

# **Inclusive Astronomy + 4**

## **A Unified Approach to Removing Barriers**

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*Based on a presentation to Women in Astronomy 4  
by Adam Burgasser, Kim Coble, Jessica Mink, and Dara Norman*

# Outline

- **Conference philosophy: intersectional approach**
- **Recommendations: expectations for implementation**
- **Implementation so far**
- **30 min for Q & A**

# Inclusive Astronomy 2015

## Conference At-a-Glance

June 17 - 19, 2015

Vanderbilt University

160 astronomers, sociologists, policy makers and community leaders convened to discuss intersectional barriers and solutions to success in astronomy.



### Core Organizing Committee (alphabetically):

**Carolyn Brinkworth** (National Center for Atmospheric Research), **Adam Burgasser** (University of California, San Diego), **Kim Coble** (Chicago State University), **Jedidah Isler** (Vanderbilt University), **Jessica Mink** (Smithsonian Astrophysical Observatory), **Nick Murphy** (Smithsonian Astrophysical Observatory, Harvard University), **Dara Norman** (National Optical Astronomy Observatory), **Jane Rigby** (NASA Goddard Space Flight Center), **Keivan Stassun** (Vanderbilt University)

# Resources from IA 2015

IA 2015 videos, posters and toolkits: [vu.edu/ia2015](http://vu.edu/ia2015)

**INCLUSIVE ASTRONOMY 2015**  
June 17-19, 2015  
Vanderbilt University, Nashville, Tennessee

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# The Vision

## Executive Summary

In June 2015, 160 astronomers, sociologists, policy makers and community leaders convened the first Inclusive Astronomy meeting at Vanderbilt University, in Nashville, TN. The goal of this meeting was to discuss the issues affecting people of color; lesbian, gay, bisexual, transgender, genderqueer/genderfluid, agender, intersex, queer, questioning, or asexual (LGBTIQA\*) people; people with disabilities; women; and everyone who holds more than one of these underrepresented identities in the astronomical community. A key focus of this meeting was examination of issues of intersectionality: the well-established conceptualization that racism, sexism, heterosexism, transphobia, and ableism are often linked (e.g., that women of color are faced with the intersection of racism and sexism).

The following recommendations emerged as some of the first steps towards our shared goals, through the synthesis of prior work, input from community members, consultation with expert practitioners, and discussions and workshops during the conference itself. All guidelines and recommendations in this document should be interpreted in a way that benefits historically underrepresented groups.

# Inclusive Astronomy 2015

## Focus on Four Broad Areas

**Removing Barriers to Access:** Elucidate the major barriers that impede full participation of all interested persons.

**Creating Inclusive Climates:** Cultivate practices that make our professional spaces more inclusive.

**Accessing Policy, Power, and Leadership:** Demystify power structures in astronomy policy making and position oneself for a leadership role.

**Establishing a Community of Inclusive Practice:** Take active measures to ensure that groups, events and institutions are inclusive.

# Structure of Recommendations

For Full Listing: <a href="http://bit.ly/1XIOzZ">bit.ly/1XIOzZ</a>	Short (1 - 3 yrs)	Medium (3 - 5 yrs)	Long (5+ yrs)
<b>Barriers to Access</b>	Develop, publicize, and follow clear criteria for hiring and evaluations. De-emphasize student teaching evaluations as they have been shown to be systematically biased. <b>RBA3S</b>	Develop and provide astronomical information using multiple modes of access, with each mode being as accessible as possible. <b>RB2M</b>	Research and develop methods and assistive technology to make astronomy accessible to disabled students and astronomers. <b>RB1L</b>
<b>Inclusive Climates</b>	Adopt and publicize clear anti-harassment policies and procedures, including highly transparent reporting avenues. <b>CIE1S</b>	Establish identity support networks within and across STEM departments and connect to university-level resources. <b>CIE2M</b>	Develop and support astronomy education research groups who investigate teaching and learning in astronomy through the lens of inclusivity and intersectionality. <b>CIE1L</b>
<b>Policy &amp; Leadership</b>	Make information about the processes and procedures to obtain leadership roles in astronomy clear and more accessible. <b>PPL0S</b>	The decadal survey should address issues of policy making and leadership diversity imbalances as recommendations that can be acted upon by policy makers. <b>PPL3M</b>	Funding of research (e.g., grants) is also tied to metrics on diversity and inclusion of underrepresented and disenfranchised groups. <b>PPL3L</b>
<b>Inclusive Practice</b>	Do your homework. Educate yourself on the extensive history of oppression against marginalized groups in your own culture and the culture you find yourself in. <b>CIP3S</b>	Respond promptly when astronomers publicly engage in racism, sexism, heterosexism, cissexism, and/or ableism. <b>CIP0M</b>	Develop long-term institutional plans for equity and inclusion, which should be public and include annual progress reports on organizational accessibility. <b>CIP2L</b>

