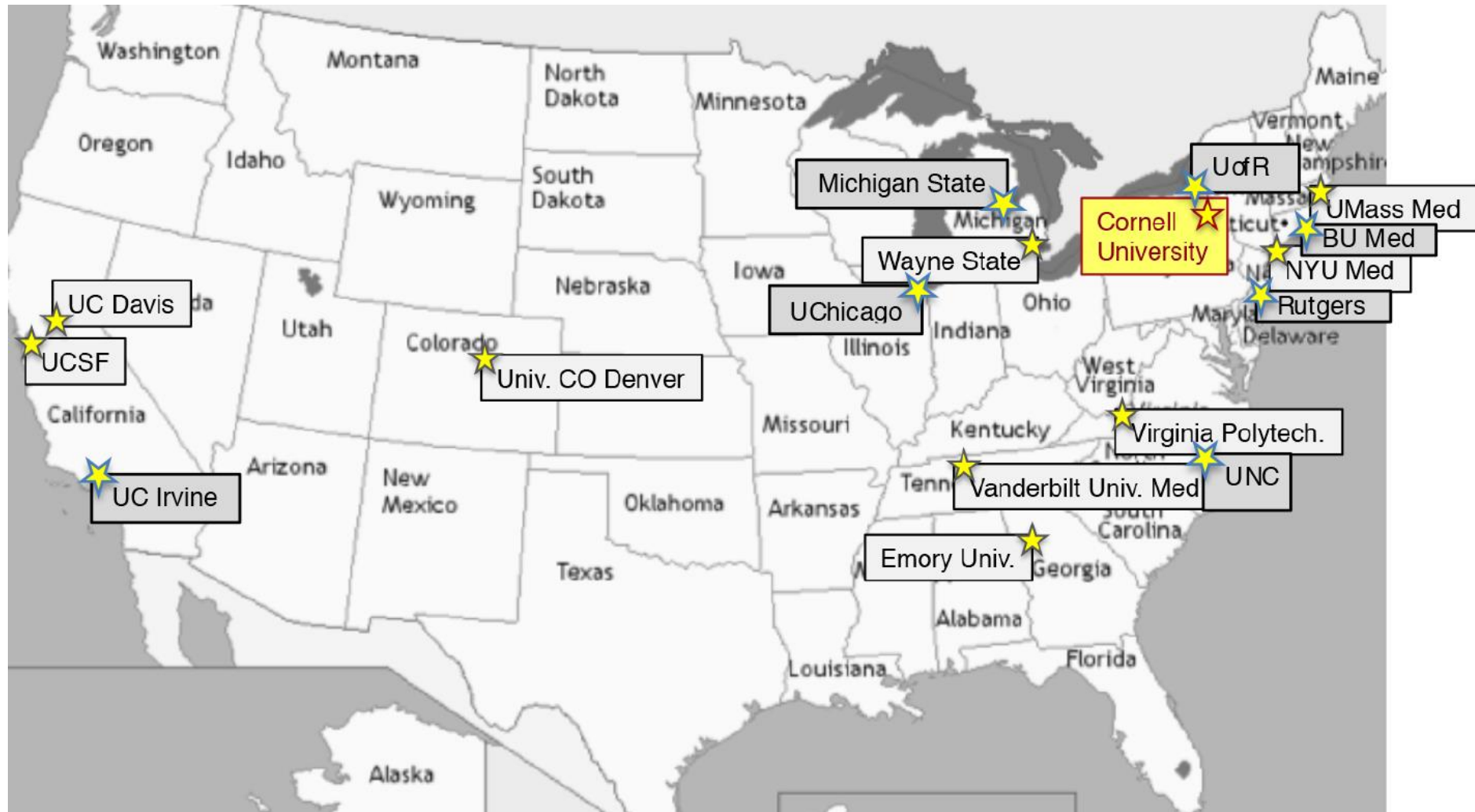


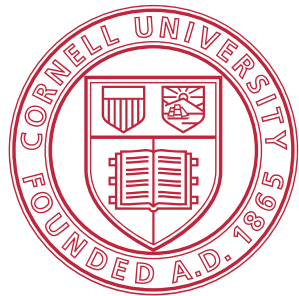
# BEST Lessons for Graduate Student Professional Development:

## Cornell's Experience

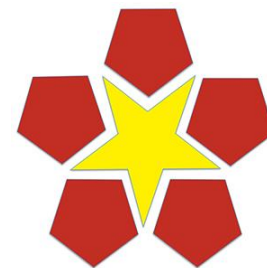
Barbara A. Knuth, Senior Vice Provost and Dean  
July, 2015

# The Nationwide BEST Consortium





Cornell University



# Broadening Experiences in Scientific Training (BEST) Program

Enhance training opportunities for STEM Ph.D.s & postdoctoral scholars to prepare for careers “outside of conventional academic research”

- NIH focus on careers in biomedical research workforce
- Cornell focus on STEM workforce

## Core competencies:

- Communication
- Teaching
- Career Development
- Leadership and Management
- Personal Development
- Responsible Conduct of Research



[www.BEST.cornell.edu](http://www.BEST.cornell.edu)



Sponsors:

