Department Rankers and Rankings: Truths and Consequences:
The U.S. News rankings

Robert J. Morse, Chief Data Strategist

U.S. News & World Report

2016 CRA Conference at Snowbird

The Cliff Lodge, Snowbird

Salt Lake City County, UT

July 19, 2016

U.S. News Engineering Schools rankings
What we are doing

- **Best Graduate Schools -2017 Edition**
  - Best Graduate Schools: Published March 15, 2016 on usnews.com and in multi-discipline guidebook which went on sale in April 2016
  - Overall ranking of doctoral granting Engineering programs
  - Plus specialty rankings in 13 areas including computer engineering
  - Plus PhD programs in Computer Science and specialty areas currently updated every 4 years.

- **Best Colleges 2017 Edition**
  - Published September 2016- Undergraduate Engineering

- **Best Global Universities -October 2016.**
  - Engineering
  - Computer Science
  - Materials Science

- **Best Online Degree Programs-**January 2016.
  - Master's degree in Engineering programs –all types
  - Master's degree Computer Information Technology Programs includes computer engineering, computer science, information systems, information technology or software engineering.

The Editorial Philosophy Behind the U.S. News Engineering Rankings

- Consumer oriented mission-To provide prospective engineering students and their parents with key evaluative information they need in order to make an informed comparative choice about graduate engineering education and engineering education at other degree levels.

- This choice has very important job and career implications.

- This choice is heavily influenced by the ever rising bill for tuition and room & board, travel, clothes, entertainment and other expenses.

Implications of the U.S. News Engineering Rankings

- U.S. News has been publishing academic rankings for over 30 + years.

- U.S. News has become a trusted, respected and unbiased source of engineering rankings and assessments that prospective engineering school students in the U.S. and worldwide turn to for reliable advice, comparisons between schools and guidance.

- Engineering schools use the rankings and data for peer comparisons

Education > Best Graduate Schools > Top Engineering Schools

2017 Best Engineering Schools

#1 **Massachusetts Institute of Technology**
Cambridge, MA

#2 **Stanford University**
Stanford, CA

#3 **University of California—Berkeley**
Berkeley, CA

Full Engineering Schools Rankings »

Engineers can build on the skills they learned as undergraduates with advanced degrees in areas ranging from biomedical engineering to nuclear engineering. U.S. News weighs factors such as reputation, research activity and student selectivity to rank the top graduate engineering schools. See the methodology »

Engineering Programs and Specialties

Aerospace / Aeronautical / Astronautical

Biological / Agricultural

Biomedical / Bioengineering

Chemical

Civil

Computer

Electrical / Electronic / Communications

Environmental / Environmental Health

Industrial / Manufacturing / Systems

Materials

Mechanical

Nuclear

Petroleum

U.S. News Grad Engineering Specialty Rankings-Which Areas are ranked?

1. **Aerospace / Aeronautical / Astronautical**
2. **Biological / Agricultural**
3. **Biomedical / Bioengineering**
4. **Chemical**
5. **Civil**
6. **Computer Engineering**
7. **Electrical / Electronic / Communications**
8. **Environmental / Environmental Health**
9. **Industrial / Manufacturing**
10. **Materials**
11. **Mechanical**
12. **Nuclear**
13. **Petroleum**

Graduate Engineering Schools Ranking Factors: Inputs and Outputs

- A combination of inputs and outputs are used in the Graduate Engineering ranking model that are a mixture of statistical and opinion data.

- Inputs include:
  - Research activity
  - Faculty resources
  - Student selectivity

- Outputs include:
  - Peer assessment
  - Practitioner assessment

How are the U.S. News Best Graduate Engineering Schools Ranking Weights Selected?

- The selection of the engineering weights are based on several factors. They are:
  - 30+ years of experience in doing academic rankings
  - Education literature
  - Discussions with engineering educators
  - In the end U.S. News makes its best judgment

Graduate Engineering Rankings-An overview of the methodology

- The weights that are used in the grad engineering ranking:
  - Peer Assessment—.25
  - Corporate and Hiring Contacts Assessment—.15
  - Student Selectivity—.10
  - Faculty Resources—.25
  - Research Activity—.25

- The universe of graduate engineering schools consists of those that offer a doctoral engineering degrees.

- In fall 2015, we surveyed 215 engineering programs, approx. 194 of which were ranked. Those rankings online now.

Graduate Engineering Rankings-Peer Assessment

- Weighted .25 of the overall score

- It is measured by an annual survey of engineering school deans and deans of graduate studies at each engineering program that offers a doctoral degree. Two surveys per school.

- Schools are marked on a scale of 1 (Marginal) to 5 (Distinguished). There is a "Don't Know" option that is automatically selected, if no option is marked.

Graduate Engineering Rankings- Corporate and Hiring Contacts Assessment

- Weighted .15 of the overall score

- It is measured by an annual survey of corporate and hiring contacts that employ graduates from graduate engineering schools.

