

Guidance on eliminating gender bias from references and letters of recommendation¹

September 2021

The persistence of gender inequality in STEM is a complex problem for which there are no simple solutions. Progress towards equality requires us to take a range of measures (e.g. combatting stereotypes, providing support to alleviate the disproportionate burden of family care) to create a system that treats women fairly.

One important contribution to this effort is to ensure that letters of recommendation are free from bias. However, research shows that in letters written in support of applicants for academic positions, men are more likely to be described as excellent, an asymmetry that persists even if the author of the letter is female². Other studies have shown that in recommendation letters men are more likely to be described by ‘standout’ adjectives (e.g. outstanding, exceptional), while women are more often described with ‘grindstone’ words such (e.g. hard-working, conscientious), reflecting stereotypes that still prevail in our society^{3,4}.

The guidance in this document is to help you avoid such stereotyping when writing letters of recommendation, so that you can be more consciously fair to the men and women whose careers and opportunities you want to support. The guidance should also be useful in reducing bias when composing letters for people from other under-represented groups.

Good practice guidelines

- **Reference research and publications**
 - References for men are considerably more likely to mention publications references to research, whilst references for women are more likely to describe their role as teachers and trainers. When superlatives and standout adjectives (e.g. “outstanding,” “research”) are used in letters, they are repeated more often in references describing men.
- **Write enough!**
 - References about men are often longer and more likely to contain clear endorsements, whilst letters of reference for women may offer only minimal assurances.
- **Mention accomplishments**
 - References for men are more likely to mention accomplishments, whilst letters of reference for women are more likely to mention their hard work (so-called ‘grindstone language’)

¹ This document was prepared in 2021 by a sub-group of the College Athena SWAN Self-Assessment Team

² Dutt, K. et al. (2016) Gender differences in recommendation letters for postdoctoral fellowships in geoscience. *Nat. Geoscience*, **9**, 805-808.

³ Schmader, T. et al. (2007) A Linguistic Comparison of Letters of Recommendation for Male and Female Chemistry and Biochemistry Job Applicants. *Sex Roles*, **57**, 509-514.

⁴ Ellemers, N. (2018) Gender Stereotypes. *Ann. Rev. Psychol.*, **69**, 275-298.

- **Keep it professional**
 - References for women are overwhelmingly more likely to mention personal life. References must be professional and not refer to individual's personal life.
- **Stay away from stereotypes**
 - Gender, racial and other stereotypes have no place in letters of recommendation. If you find yourself describing stereotypical traits, ask yourself if these characteristics are relevant to the job. If possible, avoid referring to age, gender, disability, race, nationality or religion of the candidate. Even if well-intentioned, they can evoke bias in the reader.
- **Be honest, but don't raise doubt**
 - Negative and irrelevant comments are found more often in references for women. Have you ever written "*even though she hasn't had formal training in XXX, she's an impressive XXX*"? Delete that first half of the sentence and just focus on the skills and experience they do have.
- **Use titles and surnames**
 - References for men are more likely to use their full title, whilst women are often referred to by only their first name.
- **Consider who you credit**
 - Men are more likely to be credited for big picture science, whilst women are often credited for their supporting roles.
- **Counteract ingrained behaviour**
 - Women and people from other historically marginalised groups are more likely to minimise their accomplishments during the application process, so as their recommender, you have the opportunity to go out of your way to counteract that.
- **Don't rush**
 - We are *all* more likely to make snap judgments when in a hurry, which can result in us relying heavily on stereotypes and unconscious biases.

Check list

For any given reference:

- Have I written at similar length for male and female applicants?
- Have I used appropriate professional language? (e.g. avoiding phrases like 'nice to work with'.)
- Have I written the letter about them rather than me? (e.g. I was their supervisor, I gave them lots of opportunities.)
- Have I addressed the questions asked and followed the guidelines?
- Have I used similar adjectives to describe the qualities and achievements of male and female candidates? For example:
 - Have I used these words for female, but not male applicants? '*Caring, compassionate, hardworking, conscientious, dependable, diligent, dedicated, tactful, interpersonal, warm, helpful*'
 - Have I used these words for male applicants but not female? '*Successful, excellent, accomplished, outstanding, skilled, knowledgeable, insightful, resourceful, confident, ambitious, independent, intellectual*'.
 (from [University of Arizona guidance](#) on 'avoiding gender bias in letter of reference writing').

- Have I touched on all the candidate's relevant achievements (e.g. notable publications and other research outputs, quality of research/teaching/mentoring, research funding, interpersonal style, management experience, etc.)
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Other resources

- Refer to the below example references.
- *Letter writing guides*: https://www.mrc-cbu.cam.ac.uk/documents/equality/HHMI_WriteReference.pdf; https://csw.arizona.edu/sites/default/files/avoiding_gender_bias_in_letter_of_reference_writing.pdf
- *Training*: Unconscious bias course at Imperial: <https://www.imperial.ac.uk/equality/resources/unconscious-bias/>

Example reference letters

Below are three example references, each for a distinct career moment:

- Early Career Researcher
- Junior Academic applications (e.g. Lectureships & Fellowships)
- Academic Promotions

The examples are based on real reference letters used at Imperial (retaining the gender of the referee and the candidate) and aim to illustrate good practice.

We would not recommend that these are used to cut and paste text – clearly an authentic voice is important. However, they may be a useful prompt if a referee is looking for ways to get started.

Please note that these example does not represent real individuals or views and is presented only as an example and support resource for potential referees.

*This example is for references relating to **Early Career Researcher applications**.*

Dear Sir/Madam,

Re: Reference for Ms Teresa Research

It is with great pleasure that I write a letter in support of the application by Dr Teresa Research for a postdoctoral position in your lab. Teresa is a graduate student in my lab at Imperial College London from started in January 2020.

Work in my lab is focused on the evolution of diseases in social insect societies such as ants. Our principal model are the 'zombie ant fungi' which have evolved complex behavioural manipulation to circumvent the robust social immune system of ant societies where diseases within the nest are rapidly detected and controlled by multiple nurse workers acting in concert. For the disease agent to transmit from ant to ant the fungal parasite must exploit the weakness in the system which are the trails the ants use as they leave the nest to forage. The fungus controls ants to bite and die on leaves in tropical forests before growing a stalk from the ant's head from which spores are shot to infect foraging ants.

I have worked on this system for 12 years and Teresa arrived at a time where we were challenged to take it to the next level and understand how a complex society like a 50,000 strong ant nest in a tropical forest responds to disease. To do that we needed to measure the movement of ants as they emerge to forage. The major challenge is that not only do they do this at night, they also emerge as a flood of workers that compounds the problem of observation. Teresa solved the problem in two incredibly innovative ways. The first was developing a complex observation system and the second was to work with computer scientists to use deep learning algorithms to model the ant behaviour. All of this Teresa accomplished in her first year as a graduate student. This work is now published.

In her recent work on this she was able to establish the direct interaction between the use of biological laundry detergents and successful foraging behaviour. This for the first time suggests an example and support resource for potential referees.

The excellent fieldwork Teresa undertook, and clever experiments integrate quite distinct approaches has promoted Teresa to try understand the broader evolutionary framework by examine the evolution of Ambrosia Beetles. The Ambrosia Beetles are ecologically very successful, and many different social systems exist. Teresa is forming a compelling series of questions to address how variation in social behaviour affects the evolutionary strategies of members of the weevil family.

Teresa is both an excellent field biologist and computational biologist. She has worked with advanced techniques in machine learning on statistical movement models. Right now she is

working on very interesting work using agent based modelling to determine what drives Ambrosia beetle behaviour. She combines this with an excellent appreciation of what works in visualizations. It is really enjoyable to see how she does that. It is a rare ability.

I have had 16 graduate students to date and interacted with many more since becoming a faculty member at Imperial College London. Teresa is by far the most talented, intelligent and motivated student I have met. She has been able to seamlessly work between ecologists and computer scientists to achieve very impressive results. She is an excellent student who has a very bright future. The open position you have seems perfect for her. She has my highest recommendation.

If you require any further information, please do not hesitate to contact me.

Yours faithfully

A handwritten signature in black ink, appearing to be 'John Example', written in a cursive style.

Professor John Example

This reference is given to the addressee in confidence and only for the purposes for which it was requested. It is given in good faith, and on the basis of the information available to the College at the time it is given, but neither the writer nor Imperial College London accepts any responsibility or liability for any loss or damage caused to the addressee or any third party as a result of any reliance being placed on it.

*This example is for references relating to **Junior Academic applications (e.g. Lectureships & Fellowships)***

Dear Sir/Madam,

Re: Reference for Dr Isabelle Lecturer

Job Title: Researcher

Dates of Employment: 1 October 2015 to 31 December 2018

This is a letter of recommendation for Dr Isabelle Lecturer who was doing her PhD with me at the mathematics department at Imperial College London (ICL) from October 2015 until December 2018.