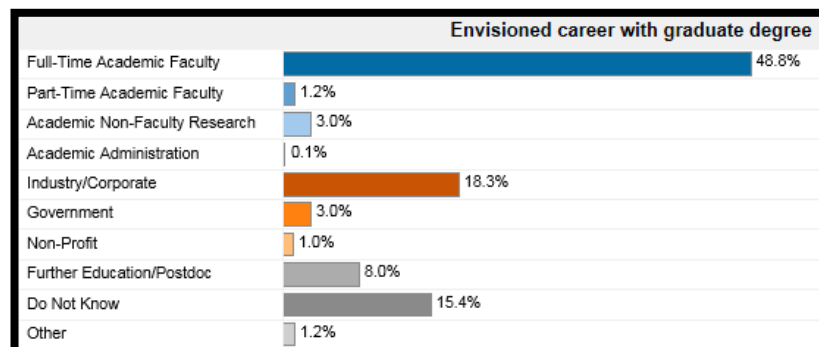
- NIH
- Graduate School
- Colleges
  - Agriculture & Life Sciences
  - Arts & Sciences
  - Engineering
  - Human Ecology
  - Veterinary Medicine

# Needs Assessment

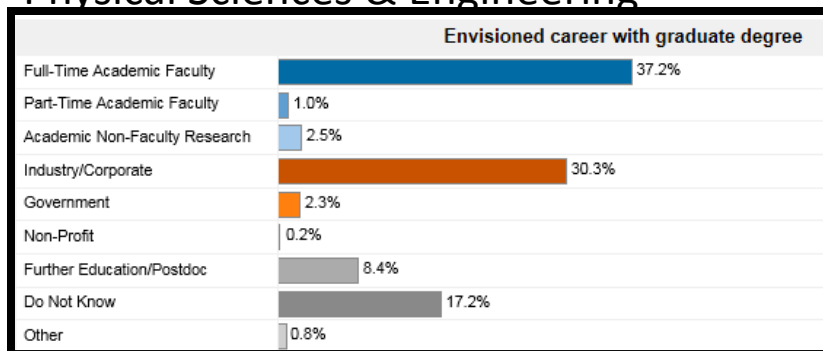
- **Cornell PhD Alumni Career Outcomes Survey**
  - What are our alumni doing?
  - How well did their Cornell graduate education prepare them?
- **Graduating Student Exit Survey**
  - To what extent were learning outcomes achieved?
  - What will graduating students be doing?
- **Doctoral Student Experience Survey**
  - What are students seeking and participating in?
- **New Student Survey**
- **“Focus groups” – faculty, students, alumni**

