

# Sample Presentation & 2015 Diversity Catalyst Lecture

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## Structural changes in the department in efforts to enhance diversity

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***In the faculty ranks*** (admittedly focused on gender equity):

***Main point:*** Requires unambiguous buy-in by the upper administration.

***Make your goal, their goal.*** “We’re doing this to enhance the excellence of the department.” Be proactive in seeking out that support.

- *Search committee function.* Helps to ensure a diverse pool of applicants selected for campus interviews
- *Proactive in offering FMLA-qualifying leave (tenure-clock pause)*
- *Aggressive recruitment of dual career chemists.* One open slot becomes TT + lecturer (Chem); 2 TT (Chem); 2 TT (one in Chem; one outside Chem)
- *Aggressive retention of chemists from URG.* Still very difficult (culture)



## Structural changes in the department in efforts to enhance diversity

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### ***Department level:***

- *Established and funded a new standing committee, Diversity Affairs Committee.* Members of DAC are members of other standing committees; this elevates awareness of diversity equity issues throughout the department in a non-threatening “bottom-up” way.
- *Established and funded ChemGRC (Chemistry graduate representative group):* Empower the graduate students (a far more diverse group than the faculty) to shape their own programs. Funds travel awards, and in partner with the local section of the ACS, a student-sponsored seminar series.



Enhance the graduate student experience of students from all URGs

- *Strengthened mentoring structure:* Expectations, two-way street; establish a culture in which mentors share in mentee success
- *Match service responsibilities with faculty member's interests/passions*



# Diversity Equity in Department Policies & Programs



**OXIDE's Presentation  
for Faculty Meetings**



# What is Diversity?

## Inclusion of the “other”

- Gender
- Race & Ethnicity
- Disabilities
- LGBTQIQA+
  - Lesbian
  - Gay
  - Bisexual
  - Transgender
  - Queer
  - Intersex
  - Questioning
  - Allies
  - Other Identities and orientation
- Socioeconomic
- Culture
- Life experiences
- Ideas
- Political Ideologies
- Religion
- Geography
- University Pedigrees
- Place of Origin
- Etc.



# What Does Diversity Mean to You?


- Diversity with respect to the right hand column has traditionally been associated with success
- Diversity with respect to the left hand column needs to be similarly associated with success

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**OXIDE**  
Open Chemistry Collaborative in Diversity Equity

**OXIDE** focuses on Gender, Race & Ethnicity, Disabilities and **LGBTQIQA+** because these areas have been identified as those in which we are underrepresented and that are critical to competitiveness in this century

# Does Our Nation Have a Problem?

Workshop on Excellence Empowered by a  
Diverse Academic Workforce: Achieving  
Racial & Ethnic Equity in Chemistry



- “... our nation needs to take advantage of the excellence inherent in the growing percentage of URM in order to maintain a sufficient supply of domestic Ph.D.’s.”\*
- A crisis exists in our **international competitive position** if we access *less than* 50% of our population
- By 2050, the US will no longer have a majority population and our scientific workforce needs to reflect that

# Underutilization of Human Capital

## 2010 Number (Chemistry) ‡

- 2306 PhDs
- 37.4% Female → 50.8%
- 1323 U.S. Citizen or PR
  - 0.4% Native American → 1.7%
  - 10.9% Asian
  - 4.1% African American → 14%
  - 4.8% Hispanic → 16%
  - 76.1% White

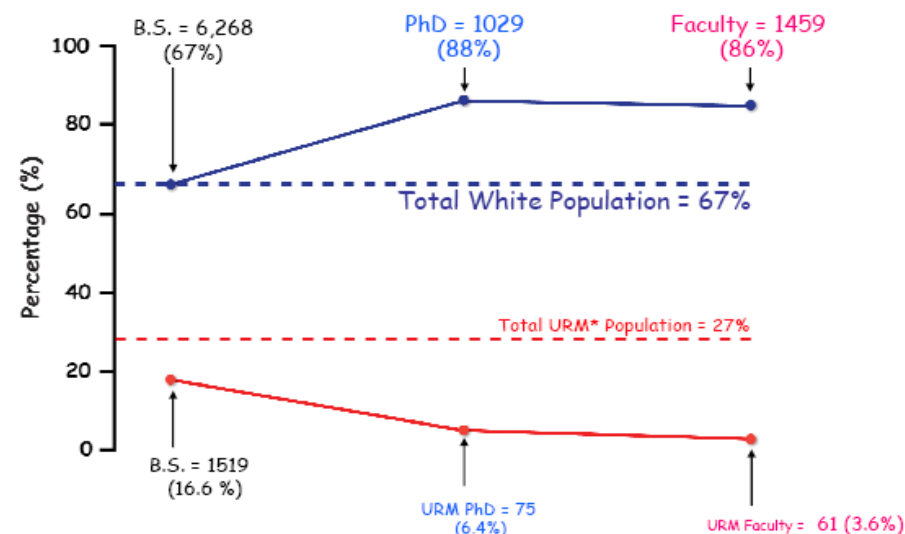
‡ Advancing Graduate Education in the Chemical Sciences (2012)

\* United States Census (2010)

# Faculty are Central to the Solution

- URM<sup>\*</sup>s represent approximately 20% of undergraduate degrees who we trained and who should go on to grad school in equitable numbers
- Within our chemistry programs, we effectively reduce the URG demographics at every stage from B.S. degree to tenured faculty, but the reduction at the postdoc level is particularly severe
- So we can do something about it!