# Accomplishments

- [IA2015 Vision Statement](#) endorsed by American Astronomical Society
- Recommendation for [proper use of the GRE](#) endorsed by AAS and implemented by several graduate programs
- Formation of AAS Working Group on Accessibility and Disability ([WGAD](#))
- AAS Working Group on on LGBTIQ Equality (WGLE) became Committee for Sexual-Orientation & Gender Minorities in Astronomy (SGMA)
- [Racism Town Hall](#) at AAS 226
- Regular discussions and seminars on inclusivity research in the departments of IA2015 attendees and others (similar to journal club)
- Discussion of IA2015 content at other meetings, e.g. IAU, AGU, AAPT
- AAS hosting [web platform](#) for sharing best practices for adoption and implementation of recommendations by the community



# Endorsement and Adoption

**Endorse:** Institutions publicly endorse vision statement

## **AAS Endorses Vision Statement for Inclusive Astronomy**

28 Jul 2016

“I am very pleased that the AAS Council has endorsed the Nashville vision statement for making astronomy more inclusive,” says AAS President Christine Jones (Harvard-Smithsonian Center for Astrophysics). “Offering equal opportunities for people of all races, genders, sexual orientations, and physical abilities to participate in astronomy will benefit both our science and our nation.”

**Adopt:** Identify short-term, medium-term and long-term goals based on recommendations relevant to the institution and people at the institution, develop and commit to individual, group, and institutional plans

# Community

- Institutions annually report on progress:
  - Twiki as a living document
  - Successes
  - Challenges
  - Link your toolkits for specific recommendations
- Semi-annual sessions at AAS meetings to further develop recommendations and assessments, and share experiences of implementation
- Opportunities for intersectional departmental site visits to gauge the climate for people with one or more marginalized identities

# Summary Tables

## Recommendations Summary Tables

### Scope of implementation

Short Term is 1-3 years.

Medium Term is 3-5 years.

Long-term is more than 5 years.

## Removing Barriers to Access: Recommendations Summary Table

**Context:** must enable people to enter the field so that we can then support, mentor and promote them within the inclusive environments that we create, and into the leadership and power structures of the field. Our ultimate goal is a fully inclusive field. This is necessary but not sufficient: removing the barriers to access will not by itself create an inclusive environment; we also need to change the culture of our field and making sure that people with marginalized identities are included in our field's leadership. The following table summarizes the [full recommendations](#).

### Core Goals:

1. Make graduate admissions fair.
2. Eliminate barriers in pre-/early-college access to astronomy.
3. Eliminate practices in hiring and promotion that are discriminatory.
4. Ensure that astronomical institutions, facilities and data are accessible to all.

Number	Short term goals/actions	Target stakeholders
RBA1S	Develop and deploy best-practice, research-based tools for evaluating graduate school applications holistically and equitably: <a href="#">Eliminate the General and/or Physics Graduate Record Exams (GRE) for graduate school admission</a> (see the <a href="#">AAS statement</a> of endorsement), and integrate holistic measures of scientific talent into graduate admissions procedures (see, e.g., the <a href="#">Fisk-Vanderbilt Bridge Program toolkit</a> for sample protocols and rubrics).	Universities, departments
RBA2S	Make graduate school applications affordable: Reduce or eliminate graduate school application fees.	Universities
RBA3S	Develop, publicize, and follow clear criteria for hiring and evaluations. De-emphasize student teaching evaluations as they have been shown to be systematically biased. Make hires in broad areas of research topics. Develop a common application service for job applications to reduce workload on applicants.	Universities, public and private research organizations, departments

# GRE Requirements

See link to special page for GRE status:

Physics GRE requirements for US/Canadian Astronomy Programs

File Edit View Insert Format Data Tools Add-ons Help

View only

The following programs are sorted by Physics GRE score acceptance policy, where the programs that have completely abandoned the Physics GRE are listed on top and those with increasingly less-progressive policies are listed towards the end (otherwise listing is alphabetical). The AAS council's recommendation is "that graduate programs eliminate or make optional the GRE and PGRE as metrics of evaluation for graduate applicants," but the author of this spreadsheet believes all deprecations of the test are positive developments and should be encouraged. For more info on the rationale for such a change, please see the links below the table.

Please send e-mails to [guillochon@gmail.com](mailto:guillochon@gmail.com) to propose edits to this list.

Program	Department †	Physics GRE*	Policy	Verified (by)	* Key:
Cal State Northridge <sup>m</sup>	Phys. & Ast.	N	<a href="#">URL</a>	Y (J. Barranco)	N = Does not accept PGRE
Michigan <sup>f</sup>	Ast. & Astrophys.	N	<a href="#">URL</a>	Y (E. Rauscher)	O = Optional reporting
New Mexico State	Astronomy	N	<a href="#">URL</a>	Y (J. Jackiewicz)	R = Reporting recommended
San Francisco State <sup>m</sup>	Phys. & Ast.	N	<a href="#">URL</a>	Y (J. Barranco)	Y = Still required
UT Austin <sup>f</sup>	Astronomy	N	<a href="#">URL</a>	Y (C. Casey)	
Vanderbilt	Astrophysics	N	<a href="#">URL</a>	Y (J. Guillochon)	<sup>a</sup> = Alternative requirement if PGRE not reported
Alabama	Phys. & Ast.	O	<a href="#">URL</a>	Y (J. Bailin)	<sup>c</sup> = Considering relaxing policy
Alberta	Ast. & Astrophys.	O	<a href="#">URL</a>	Y (N. Ivanova)	<sup>d</sup> = Department ignores PGRE, but school requires
Arizona	Astronomy	O	<a href="#">URL</a>	Y (E. Cangi)	<sup>e</sup> = "Exceptions" made
Arizona	Planetary	O	<a href="#">URL</a>	Y (A. Springmann)	<sup>f</sup> = Offers fee waiver
Appalachian State	Phys. & Ast.	O		N	<sup>m</sup> = Masters only program
Bowling Green	Phys. & Ast.	O		N	<sup>n</sup> = No fee to apply
Brandeis	Physics	O	<a href="#">URL</a>	Y (E. Cangi)	<sup>o</sup> = Online policy not yet updated to reflect current status
Caltech <sup>f</sup>	Planetary	O	<a href="#">URL</a>	Y (H. Ngo)	<sup>r</sup> = PGRE weight reduced in evaluation or a wide range of scores have been adm
Case Western Reserve	Astronomy	O	<a href="#">URL</a>	Y (C. Mihos)	<sup>u</sup> = Allows unofficial reporting
Central Florida	Physics	O		Y (A. Springmann)	
Clemson	Phys. & Ast.	O		N	Fraction of programs with each policy:
Denver	Phys. & Ast.	O	<a href="#">URL</a>	Y (J. Hoffman)	
Eastern Michigan	Phys. & Ast.	O		N	
Florida Inst. of Tech <sup>f</sup>	Ast. & Astrophys.	O		Y (E. Perlman)	
Georgia State <sup>fu</sup>	Astronomy	O		Y (M. Bentz)	
Harvard <sup>o</sup>	Astronomy	O	<a href="#">URL</a>	Y (J. Guillochon)	
Indiana Univ.	Astronomy	O		Y (E. Mills)	
Johns Hopkins	Planetary	O		Y (S. Horst)	
Kansas State	Physics	O	<a href="#">URL</a>	Y (J. Guillochon)	
McGill	Astrophysics	O		Y (D. Haggard)	