# New Student Survey

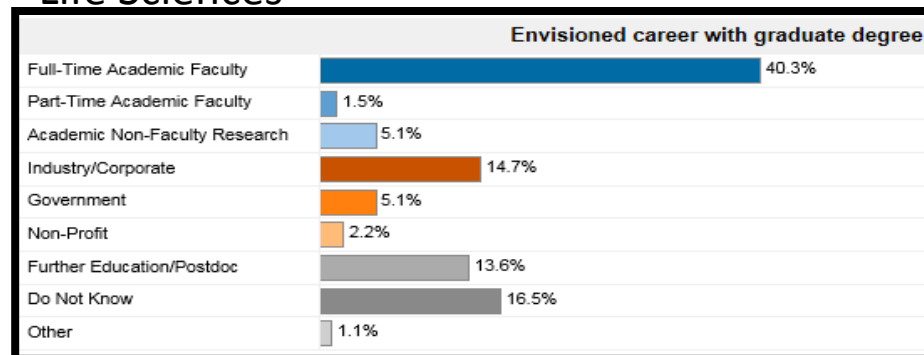
## All Disciplines



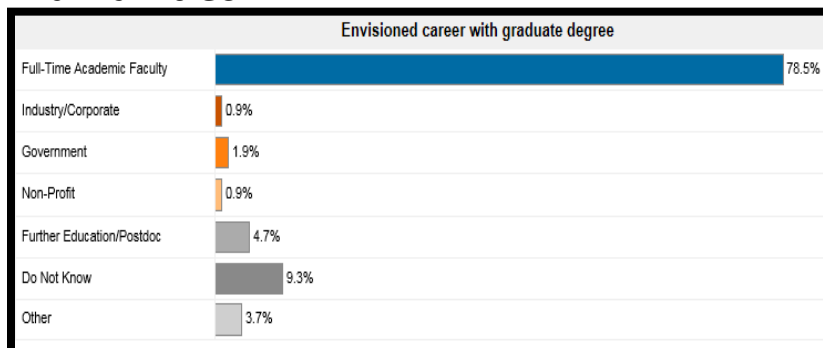
## Physical Sciences & Engineering



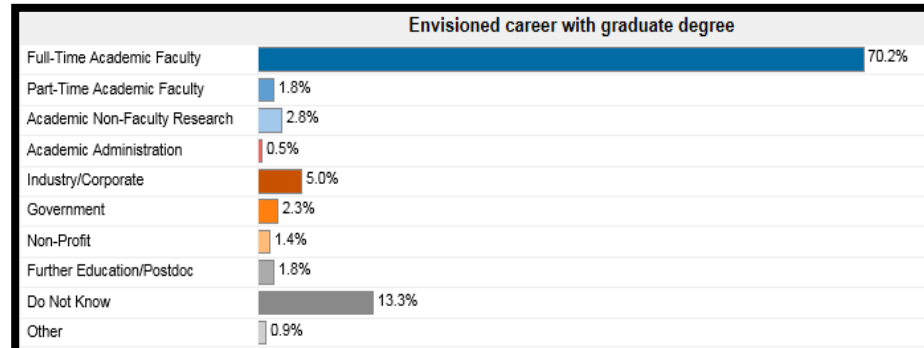
## Life Sciences



## Humanities

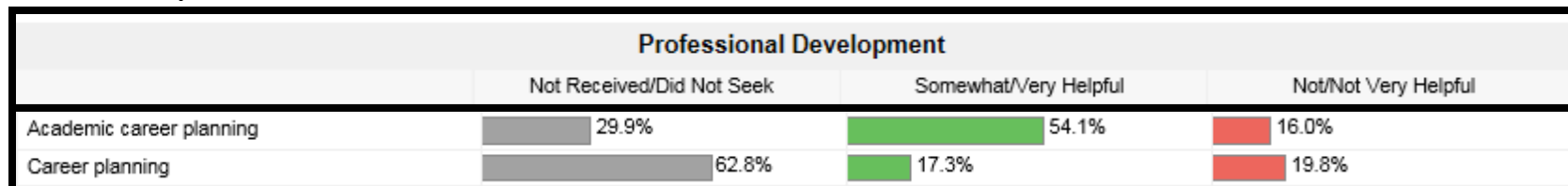


## Social Sciences

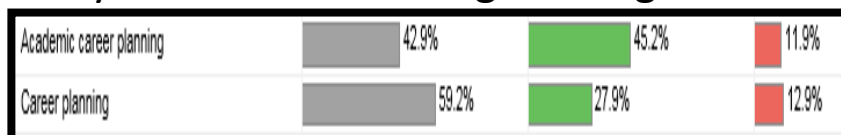


# PhD Experience Survey

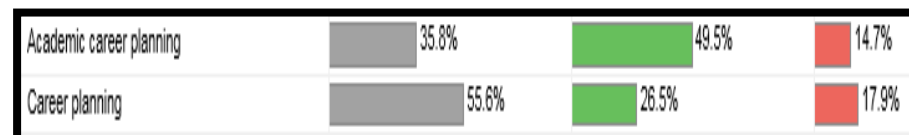
## All Disciplines



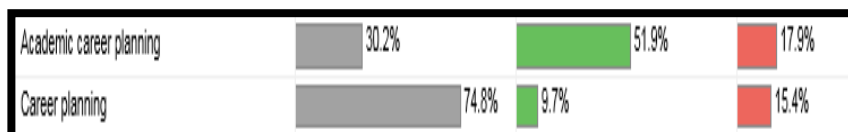
## Physical Sciences & Engineering



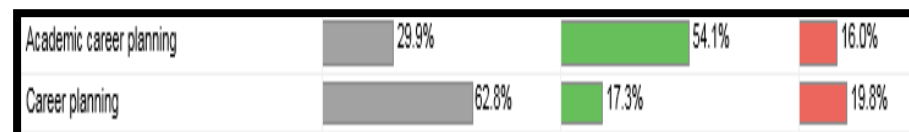
## Life Sciences



## Humanities



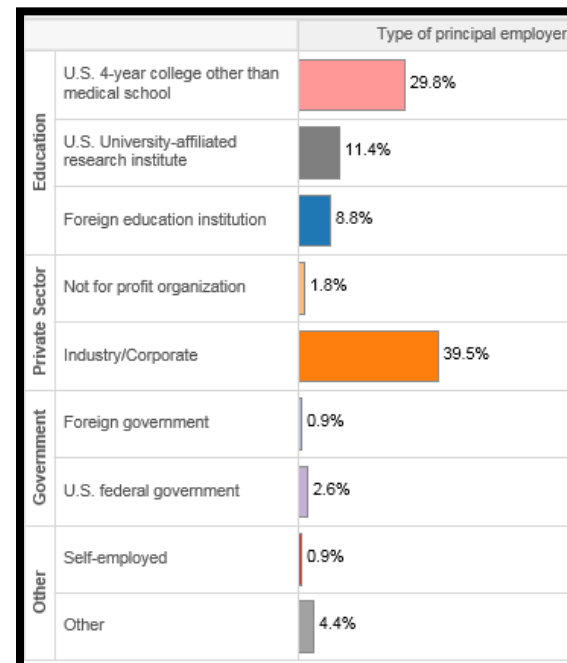
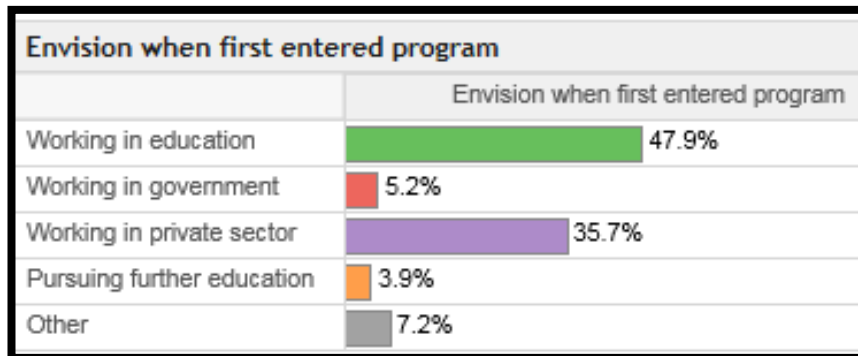
## Social Sciences