FROM B.S. TO FACULTY: THE PIPELINE FOR U.S. CITIZEN ETHNIC GROUP REPRESENTATION IN CHEMISTRY in 2003



\* Underrepresented Minorities

\* From: "Workshop on Excellence Empowered by a Diverse Academic Workforce: Achieving Racial & Ethnic Equity in Chemistry" (DOE/NSF/NIH Report) <http://chemchairs.uoregon.edu>

# Enlightened Self-Interest

## Competitive advantages for faculties that are diverse

- Expanded pool of candidates  
(Lessons from corporate America)
- Increased influence within the scientific community
- URG faculty will help to recruit the best diverse student cohort
- Increased competitiveness for external funding
- Responds to the changing demographics of the US,  
moving us towards proportionation with availability

# Enlightened Self-Interest

## Challenges

- Implicit (Unconscious) bias is a major impediment
  - Leads to incorrect judgments and lack of sensitivity
  - Data shows that bias has been a barrier to success of Women, Minorities, LGBTQIQ+ individuals and people with Disabilities
- There are many additional barriers and burdens that have also impeded the success of URG faculty
  - Excessive Committees, Solo Status, Stereotype Threat, etc.

# Implicit Bias

## On the context and implication of implicit bias

- Are we objective when it comes to diversity?
  - Better yet, are we ever objective?
- Of course, we can judge quality...
  - Publications, Grants, Fellowships
  - Pedigrees, Experience in Top Labs
  - Letters of Recommendation
- Of Course, Our Evaluations are Independent of...
  - Race
  - Gender
  - LGBTQIQ
  - Disabilities
- All Social Science Studies Say **NO!**
- We **DO NOT** Understand Unconscious Bias!



# Implicit Bias

Do you really trust what you see?



- What color is this dress?

<http://www.wired.com/2015/02/science-one-agrees-color-dress/>

# Implicit Bias

## “White and Gold” or “Blue and Black?”



R: 128  
G: 110  
B: 70

R: 135  
G: 148  
B: 190

R: 101  
G: 101  
B: 129

R: 131  
G: 140  
B: 195

R: 93  
G: 76  
B: 50

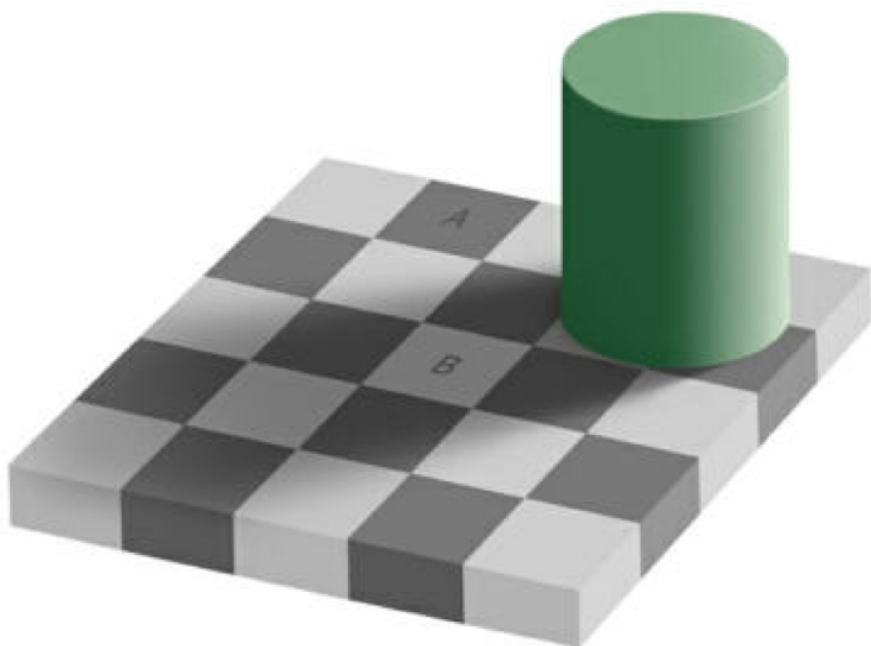
R: 71  
G: 53  
B: 43

- BuzzFeed Poll
  - 70% see blue and black
  - 30% see white and gold
- The dress is blue and orange
  - Probably