Isabelle has strong foundations in mathematics and statistics. She studied mathematics at the University of Oxford before joining ICL for an MRes year in our Statistical Analysis Division. In my opinion she was one of the top three students in that year (out of 12 students). During her PhD she improved her skills further by attending Advanced modelling courses and a prestigious LSE summer school. The research itself also demanded a significant commitment to studying and learning probability concepts.

Isabella's research at ICL focused on the random number partitioning problem. She published three papers with me in top Statistical conferences. It is common in the field to disseminate research at conferences instead of journals. That being said, I am convinced that the quality of the work was high and that these papers could also have been disseminated in top journals in this field, such as Applied Statistics or Probability & Statistics. Isabelle is well embedded in the research community and is aware of current trends and topics of interest. This will allow her to develop her own research program and to guide and supervise PhD students. Isabelle is a driven and hard-working researcher and I expect her to do very well when working on her own, when collaborating with other researcher, or when leading a small research group.

Isabelle has experience in teaching, having worked for multiple years as a Graduate Teaching Assistant and a PhD assistant supervisor with us. She also has experience presenting in front of large groups. Our Postdoc and Fellows Development Centre organises weekly seminars and PhD students regularly present their work in the seminar. Furthermore, I have seen her present at the Institute of Mathematical Statistics conference in front of about 100 researchers and at a workshop I organised this September (around 60-70 researchers). In both cases she has done very well, and I have no doubt that she will be an excellent lecturer.

If you require any further information, please do not hesitate to contact me.

Yours faithfully



Professor Jane Example

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*This example is for references relating to **Academic Promotions**.*

Re: Reference for Dr Honorine Reader

Job Title: Lecturer

Dates of Employment: 1 October 2016 to present

I have known Dr Honorine Reader since 2016, having interacted with her particularly in relation to the Nanophotonics course at Stanford University (for which I have been External Examiner). Since then we have met in relation to the course, but I have also become aware of her world-leading research work, and broader contribution to the international research community. Here, she has achieved an international standing through her significant research output, and through her contributions to solar cells and healthcare.

Dr Reader currently has a thriving research group, working on for important real-world applications. Her research themes have well-chosen goals, and will undoubtedly lead to important advances in, for example, cancer diagnosis, and solar cell / fuel cell efficiency improvements. Throughout her career her work has illustrated some fascinating science (e.g. through novel materials synthesis routes), and she has always worked to hone and develop this science to be of value to society with, for example, some key contributions to disease detection.

In addition to valuable local links, Honorine has many internationally recognised collaborators. Her approach to research illustrates the huge value of interdisciplinarity, and the importance of considering the potential applications of scientific progress. She has demonstrated a capability to attract significant research funding in her own right, and as an essential

collaborator in others' projects. I am confident that this will grow substantially over the next few years. She has very strong industrial and NHS links, and is working on further collaborations with a view to future funding and support. She has an impressive record of very high-quality publications, many of which are highly cited. These include high impact results from her own group, together with collaborations worldwide, and some important invited review papers. Many are of great technological importance and, again, feature not only the science, but also the relevance to practical applications. For example, the ability to control properties in materials for optoelectronic devices and solar cells, together with the push towards low cost and high scalability fabrication. Her international recognition is also reflected in invitations to conferences and meetings, editorial work, and acting as a PhD examiner.

Honorine teaches effectively and well, across a range of topics, including some of the most important current fields of nanotechnology and its applications. She has developed her own courses, as well as updating others, and these prove to be very popular with students. She is also an enthusiastic contributor to open days and outreach events and has delivered talks nationally and internationally to encourage applications to the Nanophotonics course. She has had a considerable impact upon the delivery of this at Stanford University, investing much effort in the admissions process, and in supporting students throughout the year. I am aware of just how much work this takes, having been involved myself with master's courses at Imperial College London.

In her role as she regularly meets with student representatives to ensure that any problems and issues are attended to. I know that she takes such feedback very seriously. She acts as a pastoral tutor as well, and I have direct experience, after talking with graduating students, of just how much her support and assistance is appreciated, and how vital it is to the continued success of the course. She doesn't hesitate to fully support and encourage students at all levels and is clearly an extremely popular supervisor and course tutor.

Honorine's project students working with her are extremely appreciative, and invariably perform to an excellent standard; she supervises master's students from other departments; and her pastoral care extends to undergraduates. In summary, Honorine is well-placed to make further, very major impact in her research, and in the development of some novel technology, and surely deserves the title of Professor.

The combination of her research record, technological outputs, and international status, together with her outstanding teaching service, her commitment to the administration of teaching, and to the development of teaching resources, makes for a compelling case.

If you require any further information, please do not hesitate to contact me.

Yours faithfully



Professor Joanne Example

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