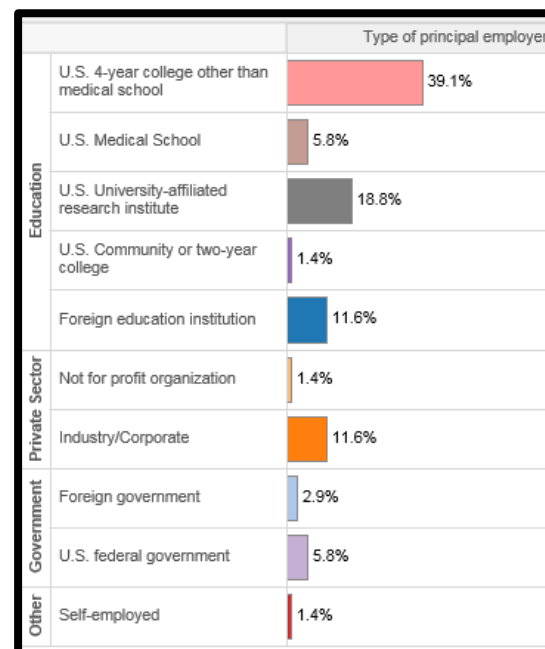
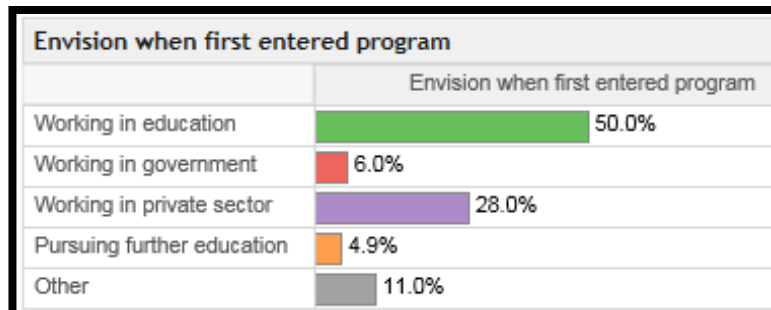