<http://www.wired.com/2015/02/science-one-agrees-color-dress/>

# Implicit Bias

everyone has implicit biases

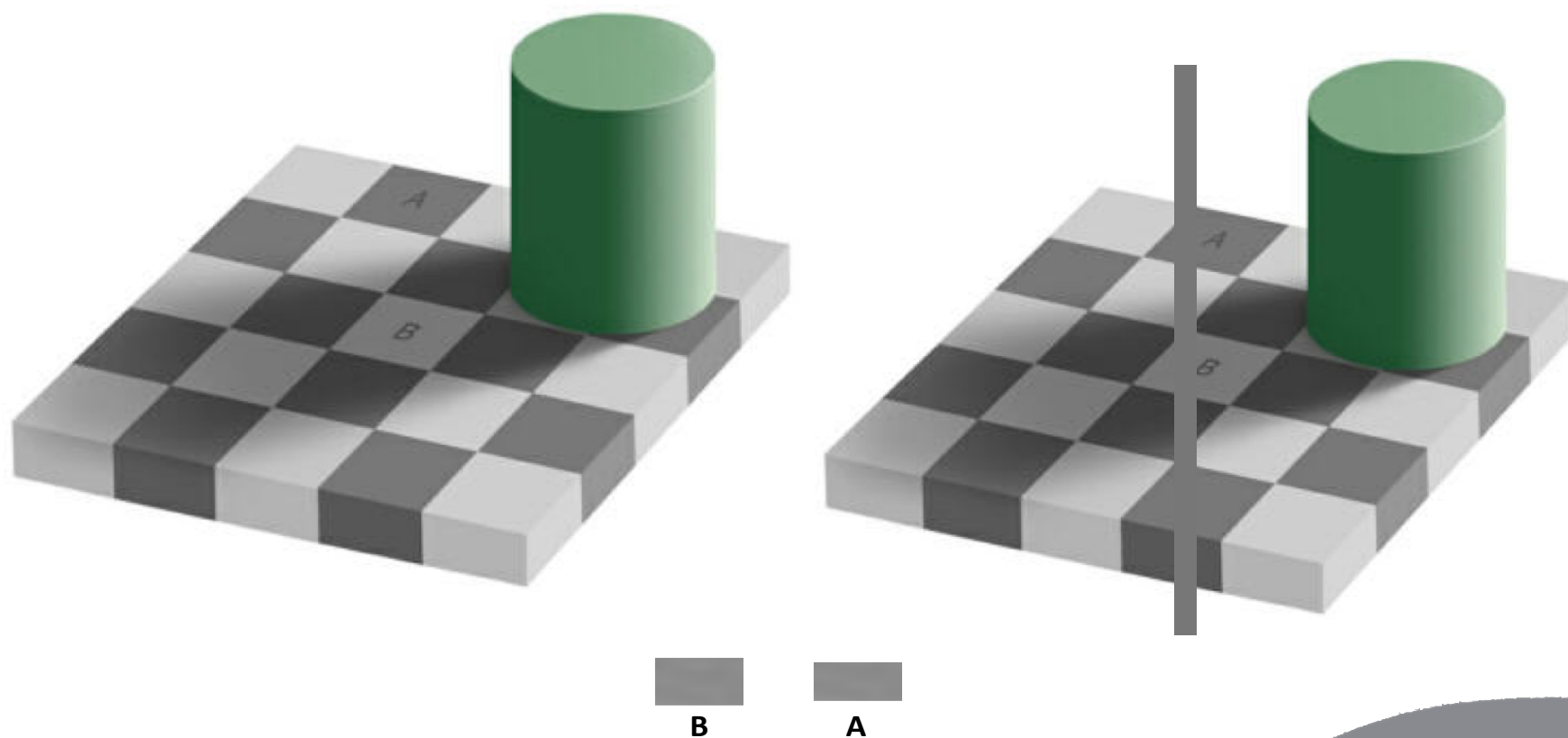


Are squares A and B  
the same color?

*Adapted from B. Nosek, U.Va*

# Implicit Bias

context leads to different observations



# Implicit Bias

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**How can you be completely objective in the complex analysis of science/people?**

# Example of Bias in Science

## Science faculty's subtle gender biases favor male students

Corinne A. Moss-Racusin<sup>a,b</sup>, John F. Dovidio<sup>b</sup>, Victoria L. Brescoll<sup>c</sup>, Mark J. Graham<sup>a,d</sup>, and Jo Handelsman<sup>a,1</sup>

<sup>a</sup>Department of Molecular, Cellular and Developmental Biology, <sup>b</sup>Department of Psychology, <sup>c</sup>School of Management, and <sup>d</sup>Department of Psychiatry, Yale University, New Haven, CT 06520

Edited\* by Shirley Tilghman, Princeton University, Princeton, NJ, and approved August 21, 2012 (received for review July 2, 2012)

Despite efforts to recruit and retain more women, a stark gender disparity persists within academic science. Abundant research has demonstrated gender bias in many demographic groups, but has yet to experimentally investigate whether science faculty exhibit a bias against female students that could contribute to the gender disparity in academic science. In a randomized double-blind study ( $n = 127$ ), science faculty from research-intensive universities rated the application materials of a student—who was randomly assigned either a male or female name—for a laboratory manager position. Faculty participants rated the male applicant as significantly more competent and hireable than the (identical) female applicant. These participants also selected a higher starting salary and offered more career mentoring to the male applicant. The gender of the faculty participants did not affect responses, such that female and male faculty were equally likely to exhibit bias against the female student. Mediation analyses indicated that the female student was less likely to be hired because she was viewed as less competent. We also assessed faculty participants' preexisting subtle bias against women using a standard instrument and found that preexisting subtle bias against women played a moderating role, such that subtle bias against women was associated with less support for the female student, but was unrelated to reactions to the male student. These results suggest that interventions addressing faculty gender bias might advance the goal of increasing the participation of women in science.

diversity | lifestyle choices | science education | science workforce

gender disparity in science (9–11), and that it “is not caused by discrimination in these domains” (10). This assertion has received substantial attention and generated significant debate among the scientific community, leading some to conclude that gender discrimination indeed does not exist nor contribute to the gender disparity within academic science (e.g., refs. 12 and 13).

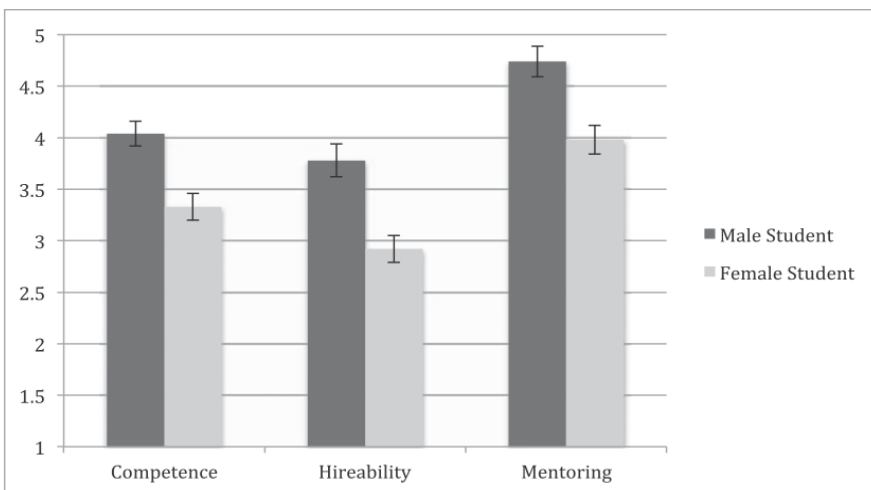
Despite this controversy, experimental research testing for the presence and magnitude of gender discrimination in the biological and physical sciences has yet to be conducted. Although acknowledging that various lifestyle choices likely contribute to the gender imbalance in science (9–11), the present research is unique in investigating whether faculty gender bias exists within academic biological and physical sciences, and whether it might exert an independent effect on the gender disparity as students progress through the pipeline to careers in science. Specifically, the present experiment examined whether, given an equally qualified male and female student, science faculty members would show preferential evaluation and treatment of the male student to work in their laboratory. Although the correlational and related laboratory studies discussed below suggest that such bias is likely (contrary to previous arguments) (9–11), we know of no previous experiments that have tested for faculty bias against female students within academic science.

If faculty express gender biases, we are not suggesting that these biases are intentional or stem from a conscious desire to impede the progress of women in science. Past studies indicate

16474–16479 | PNAS | October 9, 2012 | vol. 109 | no. 41

# Implicit Bias

## Implicit bias affects perception of capability



**Fig. 1.** Competence, hireability, and mentoring by student gender condition (collapsed across faculty gender). All student gender differences are significant ( $P < 0.001$ ). Scales range from 1 to 7, with higher numbers reflecting a greater extent of each variable. Error bars represent SEs.  $n_{\text{male student condition}} = 63$ ,  $n_{\text{female student condition}} = 64$ .

16474–16479 | PNAS | October 9, 2012 | vol. 109 | no. 41

“A broad, nationwide sample of biology, chemistry, and physics professors ( $n = 127$ ) evaluated the application materials of an undergraduate science student who had ostensibly applied for a science laboratory manager position.

All participants received the same materials, which were randomly assigned either the name of a male ( $n = 63$ ) or a female ( $n = 64$ ) student; student gender was thus the only variable that differed between conditions.”

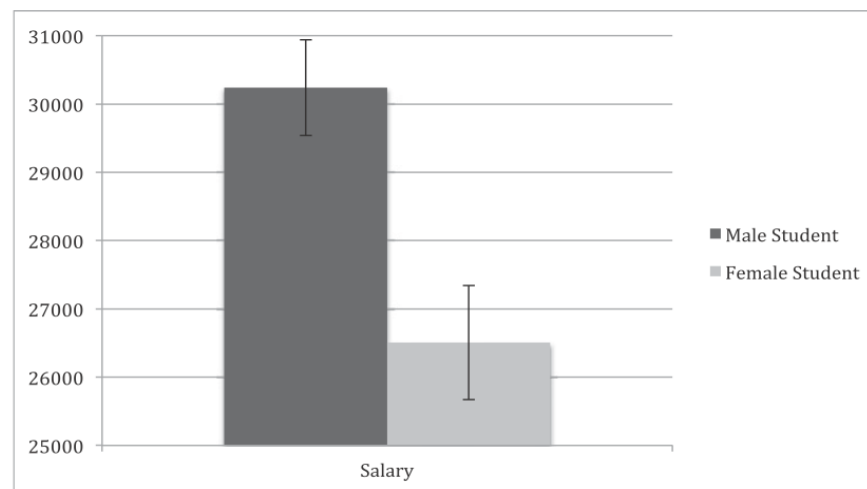


# Implicit Bias

## Implicit bias affects salary

“A broad, nationwide sample of biology, chemistry, and physics professors ( $n = 127$ ) evaluated the application materials of an undergraduate science student who had ostensibly applied for a science laboratory manager position.

All participants received the same materials, which were randomly assigned either the name of a male ( $n = 63$ ) or a female ( $n = 64$ ) student; student gender was thus the only variable that differed between conditions.”



**Fig. 2.** Salary conferral by student gender condition (collapsed across faculty gender). The student gender difference is significant ( $P < 0.01$ ). The scale ranges from \$15,000 to \$50,000. Error bars represent SEs.  $n_{\text{male student condition}} = 63$ ,  $n_{\text{female student condition}} = 64$ .

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# We Must Admit the Hard Truth...

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- Implicit bias is a challenge to even the most enlightened faculties
- Admitting that we (all of us) have a problem is the first step
- Unconscious bias/schemas are natural
  - You are not a bad person for having bias
- We must accept there is a problem and compensate for bias

# Implicit Bias is Only One of the Barriers

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## Implicit or Unconscious Bias

### Schemas

Accumulation of Bias  
Lack of Universal Design  
Insufficient Mentoring  
Insufficient/Unequal “Family Friendly” Policies  
Overburdening the Few  
Unwelcoming/Non-Accommodating Climate  
Unwelcoming/Non-Accommodating Professional Cultures  
Qualitative vs. Quantitative Assessment

### Solo Status

### Stereotype Threat

### Minimizing Differences/Colorblindness

Depoliticization and Meritocratic Ideology

Hernandez and Watt, “A Top-Down Approach for Diversity and Inclusion in Chemistry Departments,” in *Career Challenges and Opportunities in the Global Chemistry Enterprise*; ACS Symposium Series, Vol 1169, edited by H. N. Cheng, S. Shah, and M.L. Wu, Chapter. 19, pp. 207-214 (ACS, Washington D.C. 2014)

# Implicit Bias is Only One of the Barriers

## E.g., traditional evaluation criteria can be flawed

- Flawed Hypotheses (*Myths*):
  - Talented URM scientists are out there; They need to be identified, encouraged and recruited
  - But we should be aware that the academic climate for URMs has been largely unsupportive, indifferent, or in some cases even hostile...
- Distortion (*Error*) in Objective Perceptions & Implicit Bias
  - Awareness: We need to recognize that our HR skills are not always perfect.
  - Systemic actions/corrections are more difficult because training classes are often ineffective
- Accumulation of micro-aggressions & misuses of schemas
  - The accumulation of the effects of implicit biases and micro-aggressions is a subtle factor pervading all our interactions and undermines the progress of URM candidates at all levels of the pipeline from B.S. to faculty.

\* “Workshop on Excellence Empowered by a Diverse Academic Workforce: Achieving Racial & Ethnic Equity in Chemistry” (DOE/NSF/NIH Report) <http://chemchairs.uoregon.edu>

# Policy and Programs

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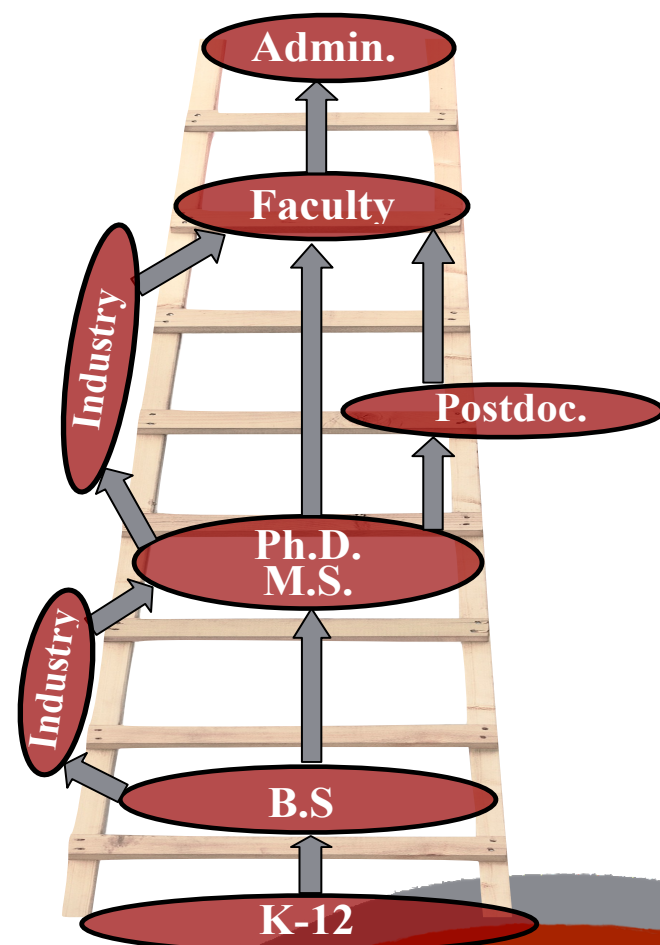
**What can we do as a department to create  
an environment that support diversity?**

**Creating programs to flatten diversity inequities  
and recognize diversity in excellence**

# Policy and Programs

## Re-imagining the academic ladder: What should we do?

- Design targeted goals for every step of the ladder
- Identify/recruit talent at undergraduate, graduate and postdoctoral levels
- Broaden the pool of applicants with respect to academic pedigrees



# Policy and Programs

## Lay the foundation for success through the ladder

- Arbitrarily populating the ladder is not enough
- Some losses are good
  - Individuals choosing “better” jobs / working climates
  - But why were we not the number one choice?
- Pulling someone up a rung arbitrarily is not an effective response
  - Why was the rung difficult to reach in the first place?
  - What can we do to eliminate the obstacles we impose?

# Policy and Programs

## The context of URG scientist's climb up the ladder

- How does your department's diversity climate compare to comparable choices outside of academia?
- Do you have an effective mentor program?
  - Does everyone on the ladder have a mentor?
  - Does everyone on the ladder have a village of mentors?
- Do students know their options?
- Do parents understand student's options/future?
- Who bears the risk for failure?
  - **AND** the responsibility for ensuring success?

# Policy and Programs

## Lessons from Industry

- Have authentic conversations with faculty
- Top-down non-voluntary diversity training exercises tend to be ineffective
- Mentoring is effective and should be implemented throughout the entire ladder
- Mentoring should be intentional and organized
  - Should include: peer to peer, senior mentors, etc
- Affinity groups tend to be effective only if they have longitudinal participation

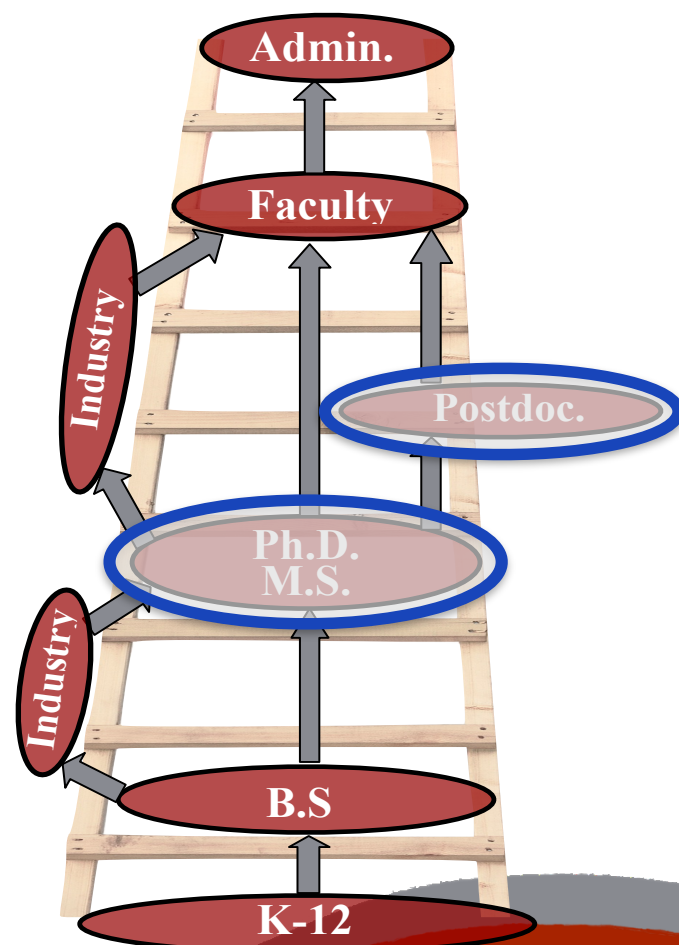
See, e.g., Dobbin, F, and A Kalev. 2013. "[The Origins and Effects of Corporate Diversity Programs](#)". P. 253-281 in *Oxford Handbook of Diversity and Work*, QM Roberson. New York: Oxford University Press



# Policy and Programs

## Graduate Student and Postdoc Climate

- Build a village of mentors, letter writers, champions!
- Evaluate diversity climate regularly
- Affinity groups can be helpful if implemented longitudinally

