

“A review of cultural issues facing astronomers”

**University of Massachusetts Amherst
Department of Astronomy
Journal club - Spring 2019
Organized by Prof. Alexandra Pope**

Bibliography of relevant papers

The list below is an ongoing effort to collect relevant papers. If you have suggestions for additional papers or categories, or other comments, [please email me](#).

Table of Contents

[A] Studies of biases	2
[B] Mitigating biases/Best practices	4
[C] Mental health and well-being considerations for graduate students	5
[D] Science impact from different countries	5
[E] Career challenges	6
[E] Teaching research and pedagogy	6

[A] Studies of biases

- 1) 2019 report on the statistics of Women in Physics and Astronomy:
<https://www.aip.org/sites/default/files/statistics/women/Women%20in%20Physics%20and%20Astronomy%202019.pdf>
- 2) Biases in telescope time allocation reviews
 - a) HST: <https://arxiv.org/ftp/arxiv/papers/1409/1409.3528.pdf>
 - b) ESO: <https://arxiv.org/pdf/1610.00920.pdf>
 - c) NRAO: <https://science.nrao.edu/science/reports/gender-related-systematic-s-in-the-nrao-and-alma-proposal-review-process#section-17>
 - d) Canadian TAC: <https://arxiv.org/pdf/1805.06508.pdf>
- 3) Issues with GRE/GPA for admissions
 - a) In physics: <http://advances.sciencemag.org/content/5/1/eaat7550>
 - b) In astronomy: <https://arxiv.org/abs/1512.03709>
 - c) In all science:
<https://journals.plos.org/plosone/article%3Fid=10.1371/journal.pone.0206570>
 - d) Test-Optional in undergrad admissions:
<https://www.nacacnet.org/globalassets/documents/publications/research/defining-access-report-2018.pdf>
- 4) Racial biases in astronomy/physics
 - a) <https://www.nap.edu/read/18556/chapter/18#165>
 - b) <https://link.springer.com/article/10.1007/s11199-019-01052-w>
 - c) https://muse.jhu.edu/article/596719/pdf?casa_token=wfFSsNohYW8AAAAA:-kx3T7pjMK6mEP7jjmxCYa6iPVEw3JadQ4hj0RQeHMjqKRk1QxjeqH5gzQQRG3g20R1iiMgBKxc
- 5) Harassment in academia:
Gender biases:
 - a) <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0102172>
 - b) <https://journals.aps.org/prper/pdf/10.1103/PhysRevPhysEducRes.15.010121>
Racial biases:
 - c) <https://agupubs.onlinelibrary.wiley.com/doi/epdf/10.1002/2017JE005256>

- d) <https://www.nature.com/news/female-astronomers-of-colour-face-daunting-discrimination-1.22291>
- 6) Imposter syndrome/self-efficacy/self-promotion
 - a) <https://www.aip.org/sites/default/files/statistics/lsags/status-ivie-full.pdf>
 - b) <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0202743>
 - c) <https://journals.aps.org/prper/pdf/10.1103/PhysRevPhysEducRes.14.020123>
- 7) Biases in reference letters, negotiations, grant applications, job assessments, citations:
 - a) <https://journals.sagepub.com/doi/abs/10.1177/0957926503014002277>
 - b) https://wappp.hks.harvard.edu/files/wappp/files/social_incentives_for_gender_differences_in_the_propensity_to_initiate_negotiations-sometimes_it_does_hurt_to_ask_0.pdf
 - c) <https://www.thelancet.com/action/showPdf?pii=S0140-6736%2818%2932611-4>
 - d) https://ed.stanford.edu/sites/default/files/uhlmann_et_2005.pdf
 - e) <https://arxiv.org/pdf/1610.08984.pdf>
- 8) Biases against success:
<https://wesfiles.wesleyan.edu/courses/PSYC-309-clwilkins/week4/Heilman.%20et%20al.2004.pdf>
- 9) Measures of gender inequality:
<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0205349>
- 10) Faculty biases against students: <https://www.pnas.org/content/109/41/16474>
- 11) Additional biases in academia bibliographies:
 - a) <https://www.hastac.org/blogs/superadmin/2015/01/26/gender-bias-academic-annotated-bibliography-important-recent-studies>
 - b) https://www.cfa.harvard.edu/~srugheimer/Women_in_STEM_Resources.html

[B] Mitigating biases/Best practices

1) In teaching evaluations:

<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0216241>

2) LGBT+ representation in physics/astronomy: <https://arxiv.org/pdf/1804.08406.pdf>

3) Double blind reviews

a) https://www.theatlantic.com/science/archive/2018/12/hubble-space-telescope-gender-disparity/578545/?fbclid=IwAR0U08zQ1OdKNtqkdMnjin1txxbtPJcKEaAyYKQIAI5fdCCe8pNk8VYTH1IA_

b) <https://physicstoday.scitation.org/doi/10.1063/PT.6.3.20190301a/full/?fbclid=IwAR3rgC9auf3MDhfaGZJY56rJ04q3rOq2kexPeNLeJEgTVoO1YyQyIKWlih8&>

c) <http://in.bgu.ac.il/women-forum/doclib/articles/buddenreplyonwhittakerfemaleauthorship3.pdf>

d) <https://pdfs.semanticscholar.org/0176/1eeb6c3ac66c142a6cfdeb18376b27a25633.pdf>

e) <https://pubs.aeaweb.org/doi/pdfplus/10.1257/aer.90.4.715>

f) Other references:

<https://outerspace.stsci.edu/download/attachments/11665517/Anonymous-Double%20Blind%20Review%20Annotated%20Bibliography.docx?version=1&modificationDate=1526318902620&api=v2>

g) When blind reviews don't solve it: <https://www.nber.org/papers/w25759.pdf>

4) Tips on how to mitigate bias in reference letters:

https://csw.arizona.edu/sites/default/files/avoiding_gender_bias_in_letter_of_reference_writing.pdf

5) Predictors of persistence in STEM for women of color:

<http://www.hepgjournals.org/doi/abs/10.17763/haer.81.2.92315ww157656k3u>

6) Reducing the gender achievement gap with values affirmation

a) <http://science.sciencemag.org/content/330/6008/1234>

b) <http://science.sciencemag.org/content/313/5791/1307.long>

- c) https://www.lifescied.org/doi/full/10.1187/cbe.16-12-0351?url_ver=Z39.88-2003&rfr_id=ori%3Arid%3Acrossref.org&rfr_dat=cr_pub%3Dpubmed&
- 7) Positive effects of female leaders in academia:
<https://scholar.princeton.edu/alangan/publications/female-managers-and-gender-disparities-case-academic-department-chairs>
- 8) Intervention to break faculty biases (2 papers on the same experiment)
 - a) <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4310758/pdf/nihms632056.pdf>
 - b) <https://reader.elsevier.com/reader/sd/pii/S0022103117300860?token=40D4696D4A80584CB6F713DC8E8337925DA07C7EF071063DD191D5B1B986EF143EA492C986AE5B49D3CD9B7FBCF00E54>

[C] Mental health and well-being considerations for graduate students

- 1) <https://www.sciencemag.org/careers/2018/03/graduate-students-need-more-mental-health-support-new-study-highlights>
- 2) http://ga.berkeley.edu/wp-content/uploads/2015/04/wellbeingreport_2014.pdf
- 3) <https://www.nature.com/articles/nbt.4089>
- 4) <https://www.stanforddaily.com/2019/03/13/a-toxic-culture-of-overwork-inside-the-graduate-student-mental-health-crisis/>

[D] Science impact from different countries

- 1) <https://journals.plos.org/plosone/article/file?id=10.1371/journal.pone.0151328&type=printable>
- 2) <https://www.nature.com/articles/430311a.pdf>
- 3) <https://arxiv.org/pdf/astro-ph/0401228.pdf>

[E] Career challenges

- 1) Changing demographics in science careers:
<https://www.pnas.org/content/115/50/12616>
- 2) Study of career choices in astronomy:
<https://www.aip.org/sites/default/files/statistics/lsags/PhysRevPhysEducRes.12.020109.pdf>
- 3) Leaky pipeline for postdocs: <https://arxiv.org/pdf/1810.01511.pdf>
- 4) Changes in career trajectories for new parents in STEM:
<https://www.pnas.org/content/early/2019/02/12/1810862116>
- 5) Career outcomes of astronomy PhDs: <https://arxiv.org/abs/1903.08195>

[E] Teaching research and pedagogy

- 1) National study of learning in astro gen-ed courses:
<https://aapt.scitation.org/doi/abs/10.1119/1.3065023>
- 2) Science literacy in undergraduates:
https://www.researchgate.net/profile/S_Buxner/publication/258569236_Non-Scientific_Beliefs_Among_Undergraduate_Students/links/5525852f0cf24b822b405452/Non-Scientific-Beliefs-Among-Undergraduate-Students.pdf
- 3) Quantitative reasoning assessment:
<https://scholarcommons.usf.edu/numeracy/vol10/iss1/art5/>
- 4) Other papers can be found from the Journal of Research in Science Teaching:
<https://onlinelibrary.wiley.com/journal/10982736>