# Commit to Specific Recommendations

## Inclusive Astronomy Recommendations Followers List

[ [Summary of Recommendations](#) ] [ [Followers List](#) ] [ [Resources](#) ] [ [Recommendations in Detail](#) ]

### Sign up to commit to specific recommendations

Post a comment (using the comment button below) with the specific information requested. Please include your email address and a link to the policy, if possible. A moderator will review your submission and add it to the table.

### Removing Barriers to Access [↗](#)



Individual or Organization	Recommendation Number	Date Committed	Date Completed	Contact Person	Details of Implementation
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Vanderbilt University Physics & Astronomy	RBA1S	1/27/2017	1/27/2017	Keivan Stassun	Astrophysics program
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Princeton University	RBA1M	04/28/2017	04/48/2017	Jeremy Goodman	The Department of Astrophysical sciences at Princeton University runs a two-year post-baccalaureate program. More information is at <a href="http://web.astro.princeton.edu/academic/post-baccalaureate-program">http://web.astro.princeton.edu/academic/post-baccalaureate-program</a> <a href="#">↗</a>
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### Creating Inclusive Environments [↗](#)



Individual or Organization	Recommendation Number	Date Committed	Date Completed	Contact Person	Details of Implementation
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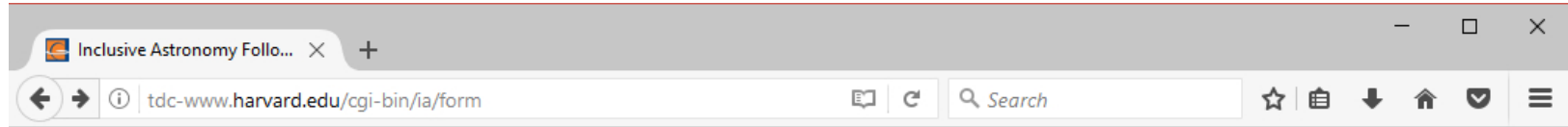
American Astronomical Society	CIE1S	2/17/2017	2/17/2017	Christine Jones	<a href="#">AAS Ethics Statement</a> <a href="#">↗</a>
Williams College	CIE2S	4/27/2017	4/27/2017	Karen Kwitter	Beginning with the class of 2021 (incoming first-years in Fall 2017) Williams College has instituted an option whereby students can be known on campus by a name other than their legal name.

### Improving inclusion and access to power, policy, and leadership [↗](#)



Individual or Organization	Recommendation Number	Date Committed	Date Completed	Contact Person	Details of Implementation
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# Adding Your Efforts: Input Form 1



## Inclusive Astronomy Follower Entry

Using this form, you can add an entry to the [Inclusive Astronomy Followers List](#).

First, chose a category:

<a href="#">Remove Barriers to Access</a>	Address academic barriers to educational access, such as the use of GRE scores in admissions decisions, financial barriers to graduate school application, stereotype threat, and accessibility issues that impede the ability of all students to directly participate in learning environments.
<a href="#">Create an Inclusive Environment</a>	To maintain diversity at an astronomical institution, it is necessary that the environment be inclusive. Develop processes to deal with microaggressions, honor diversity without tokenization, use effective and accessible teaching methods, and maintain effective mentoring.
<a href="#">Inclusion and Access to Power, Policy, and Leadership</a>	Provide astronomers with strategies on how to play a role in decisions affecting the astronomical community and help people in power to be more inclusive in their decision making.
<a href="#">Establish a Community of Inclusive Practice</a>	Implement techniques for astronomers to take active rather than passive measures to ensure that their groups, events and institutions are inclusive.

# Adding Your Efforts: Input Form 2

Inclusive Astronomy Follo... x +

tdc-www.harvard.edu/cgi-bin/ia/formrba Search

## Removing Barriers to Access

Enter information about your implementation

Contact Name	<input type="text"/>	Contact Email	<input type="text"/>
Institution	<input type="text"/>	Department	<input type="text"/>
Date Committed	<input type="text"/>	Date Completed	<input type="text"/>
Link to Implementation	<input type="text"/>		
Implementation Details	<input type="text"/>		

Categorize your implementation

Code	Short term goals/actions	Target stakeholders
<input type="radio"/> RBA1S	Develop and deploy best-practice, research-based tools for evaluating graduate school applications holistically and equitably: Eliminate the General and/or Physics Graduate Record Exams (GRE) for graduate school admission (see the AAS statement of endorsement), and integrate holistic measures of scientific talent into graduate admissions procedures (see, e.g., the Fisk-Vanderbilt Bridge Program toolkit for sample protocols and rubrics).	Universities, departments
<input type="radio"/> RBA2S	Make graduate school applications affordable: Reduce or eliminate graduate school application fees.	Universities
<input type="radio"/> RBA3S	Develop, publicize, and follow clear criteria for hiring and evaluations. De-emphasize student teaching evaluations as they have been shown to be systematically biased. Make hires in broad areas of research topics. Develop a common application service for job applications to reduce workload on applicants.	Universities, public and private research organizations, departments
	Recognize disability issues at the same level as minority & gender issues. AAS and other professional	



# References

## **Recommendations in Detail:**

*[https://tiki.aas.org/tiki-index.php?page=Nashville\\_Recommendations\\_in\\_Detail](https://tiki.aas.org/tiki-index.php?page=Nashville_Recommendations_in_Detail)*

## **Recommendations Executive Summary:**

*[https://tiki.aas.org/tiki-index.php?page=Inclusive\\_Astronomy\\_The\\_Nashville\\_Recommendations](https://tiki.aas.org/tiki-index.php?page=Inclusive_Astronomy_The_Nashville_Recommendations)*

## **After the Conference:**

### **AAS Endorsement of Inclusive Astronomy Vision:**

*<https://aas.org/media/press-releases/aas-endorses-vision-statement-inclusive-astronomy>*

### **What has been done:**

*[https://tiki.aas.org/tiki-index.php?page=Inclusive\\_Astronomy\\_Recommendations\\_Followers\\_List](https://tiki.aas.org/tiki-index.php?page=Inclusive_Astronomy_Recommendations_Followers_List)*

### **AAS Task Force Recommendations:**

*<https://aas.org/education/aas-task-force-diversity-and-inclusion-graduate-astronomy-education>*

*[https://aas.org/files/resources/aas\\_diversity\\_and\\_inclusion\\_task\\_force\\_final\\_report.pdf](https://aas.org/files/resources/aas_diversity_and_inclusion_task_force_final_report.pdf)*

**Nature:** *<https://www.nature.com/articles/d41586-019-00655-3/>*



# References

## Coverage of Inclusive Astronomy Conference

### **Women in Astronomy (before):**

*<http://womeninastronomy.blogspot.com/2015/04/this-guest-post-is-composed-by.html>*

### **Physics Today:**

#### **Science:**

*<https://www.sciencemag.org/careers/2016/08/astronomers-push-more-diverse-inclusive-community>*

### **Planetary Society:**

*<http://www.planetary.org/blogs/guest-blogs/2015/0625-inclusive-astronomy.html>*

### **Astrobites:**

*<https://astrobites.org/2017/12/25/building-an-inclusive-astronomy-community/>*

### **Women in Astronomy (after):**

*<http://womeninastronomy.blogspot.com/2016/07/the-nashville-recommendations-for.html>*

### **Lia Corrales (highlights):**

*<https://fold.cm/read/eblur27/highlights-from-inclusive-astronomy-2015-mxSNpdRs>*

# Discussion

**Have you seen the recommendations being implemented?**

**Does it help to see others implementing them?**

**Is removing barriers enough?**

**Are there barriers that we missed?**