- U.S. News gathered the names of engineering school corporate and hiring contacts from the previously ranked engineering schools in summer 2015 via online survey. 10 names per schools. The format is identical to that of the Peer Assessment survey filled out by deans and deans of graduate studies.

- Surveys were conducted online in fall 2015. All unduplicated names supplied by schools were surveyed.

Graduate Engineering Rankings-Student Selectivity

- There are two factors involved in the student selectivity section. They are:
  - The average quantitative GRE score of entering students (weighted by .0675).
  - The acceptance rate (weighted by .0325). The additive inverse of the acceptance rate is used in the ranking calculations.
- The data are for all entering graduate students for the fall 2015.

Graduate Engineering Rankings-Faculty Resources

- There are four factors involved in the faculty resources section. They are:
  - The ratio of full-time doctoral students to full-time faculty (weighted by .075).
  - The ratio of full-time master's students to full-time faculty (weighted by .0375).
  - The proportion of full-time faculty that are members of the National Academy of Engineering in calendar 2015 (weighted by .075).
  - The number of engineering doctoral degrees granted in the most recent academic year end June 2015 (weighted by .0625).
- Data are for 2015. Only full-time tenured and tenure-track faculty are used in calculations.

Graduate Engineering Rankings-Research Activity

- There are two factors involved in the research activity section. They are:
  - The total externally funded engineering research expenditures (weighted by .15).
  - The average research expenditures per full-time faculty member (weighted by .10).
- Expenditures refer to separately funded research conducted by the school, averaged over 2014 and 2015. Only full-time tenured and tenure-track faculty are used in calculations.
- Only current year data is published .

Computer Science

Ranked in 2014 | Computer Science Rankings
Methodology

Earning a graduate degree in computer science can lead to positions in research institutions, government agencies, technology companies and colleges and universities. These are the top computer science schools. Each school's score reflects its average rating on a scale from 1 (marginal) to 5 (outstanding), based on a survey of academics at peer institutions.

Specialty Select specialty ▾

Rank	School name	Score
#1 Tie	Carnegie Mellon University Pittsburgh, PA	5.0
#1 Tie	Massachusetts Institute of Technology Cambridge, MA	5.0
#1 Tie	Stanford University Stanford, CA	5.0
#1 Tie	University of California—Berkeley Berkeley, CA	5.0
#5	University of Illinois—Urbana-Champaign Urbana, IL	4.6
#6 Tie	Cornell University Ithaca, NY	4.5
#6 Tie	University of Washington Seattle, WA	4.5

15

Best Undergraduate Engineering Programs

f   g+   🐦

The undergraduate engineering program rankings were based solely on peer assessment surveys. To appear on an undergraduate engineering survey, a school must have an undergraduate engineering program accredited by ABET. These programs are split into two groups: schools whose highest engineering degree offered is a doctorate and schools whose highest engineering degree offered is a bachelor's or master's.

See the Best Undergraduate Engineering Programs Ranking Methodology »

Best Undergraduate Engineering Programs Rankings
(where doctorate is highest degree)

	#1 Tie	Massachusetts Institute of Technology Cambridge, MA
	#1 Tie	Stanford University Stanford, CA
	#3	University of California--Berkeley Berkeley, CA

▸ Full rankings

Massachusetts Institute of Technology

Best Undergraduate Engineering Programs Rankings
(where doctorate not offered)

	#1 Tie	Harvey Mudd College Claremont, CA
	#1 Tie	Rose-Hulman Institute of Technology Terre Haute, IN
	#3 Tie	Franklin W. Olin College of Engineering Needham, MA
	#3 Tie	United States Military Academy West Point, NY

▸ Full rankings

Rose-Hulman Institute of Technology

16

Undergraduate Engineering rankings

- Done Annually

- Universe is approx. 400 ABET accredited schools divided into two categories.

- In current rankings posted online-184 undergraduate engineering programs at engineering programs with highest engineering degree offered is Ph.D.

- In current rankings posted online-216 undergraduate engineering programs whose highest engineering degree offered is bachelor's or master's.

- Rankings and 12 specialty ranking 100% based on Academic reputation only. Dean and associate dean surveyed at each program. Two surveys per school. School gets two votes.

- Rankings (Civil, Chemical, etc.): Schools with 7 or more nominations ranked. Schools need course in field to be ranked-not based on being ABET accreditation.

- 5-point point scale used, same as Best Colleges. Counts used for specialties

- Why two categories? Suggested by The Engineering Deans Counsel of ASEE in mid 90s.

U.S. News Best Undergraduate Engineering Specialty Rankings-Which Areas are ranked?

1. **Aerospace / Aeronautical / Astronautical**
2. **Biological / Agricultural**
3. **Biomedical / Bioengineering**
4. **Chemical**
5. **Civil**
6. **Computer Engineering**
7. **Electrical / Electronic / Communications**
8. **Environmental / Environmental Health**
9. **Industrial / Manufacturing**
10. **Materials**
11. **Mechanical**
12. **Petroleum**

Education > Online Education > Online Graduate Engineering Degrees

Best Online Graduate Engineering Programs

#1 University of California—Los Angeles (Samueli)
Los Angeles, CA

#2 University of Southern California (Viterbi)
Los Angeles, CA

#3 Columbia University (Fu Foundation)
New York, NY

#4 Pennsylvania State University—World Campus
University Park, PA

See Full Rankings

There are several academic routes for those earning an online engineering degree to pursue, including civil, software and electrical engineering, among other specializations. Some master's of engineering programs require students to participate in an internship, and a few require a comprehensive exam. U.S. News evaluated several factors to rank the best online engineering degree programs, including reputation, faculty credentials and student services and technologies. See the methodology »

Online Graduate Engineering Degrees

Biomedical Engineering / Bioengineering, Civil Engineering, Electrical Engineering, Engineering Management, Mechanical Engineering

Education > Online Education > Online Graduate CIT Degrees

Best Online Graduate Computer Information Technology Programs

#1 University of Southern California
Los Angeles, CA

#2 Virginia Tech
Blacksburg, VA

#3 Boston University
Boston, MA

#4 Pennsylvania State University—World Campus
University Park, PA

See Full Rankings

Degree Finder

The U.S. News University Directory can match you with online programs that meet your education criteria in a few simple steps.

Start Now

U.S.News UNIVERSITY DIRECTORY

For anyone interested in programming, designing or sharing technology expertise, an online degree in computer and information technology (CIT) may be the best option. Students earning a CIT degree online can choose among computer science or computer engineering specializations and can complete the online degree quicker if they have previous CIT experience. U.S. News evaluated several factors to rank the best online CIT degree programs, including selectivity, graduation rates and student services and technologies. See the methodology »

Online Graduate Computer Information Technology Degrees

Computer Information Systems, Computer Science, Cybersecurity, Information Technology, Instructional Technology, Software Engineering, Telecommunications

Undergraduate Computer Information Technology Degrees

Computer Science, Cybersecurity, Information Technology, Network Administration

Best Online Programs – 2016 Edition

- Schools report data specific to their distance education master's programs
- To be eligible:
  - All program requirements accessible via Internet; excluding testing, orientations, support services.
  - School has an ABET accredited engineering program.
- Engineering- 82 programs ranked in January, 2016.
- Computer Information Technology -48 schools ranked
- Rankings 85% statistical, 15% peer reputation

U.S.News EDUCATION

Education Rankings & Advice

Home | Colleges | Grad Schools | High Schools | Online Programs | Community Colleges | **Global Universities**

Global Rankings   Africa   Arab Region   Asia   Australia/New Zealand   Europe   Latin America

Search: [School name] [Country ▼] [Go]

Education > Best Global Universities

Best Global Universities

The U.S. News rankings, based on schools' academic research and reputation, allow students to compare universities around the world.

See the Global Universities Rankings »

Search Global Universities

[School name] [Country ▼] [Go]

BEST GLOBAL UNIVERSITIES
U.S.News & WORLD REPORT
2016
RECOGNIZED FOR
Academic Research and Reputation

Regional Rankings

[Africa] [Asia] [Australia/New Zealand] [Europe] [Latin America]

Featured Country Rankings

🇨🇦 Canada   🇮🇳 India   🇰🇷 South Korea
🇨🇳 China   🇮🇹 Italy   🇪🇸 Spain
🇫🇷 France   🇯🇵 Japan   🇸🇪 Sweden
🇩🇪 Germany   🇳🇱 Netherlands   🇬🇧 United Kingdom

Subject Rankings

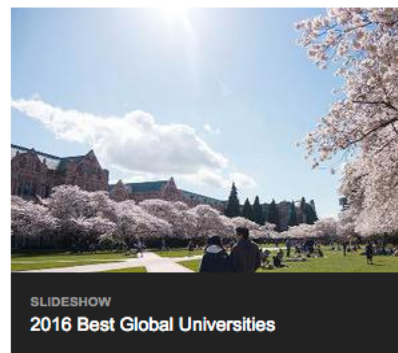|		
Agricultural Sciences	Environment/Ecology	Neuroscience and Behavior
Arts and Humanities	Geosciences	Pharmacology and Toxicology
Biology and Biochemistry	Immunology	Physics
Chemistry	Materials Science	Plant and Animal Science
Clinical Medicine	Mathematics	Psychiatry/Psychology
Computer Science	Microbiology	Social Sciences and Public Health
Economics and Business	Molecular Biology and Genetics	Space Science
Engineering		

SLIDESHOW
2016 Best Global Universities

U.S. News College Compass

- Expanded Profiles for Nearly 1,800 Schools
- Minimum TOEFL Scores
- Comprehensive Financial Aid Info

[Learn More]

Follow U.S. News Education

Future of U.S.News Engineering Rankings

- Engineering Rankings are here to stay……...
- Controversy will continue..
- Engineering academic community will remain highly interested in rankings.
- Primary audience will be consumers: prospective students, parents and alumni
- Internet continues to evolve as key way eng students find out about schools.
- Rankings are now global phenomenon and will continue to evolve on a country-by-country basis.