# PhD Exit Survey

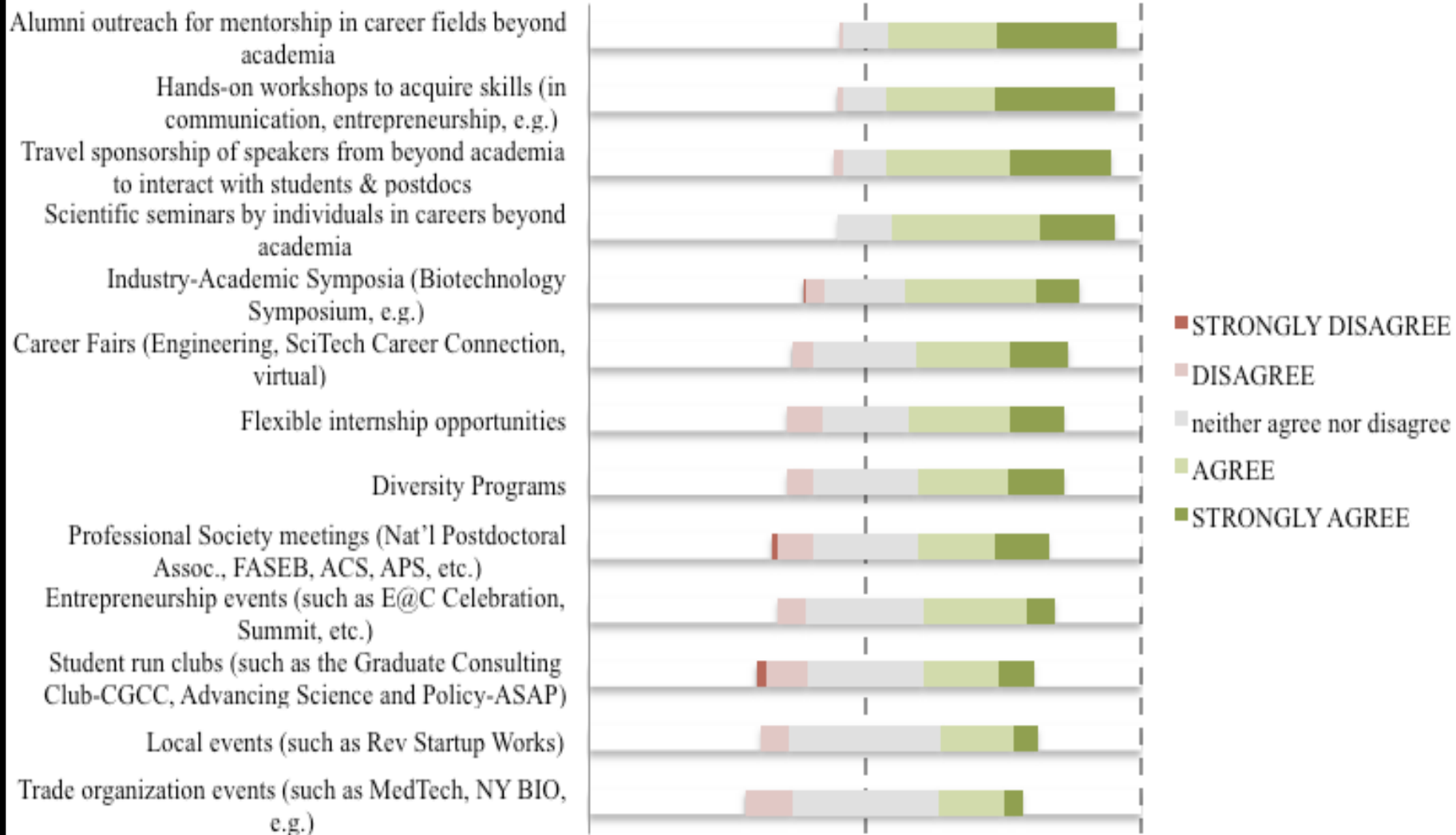
## Physical Sciences & Engineering



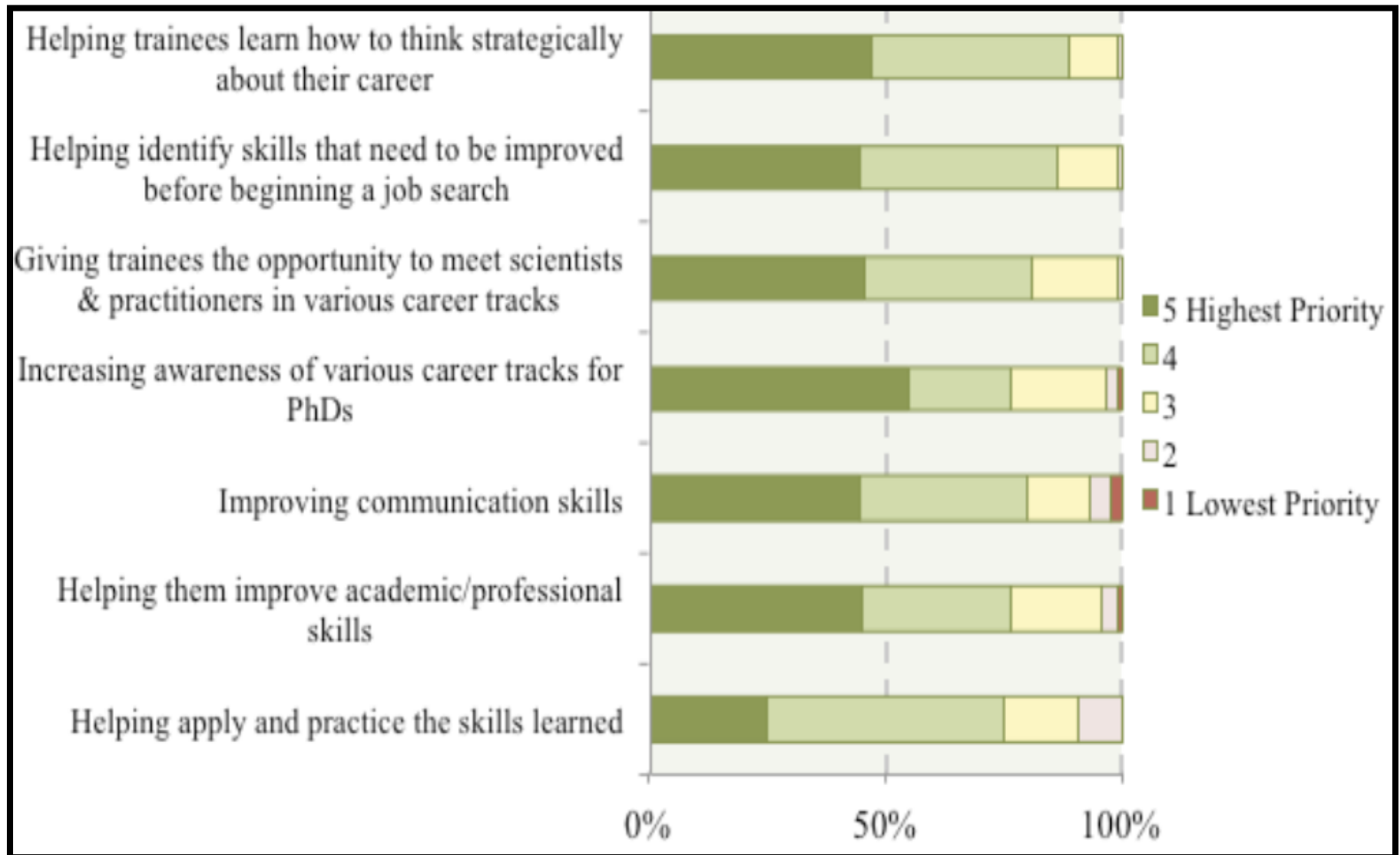
## Life Sciences



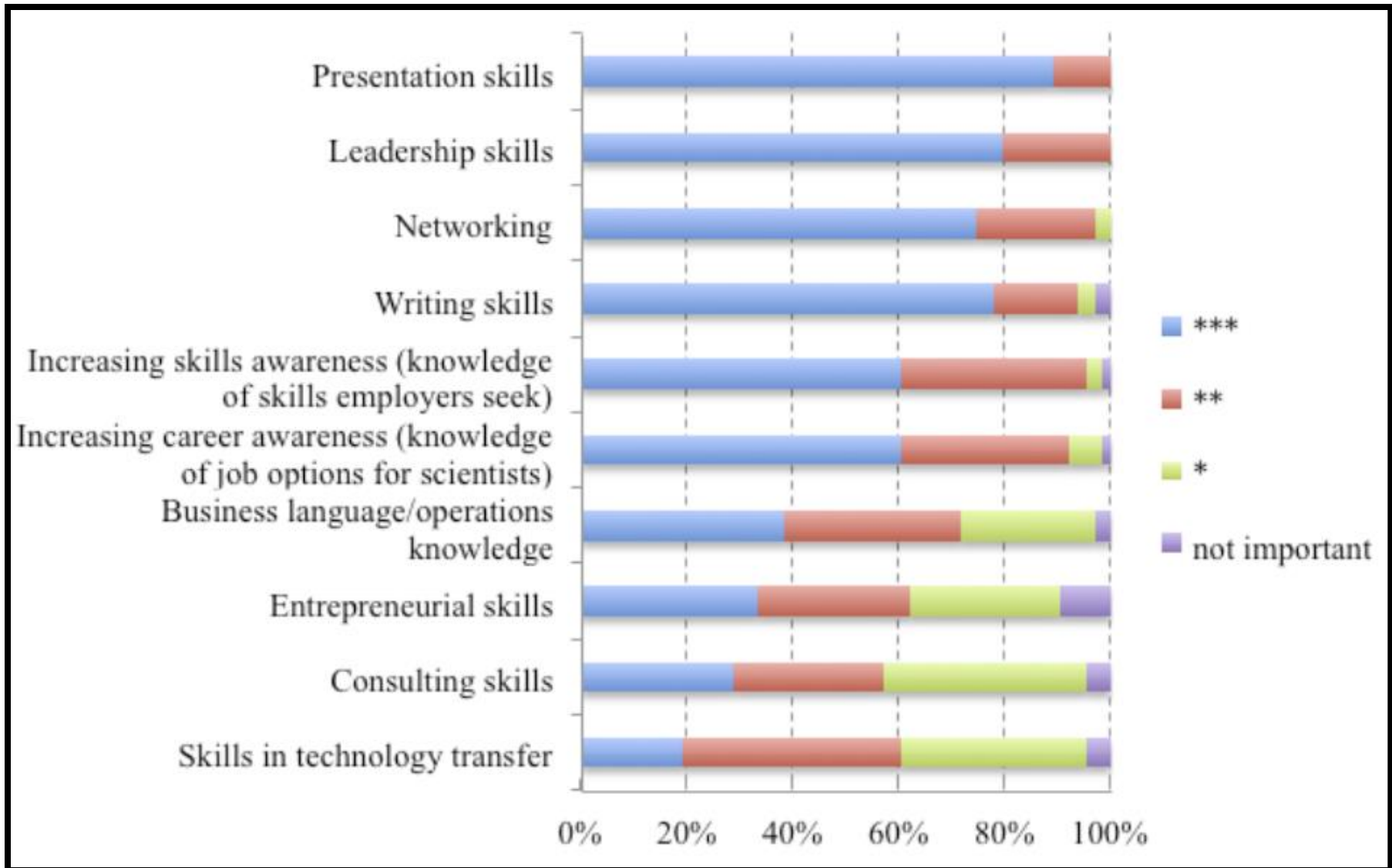
# Faculty Perspectives



# Faculty Priorities for BEST

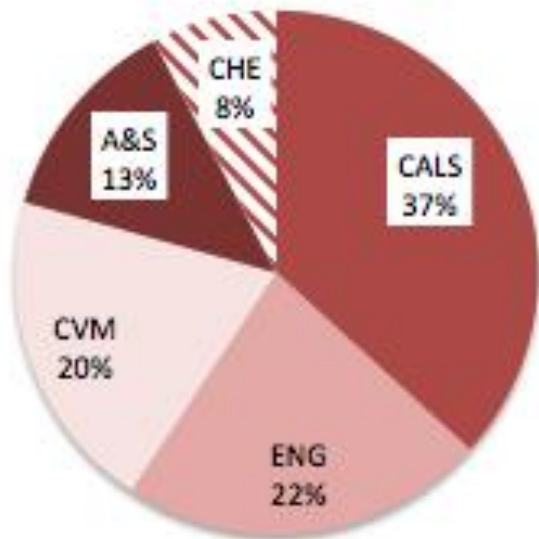


# Important Skills are Transferable

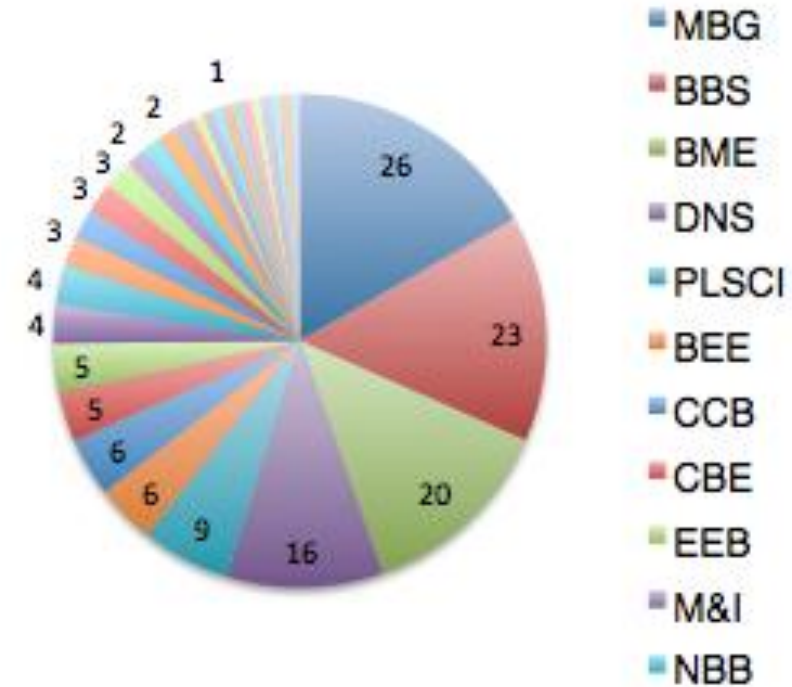
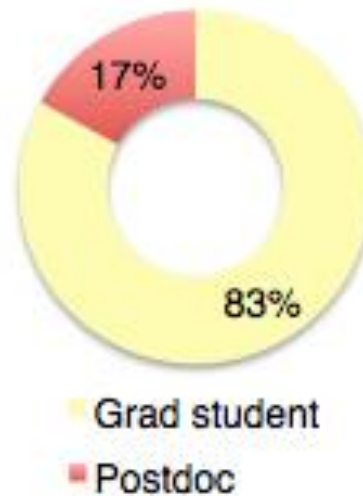


# Cornell BEST participants

By college



By field/dept



# Two levels of Cornell participation

## 1. The 'Sampler'

- Learn more about different career possibilities with your PhD degree
- Acquire knowledge about the skills required in each career pathway
- Decide how the pros and cons mesh with your own career objectives

- Individual Development Plan:
  - ScienceCareers **myIDP** encouraged
- Existing **workshops**:
  - Graduate School, CU-CIRTL, CTE, Office of Postdoctoral Studies
- Attend **events**:
  - IP&Pizza, Entrepreneurship@C, REV, MedTech see [www.BEST.cornell.edu/events](http://www.BEST.cornell.edu/events)
- Join a **club**:
  - ASAP – Advancing Science and Policy
  - CGCC – Cornell Graduate Consulting Club
  - TEC – Technology and Entrepreneurship Club
- Take **courses**:
  - SciPol Bootcamp (BME 4440); Science Communication (COMM 5660); BSL Business as a 2<sup>nd</sup> Language (BME 5950); Leadership Development for Life Scientists (ALS 5100)



# Career Panel Discussions

*Broadening Experiences in Scientific Training*

## Careers in Industry, Entrepreneurship, and Management

Wednesday, November 19  
10:00 - 11:30 AM • 700 Clark Hall

Panel Discussion Featuring



**EJ Bormann**  
CEO & Director, Harbour Antibodies BV.  
Previously Senior VP, Boehringer Ingelheim & VP, Pfizer



**David Putnam**  
Professor of BME and CBE, Cornell



**Chris Thomas**  
CTO, Widetronix



**Stephen P. Smith**  
General Manager & VP of Business Development, CYC Tech Valley

Recorded by:

CORNELLCAST

Contact: Susi Varvayanis sv27@cornell.edu

www.BEST.cornell.edu



Connect with alumni

*Broadening Experiences in Scientific Training*

## Careers for PhDs in Governance, Risk and Compliance

Wednesday, February 25  
2:00 PM  
700 Clark Hall

Panel Discussion Featuring



**Tony Eisenhut**  
President of Rheonix, co-Founder of KensaGroup



**Alexis Brubaker**  
Biosafety Officer at Cornell University



**Amit Lal**  
Associate Professor in ECE at Cornell, previously Program Manager at DARPA



**Denise Archer**  
Quality Assurance Manager, Animal Health Diagnostic Center, Cornell University

Contact: Susi Varvayanis sv27@cornell.edu