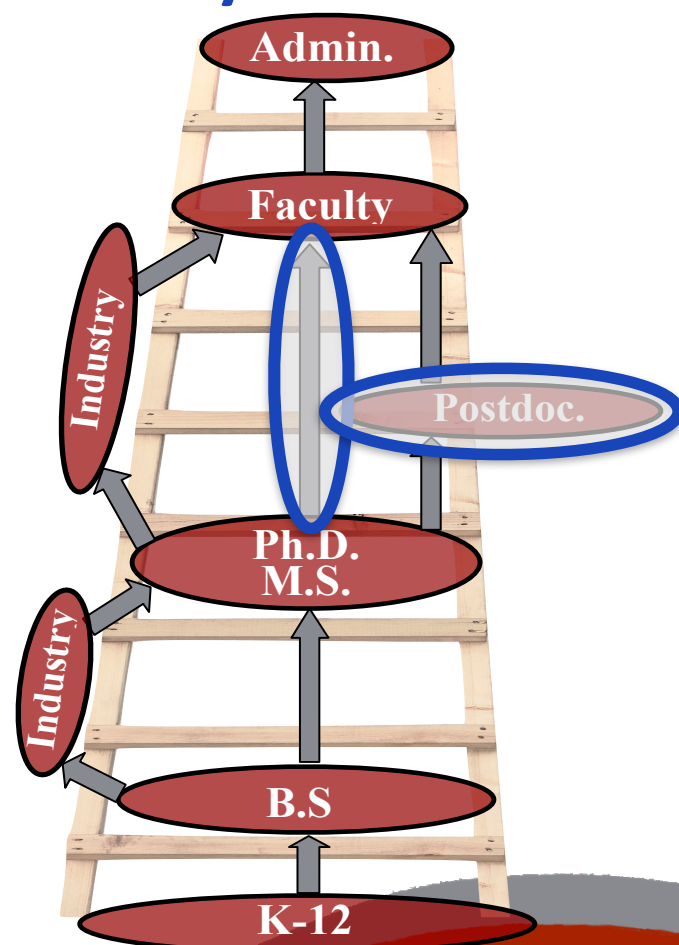


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# Policy and Programs

## Encouraging Ph.D. and Postdoc to Faculty Transition

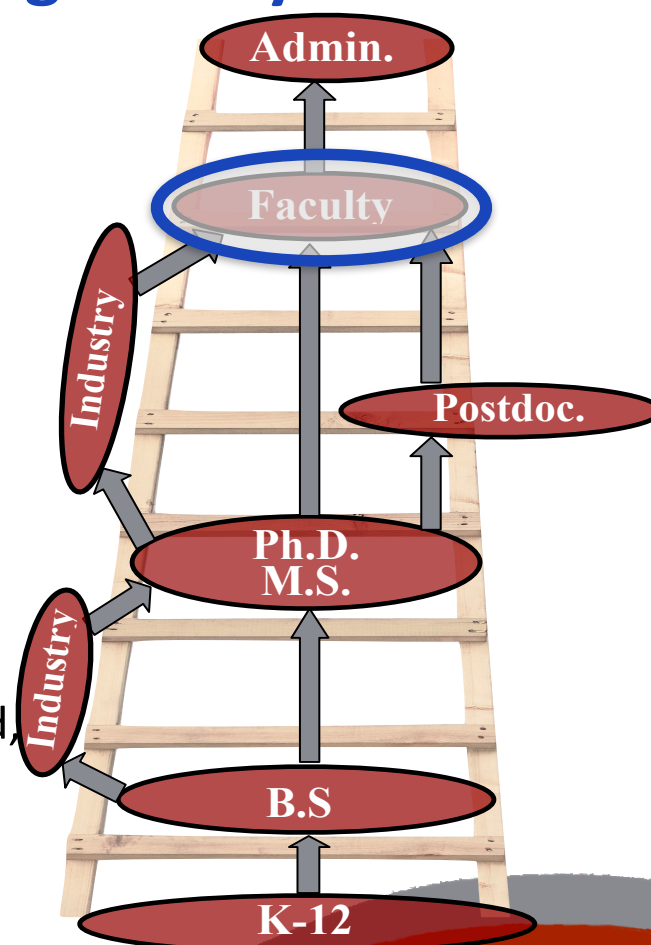
- Mentoring
  - Insure the Ph.D. committees engage students throughout their career
  - Provide opportunities for students to display their scientific potential
  - Do not overburden or peg particular students for volunteer tasks
- Overall Vision:
  - Provide a track for success
  - Institutions should take the financial burden, not students



