sciences are at the core of the arts & sciences and our error. The questions are of genuine intellectual interest.



Effective practice demands far more than the merely technical. It requires curiosity, thinking critically, and good judment – in short, a good A&S education.

Data Analytics (emphasizing Big Data) is ideal for New College

7. The local community wants. Good for business.

We are the only area institution that could mount such a program – not a good candidate to do consortially.

Details

- Small: 15-20 std/yr
- Two yr program
- 1-2 semester internship
- Substantial project
- Four additional faculty
- Std support – recruitment, IT, placement
- Colloq/visitor series
- Full-time
- All faculty also teach undergrad courses
- Add stats and CS majors
- Start-up conferences
- Visiting post-docs

Curriculum (preliminary)

Prerequisites: Intro to CS, Programming, Linear Algegra, Calculus, Algorithms, Discrete Math, Applied Stats

Computer Science: Programming (Python, Java, Javascript), Database Mgt, Search algorithms and machine learning, Data mining, Distributed omputing and languagess (Hadoop, Map reduce)

Math: Dynamical systems, Advanced linear & polynomial algebra, Probability, Large graph and network techniques

Stats: Applied stats and R, stat models, bootstrap& resampling, scaling, computational science, tagged network analysis,

Specialized areas: Bioinformatics, genomics, proteonomics; business and econometric models; climate and ocean science, multiscale and transport phenomena

Thank you

New College of Florida

We like our niche

New College
Basic: Bac/A&S
Undergrad Instruct Program: A&S/NGC (Arts & Science focus/no graduate coexistence)
Grad Instruct Program: None
Enrollment Profile: ExU4
Undergraduate Profile: FT4/MS/LTI (Full-time four year, more selective, lower transfer in)
Size and Setting: VS4/HR (Very small our-year/highly residential)

Williams
Basic: Bac/A&S
Undergrad Instruct Profile: A&S/SGC (Arts & Science focus/some graduate coexistence)
Grad Instructional Program: Post-Bac/A&S, (Postbaccalaureat: Arts & Science dominant)
Enrollment Profile: VHU
Undergraduate Profile: FT4/MS/LTI (Full-time four year, more selective, lower transfer in)
Size and Setting: S4/HR (Small our-year/highly residential)

Hubble deep field survey 1995, Sloan Digital Sky Survey 2000

Carnegie Classification (redux)

Basic/UG inst program/G instr program/enrollment profile/UG enr profile/size,setting

New College: