INCLUSION in ASTRONOMY

Based on: Inclusive Astronomy 2015 Recommendations from AAS
Notes and talks by Nicole Cabrera Salazar, Lisa Prato
FACTS

• Everyone has bias!
• Astronomy has one of the worst diversity rates of any scientific field (worldwide).
• Inclusion is social justice.
Everyone has bias!

Have you tried the implicit bias tests from Harvard?

https://implicit.harvard.edu/implicit/takeatest.html
(religion, gender, sexuality, age, disability...
group of Yale scientists created a fake resume for a laboratory manager sent it to 100 professors all over the entire country (USA)
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Decide about whether they would hire them or not
Propose a salary
A group of Yale scientists created a fake resume for a laboratory manager and sent it to 100 professors all over the entire country (USA). They decided whether they would hire them or not. Half of the professors got the resume with the name John, and the other half with the name Jennifer (same last name).
group of Yale scientists created a fake resume for a laboratory manager

sent it to

100 professors all over the entire country (USA)

 Decide about whether they would hire them or not

Propose a salary

RESULTS:
The professors rated John as more competent, more qualified, and offered 15% higher salary than Jennifer

Half of the professors got the resume with the name John, and the other half with the name Jennifer (same last name)
USA Population in 2015

2015 U.S. Demographics

- Caucasian American: 62%
- African American: 15%
- Hispanic American: 17%
- Native American: 4%
- Other: 2%
Gender Imbalance for Common Institutions for Astronomy & Astrophysics Majors

The closest comparable data for the 4 Digit Course Astronomy & Astrophysics is from the 2 Digit Course Physical Sciences.

Dataset: NCES IPEDS
Source: Department of Education
It gets worst for more senior positions
“White women have made great progress in Astronomy in the last 25 years. However, the accomplishments of women continue to be systematically undervalued and they remain underrepresented in senior leadership positions.”

From 2015 AAS Inclusive Astronomy meeting

This gain made over the past 25 years must serve as inspiration for inclusion of minorities
Race & Ethnicity by Degrees Awarded for Astronomy & Astrophysics Majors

The closest comparable data for the 4 Digit Course Astronomy & Astrophysics is from the 2 Digit Course Physical Sciences.

Dataset: NCES IPEDS
Source: Department of Education
It gets (much) worst for more senior positions
It gets (much) worst for more senior positions.
Two Explanations

Black, Hispanic, and Indigenous people are inferior

OR

Black, Hispanic, and Indigenous people are impacted by external factors, i.e. racism
Example of Intrinsic Racism

**FIGURE 21**
Marijuana Use by Race: Used Marijuana in Past 12 Months (2001-2010)

**FIGURE 10**
Arrest Rates for Marijuana Possession by Race (2001-2010)

*Source: National Household Survey on Drug Abuse and Health, 2001-2010*

*Source: FBI/Uniform Crime Reporting Program Data and U.S. Census Data*
FACTS

• Everyone has bias!

• Astronomy has one of the worst diversity rates of any scientific field (worldwide).

• Inclusion is social justice.

• Diverse work environment forces us to think harder and make fewer assumptions. Good for solving problems with different perspectives.

We need inclusion in all levels!!
What are we doing to improve this situation?

1. Recognize
2. Listen
3. Talk
4. Amplify the message

Intent ≠ Impact
I WISH MY WHITE COLLEAGUES KNEW...

- That implicit bias is real, towards both men and women of a race different from yours. It is our prerogative as a community to tackle this head on, in scenarios ranging from small classrooms to large academic public meetings.

- How to not speak about certain politics in the workplace, how to value our lives, the connection between their field and issues of racial justice (especially with respect to Indigenous lands and resources), how to recruit marginalized scientists without tokenizing us.

- That if you have a student of color then you need to educate yourself on the fact really of what that means. Being colorblind will hurt the student.

- That I was an undocumented immigrant and while my status has changed it’s still a part of my identity. That makes my experiences different from immigrants here on student visas or other Latin Americans who were born here. It makes me feel as more of a minority.

- How the emotional beat down on a person over time makes you feel like you constantly need to “prove” that you belong in the field.

- How to protect students of color from abuses of power from administration, professors, or advisors. How to talk to their colleagues about this issue, how to accommodate disabled students who may not be getting appropriate accommodations from other faculty/the university.

- That if I have to keep you at arm’s length because I don’t know if you’re one of the many white people who will hurt me or if you’ve actually my ally. That I’ve been burned too many times to make that mistake again.

- That every single person in your department (yes, your department) seriously needs to be trained on issues of race, gender, disability, and sexuality. If you’re surprised or offended by this, then you are the problem.

- That I have to spend on classes time that I need to spend on classes to simply be able to receive accommodations from other faculty/the university.

- That my accomplishments are hard earned. Jokes to the contrary are not just hurtful, they’re constant fight for me. Every ounce of privilege that one does not have means another ounce of extra sweat and work that is required to simply be able to receive the same recognition.