# Policy and Programs

## Developing and Recruiting Faculty

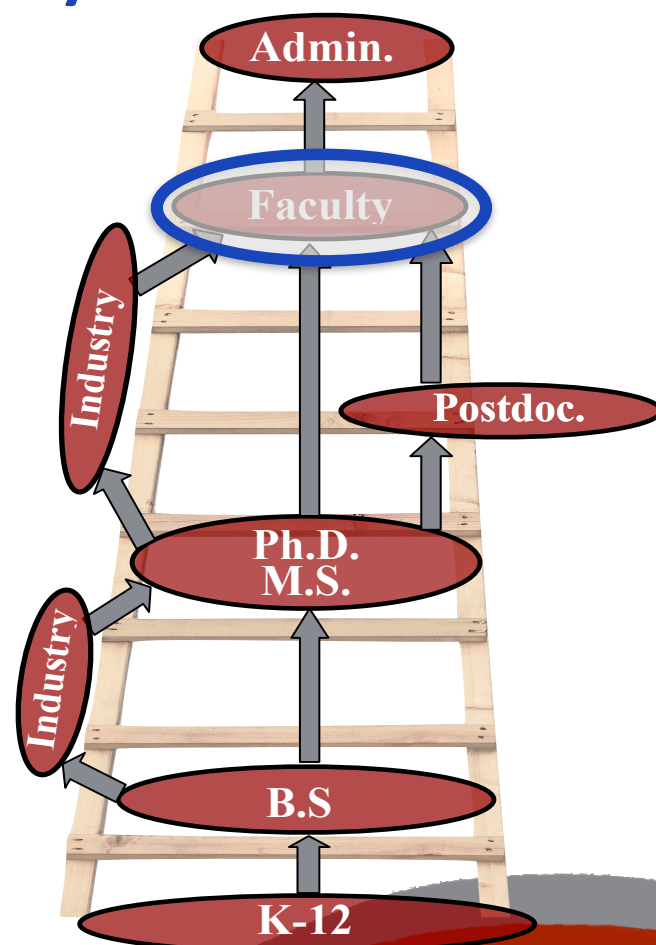
- Diversity is a planned event
- Mentoring
  - Peer-to-Peer
  - Senior Mentors
  - Mentors outside of the department
- Need role models (from diversity groups)
  - Don't overburden
  - But if you are going to burden them...  
*reward them, don't penalize them*
- Academic pedigrees should be contextualized, and individuals judged on what they do thereafter



# Policy and Programs

## Retention of Faculty

- Quantify the value of the individual to the collective and reward her or him for it
- Additional administrative responsibilities should be correlated with additional staff support

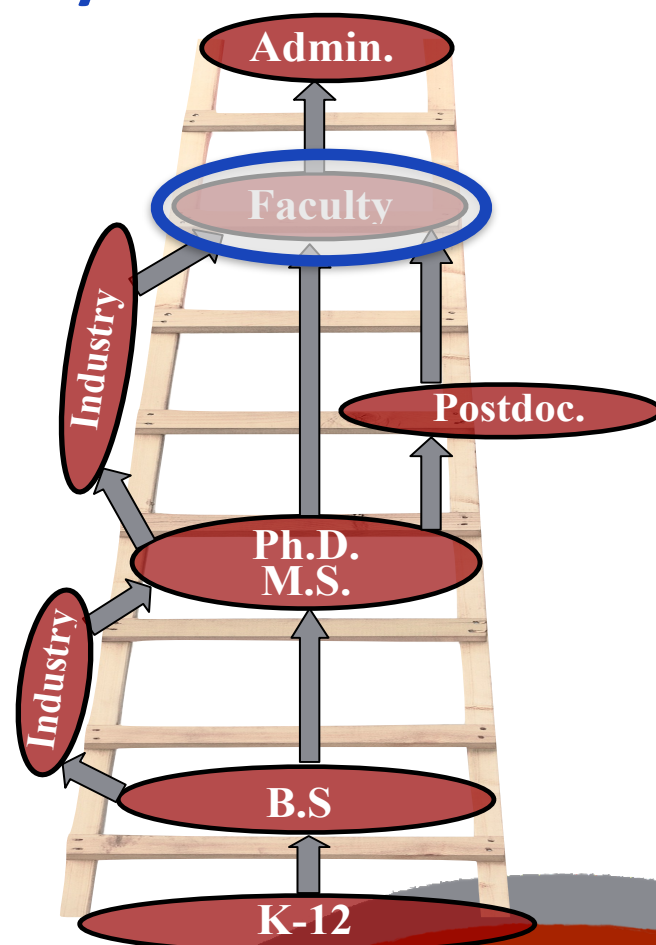


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# Policy and Programs

## Promotion of Faculty

- Ensure that evaluations are based on quantitative statements not “feelings” or schemas
  - Relevant to hiring and promotion
- Provide resources to temper the overburdening of URG faculty
- Always reward success



# Programs and Procedures

## Condensed action list for Chairs and Departments

1. Conduct a faculty meeting on diversity excellence:
  - Walk your faculty through the generic department presentation given at NDEW 2015 (or a version customized to your department).
  - Make sure that you do not advertise the event as diversity training.
  - Emphasize strategies that mitigate stereotype threat.
2. Create mentoring programs (vertical and horizontal).
3. Create a department diversity committee
  - Broadly reflective of your faculty's perspectives (e.g., include straight, able-bodied white male faculty)
  - Don't overburden URG (under-represented groups) faculty.
  - Establish deliverables to measure the committee's success.

# Programs and Procedures

## Condensed action list for Chairs and Departments

4. Conduct faculty searches in broad areas
5. Develop a department Diversity Statement and Vision
6. Conduct a climate survey in your departmental and use it to identify needs for advancing inclusive excellence
7. Respond to current & future OXIDE surveys
  - e.g., workshop evaluation, demographics, & climate
8. Implement a policy/program (such as the ones discussed at NDEW) targeted to address climate and/or demographics
  - Partner with OXIDE to assess it!

# Questions / Comments

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**This is an ongoing conversation.  
Please give us your feedback.**

**[www.OXIDE.gatech.edu](http://www.OXIDE.gatech.edu)  
[oxide@chemistry.gatech.edu](mailto:oxide@chemistry.gatech.edu)**