www.BEST.cornell.edu





# Two levels of participation

## 1. The 'Sampler'

## 2. The 'Lingo'

- In-depth exposure and practice of the skills
- Longer term or more intensive hands-on talent development
- Learn the language of the field
- Be able to say "I've done that"

# GET EXPERIENCE and CREDIBILITY

- **Academic credit**
  - e.g., Over 70 courses across Cornell in Entrepreneurship
- **Certificates**
  - Online offerings in Six Sigma, Lean, QA/QC, Biopharmaceutical, Regulatory affairs, Medical devices
- **Experience**
  - Enter a business plan or case competition
  - Apply for a seed grant (CAT, NEXUS, SBIR...)
  - Start a company
  - Be a speaker at an industry conference
  - Help shape NY legislation
  - Flexible hours internship

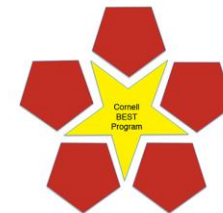
# EXAMPLE INTERNSHIPS:

- 5-10h/wk at Cornell's Environmental Health and Safety as a biosafety analyst
- 5-10h/wk at the Cornell licensing office
- 2d/wk at a venture capital investment firm as a life sciences venture analyst
- 10 weeks at a startup firm in food science
- 3 months between defense and degree conferral at a consulting firm in Luxembourg
- 4 months at a strategic analysis firm in Washington, D.C. in science policy
- 6 months at a large biopharma company in downstream processing

# Start to change the culture

- Build on existing seminar series on campus to include speakers from beyond academia
- Fund half the travel costs
- Encourage trainees to invite, host, and organize an interactive session in addition to a lunch discussing their career trajectory

e.g. Nathan Seppa,  
ScienceNews reporter



Cornell University  
College of Agriculture and Life Sciences

Department of Communication

# Industry, Entrepreneurship & Management

- BEST funded a postdoc to attend a Pre-Seed Workshop (PSW) to evaluate the commercial potential of his cleantech idea
- As a result of BEST referrals and networking at the PSW, he assembled a business team to complement his science
- Together they applied for and were awarded a NYSERDA NEXUS grant to examine the feasibility
- They are currently talking to potential customers and developing a prototype





# Science Communication

- A BEST trainee was paired with a science communication professional to learn how to write press releases
- With this mentoring she learned how to conduct interviews; the purpose, structure and mechanics of writing; and editing
- She has now co-authored two Cornell Chronicle articles



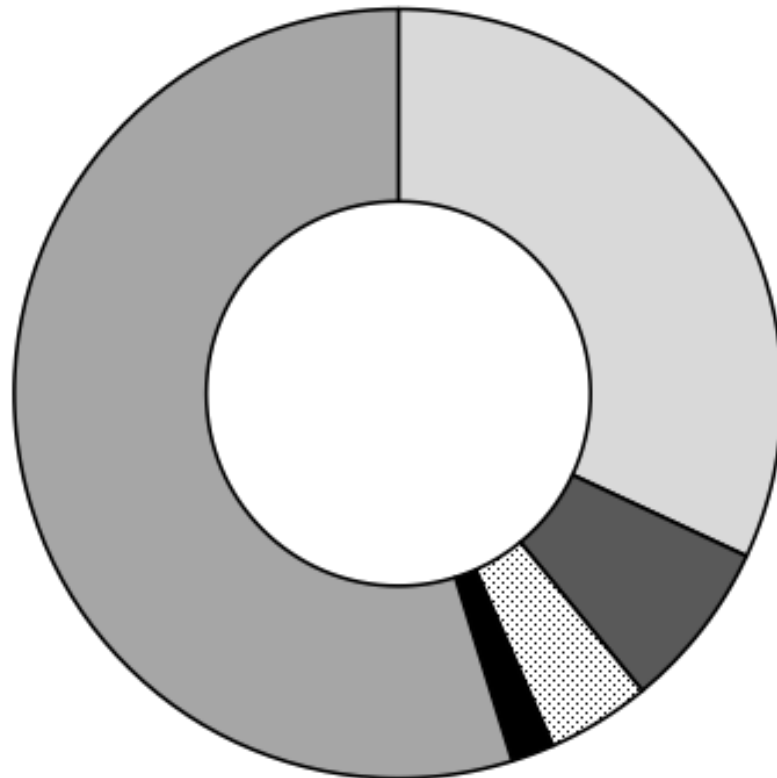
## Governance, Risk & Compliance

- Externship with the Food and Drug Administration
- Visit biocontainment facilities and learn how they're run
- Workshops on quality assurance, good lab practices
- Write an SOP, understand certification and compliance
- Coursework in governance, risk and compliance
- Internship in a Quality Control department in a company (food, brewing, chemical, biomedical)
- BESTernship with Cornell's Environmental Health & Safety

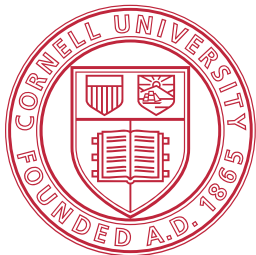




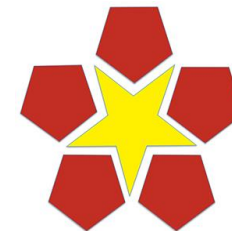
## total estimated attendance 1158



- Industry, Entrepreneurship & Management
- Science Communication
- ▤ Science Policy
- Governance, Risk and Compliance
- ALL career tracks

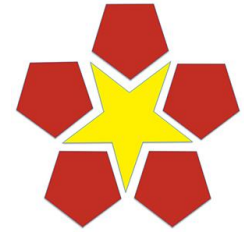


Cornell University



# Hallmarks of the Cornell BEST Program

- **Remind Faculty and Trainees:** primary objective is successful PhD or postdoctoral training
- **Flexible**
  - No requirements
  - As much time as trainees have to devote
  - Ready when you are
  - Suggest your own ideas for career preparation
- **Experiential**
  - Apply what you learn
  - Customize it to fit your needs
  - Write it on your resume



# Lessons Learned

- **Not every faculty** needs to endorse the program
- BEST is **not for everyone**
- **Advisory board** of students and postdocs helps with outreach, marketing, event planning, shaping the program
- **Adapt** program vision and components (e.g., added consulting as a career)
- **Evaluation** will be challenging
  - Windrose evaluation questions differ from existing surveys
  - Windrose evaluation questions will be asked only at end of year two of program
  - BEST is inclusive rather than exclusive
- **Emphasize primary objective:** complete degree!
  - Complement faculty efforts to make training experience better
  - Alleviate faculty pain points
- **Share positive messages**
- **Meet with PIs** when needed, especially if PIs are uncertain about their trainees participating
  - **Quarterly check-ins**
  - **Discontinue BEST privileges** if inadequate academic progress
- **Collaborate** across units – academic departments, Graduate School, Career Services, Alumni Affairs, Office of Postdoctoral Studies, student organizations, external organizations
  - **Identify gaps**
  - **Coordinate to fill perceived gaps**
  - Use available **online resources**