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Discussion

- Demographics Survey in Astronomy (Meredith)
- What are we doing in our institutions? (e.g. Adam)
- **Everyone:** how are we engaged to change this? Have you ever felt discriminated at work? How can this change?
- How to keep lively discussion and open exchange of ideas going while making people — regardless of academic status, origin, etc — comfortable speaking up.
What’s said here, stays here; what’s learned here, leaved here
CSWA Demographics Survey 2013: Portrait of a Generation of Women in Astronomy

About the Survey

- 40 (32) universities, 7 (4) national research centers
- 3117 astronomers at the grad student through full professor level
- Astronomers only, even in combined departments (self-reported)
- Simple questions: count the number of men/women/nonbinary at each level
- Tenure track vs. research equivalent
- New this year: adjuncts and administrators, tenure

Hughes 2014, STATUS
2013 Snapshot

Hughes 2014, STATUS
Changes with time 1: Seniority

<table>
<thead>
<tr>
<th>Rank</th>
<th>% Women 1992</th>
<th>% Women 1999</th>
<th>% Women 2003</th>
<th>% Women 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grad student</td>
<td>22</td>
<td>26</td>
<td>30</td>
<td>34</td>
</tr>
<tr>
<td>Postdoc</td>
<td>17</td>
<td>20</td>
<td>22</td>
<td>28</td>
</tr>
<tr>
<td>Assistant Prof (total/faculty/research)</td>
<td>17/--/--</td>
<td>18/--/--</td>
<td>20/20/10</td>
<td>26/27/25</td>
</tr>
<tr>
<td>Associate Prof (total/faculty/research)</td>
<td>10/--/--</td>
<td>14/--/--</td>
<td>21/21/19</td>
<td>19/21/18</td>
</tr>
<tr>
<td>Full Prof (total/faculty/research)</td>
<td>5/--/--</td>
<td>7/--/--</td>
<td>9/9/9</td>
<td>14/16/11</td>
</tr>
</tbody>
</table>

Fraction of female assistant professors has increased substantially in the past 20 years.

Fraction of female associate professors has not budged in the last decade. Why?

Hughes 2014, STATUS
Changes with time 2: Survival analysis

<table>
<thead>
<tr>
<th></th>
<th>1992 Grad students</th>
<th>2003 Assistant profs</th>
<th>% Advancement</th>
</tr>
</thead>
<tbody>
<tr>
<td># Men</td>
<td>602</td>
<td>182</td>
<td>(30±3)%</td>
</tr>
<tr>
<td># Women</td>
<td>176</td>
<td>31</td>
<td>(18±3)%</td>
</tr>
<tr>
<td>% Women</td>
<td>(23±2)%</td>
<td>(15±3)%</td>
<td></td>
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</table>

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<tr>
<th></th>
<th>1992 Postdocs</th>
<th>2003 Assoc. Profs</th>
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</tr>
</thead>
<tbody>
<tr>
<td># Men</td>
<td>301</td>
<td>157</td>
<td>(52±5)%</td>
</tr>
<tr>
<td># Women</td>
<td>63</td>
<td>39</td>
<td>(62±13)%</td>
</tr>
<tr>
<td>% Women</td>
<td>(17±2)%</td>
<td>(20±4)%</td>
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<tbody>
<tr>
<td># Men</td>
<td>549</td>
<td>106</td>
<td>(19±2)%</td>
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<tr>
<td># Women</td>
<td>235</td>
<td>37</td>
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<tbody>
<tr>
<td># Men</td>
<td>473</td>
<td>194</td>
<td>(41±3)%</td>
</tr>
<tr>
<td># Women</td>
<td>130</td>
<td>50</td>
<td>(38±6)%</td>
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<tr>
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<td>(20±3)%</td>
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In the last decade, unlike the previous decade, women have advanced to the assistant professor level at rates approximately proportional to their representation at lower levels. On average, policies to retain junior women are working! (More on that later)

If current trends continue, associate professors will be ~30% women by 2023 (lots of postdocs)
Take-home Messages

**Good news:** In the last decade, universities have on average been recruiting and retaining women into *assistant professor* positions at rates approximately consistent with their representation at junior levels (with appropriate caveats).

**Morally ambiguous news:** In the last decade, there is some evidence that the currently highest-ranked (NRC) institutions have been slower to promote and retain women than mid- to lower-ranked institutions. Research track is still more male-dominated. Women are not overrepresented at any level.

**Unfortunate news:** Departments appear to have become more polarized in their recruitment/retention of women. On which end of the spectrum does your department lie?

Hughes 2014, STATUS
Wesleyan
A Path to the PhD for Non-Traditional Students

• Structure: A “mini-PhD”
• Who are our students?
• Outcomes: In a 15-year sample of 29 grads:
  • 17 -> PhD
  • 4 -> HS/secondary school teachers
  • 3 -> EPO/observatory support
  • 5 -> Other

81% Female
19% Male
72% White
28% PoC
If you are interested on the information about the GRE slides, please contact Adam Kraus directly at alk@astro.as.utexas.edu