

What is Unconscious Bias?

Unconscious bias is an implicit attitude, action, assumption, or judgement that is controlled by automatic evaluations. Such biases are part of the human condition: they are natural, largely unavoidable, and occur without a person's awareness or control. Everyone has unconscious biases, including people trained for objectivity, such as scientists.

Why do we have Unconscious Biases?

We use mental shortcuts and make automatic assumptions to classify situations, things, or people. This categorization can be useful at times, for example it helps us to make quick decisions when under threat. However, unconscious bias may negatively affect our personal and professional lives and may unjustly affect the lives of others.

Why it is important to recognize and counteract unconscious bias?

Unconscious bias can have wide-ranging effects, including shaping hiring decisions and the perception of competence. It is a key contributor to lack of equity and diversity (see Resources for a curated list of peer-reviewed articles).

How to recognize and minimize the influence of Unconscious Bias

1. Take the Implicit Association Test: <https://implicit.harvard.edu/implicit/takeatest.html>

The Implicit Association Test can help you identify your own unconscious bias. The test assesses if mental links exist between concepts and potentially associated values.

2. Be self-aware: frequently re-evaluate your judgments. Whenever you are evaluating science, in the context of an ISCB activity and beyond, ask yourself:

- Am I evaluating solely on what is presented, or did I unconsciously make assumptions based on the reputation of the institute/PI?
- Did I use similar vocabulary for majority and minority/underrepresented (URM) applicants?
- Have I unconsciously assumed different research success probabilities based on the gender and potential family responsibilities of the applicant?

3. Inform yourself about unconscious bias to help you recognize it in you and others. See the Resource section at the end of this document for good places to start.

4. Change internal images of success: think of non-stereotypical leaders and pioneers that you admire. Point them out to trainees.

5. Be part of the solution:

- Be a role model: use inclusive language, increase diversity to include underrepresented groups on your own team, and make efforts to empower everyone equally.
- Use your voice as a leader (e.g. in seminars, at conferences, on social media) to support URMs in your profession. See Resources for groups that support URM in Computational Biology and related fields.
- Speak when you observe bias. Specially if it is directed towards someone in a position of less authority, for whom speaking up may not be possible.

Is unconscious bias the only driver of discriminatory outcomes?

No, structural and institutional discrimination also play a role in producing inequitable outcomes. An example of an institutional practice that could produce discriminatory outcomes would be using a test score that is known to have bias by race, ethnicity, or other status in decision making within an institution without including factors that mitigate the bias. Broader societal factors also can drive discriminatory outcomes within our fields: for example, a history of discriminatory housing practices will influence accumulated wealth, health, and other factors. This can, in turn, disadvantage people from groups who have been discriminated against when working in unpaid settings (i.e., certain research volunteer positions) is infeasible. Being aware of our unconscious bias is important but not sufficient to avoid inequities. We should also be cognizant of other sources of discrimination and work to mitigate them as well.

Resources:

1. Peer-reviewed articles that support the science of diversity and define the extent of bias in several aspects of the scientific enterprise, from peer-review to citation practices (this list is just a selection of available literature that should be used as a jumping board)
 - The Diversity-Innovation paradox in science <https://pubmed.ncbi.nlm.nih.gov/32291335/>
 - Bias in peer-review
 - <https://pubmed.ncbi.nlm.nih.gov/32537494/>
 - The “Ginther” reports on Race, Ethnicity, and NIH Research Awards:
 - <https://pubmed.ncbi.nlm.nih.gov/27306969/>
 - <https://pubmed.ncbi.nlm.nih.gov/21852498/>
 - <https://pubmed.ncbi.nlm.nih.gov/23018334/>
 - <https://pubmed.ncbi.nlm.nih.gov/30427864/>
 - Bias in citation practices <https://pubmed.ncbi.nlm.nih.gov/32561883/>
 - Bias in faculty hiring: <https://pubmed.ncbi.nlm.nih.gov/26601125/>
2. Resources focused on supporting underrepresented groups in Computational Biology and related fields, which can be used to increase diversity on seminar series, award nominations:
 - Folks in GCB <https://www.folksingcb.com>
 - Black Women in Computational Biology <https://www.blackwomencompbio.org>
 - BiPOC in Computational Genetics <https://twitter.com/BIPOCinCompGen>