

## Written Evidence Submitted by University College (DIV0085)

University College London (UCL) is a world-leading university in STEM research and education. The following submission represents the collated views of academic experts from a range of STEM disciplines across UCL, including staff whose roles are directly concerned with issues of equity, diversity, inclusion and accessibility.

### **A. Executive summary**

**A.1.** Minority ethnic staff and students - and Black staff and students in particular - are considerably underrepresented in STEM research and funding, while there is a “leaky” pipeline reducing numbers of women at senior staff levels.

**A.2.** UCL works to improve diversity in STEM through schemes including: the use of Fair Recruitment Specialists on recruitment panels, the UCL Research Opportunity Scholarship targeted at UK-domiciled students from Black, Bangladeshi and Pakistani backgrounds, the B-Mentor and Inclusive Advocacy schemes, leadership programmes and outreach with schools.

**A.3.** Co-designing interventions with underrepresented groups is recommended as an approach to improve diversity in STEM and, where possible, such interventions should take account of intersectionality and related complexities.

**A.4.** A system-wide, shared commitment is needed from all stakeholders if we are to dismantle barriers and actively support greater diversity and inclusion in STEM across the educational pipeline and in research. We suggest key actions for stakeholders as follows:

**A.5.** Funders, including UKRI, should:

- require diverse representation on funding panels and provide recognition and reward for those whose contributions aid in improving diversity
- ringfence postgraduate research studentships for underrepresented students
- fund more 1+3 (postgraduate taught degree to postgraduate research) programmes for underrepresented applicants
- include a budget line for EDI-related contingencies in funded projects
- provide longer lead times between grant scheme announcements and deadlines.

**A.6.** HEIs should:

- create institutional leadership and advocacy programmes for and with people from underrepresented groups
- gather and analyse data on the staff and student experience of minority groups
- encourage departments to consider all eligible staff during the promotions cycle (not just those who self-nominate)
- provide career development workshops and structured CV reviews for staff from underrepresented groups
- review capacity for on-site childcare and funding care cover for staff to attend conferences/training.

**A.7.** The Government should:

- ensure, as far as possible, that school-age pupils from low socioeconomic backgrounds have opportunities to engage in STEM activities
- incentivise STEM industry to offer work experience to such pupils.

While the terms 'BAME' (Black, Asian and Minority Ethnic) and 'BME' (Black and Minority Ethnic) and 'minority ethnic groups' are used in this submission, this is usually only in reference to existing programmes that use these terms. We acknowledge that these terms homogenise diverse cultural backgrounds and do not capture the experience of those with intersectional identities across race, religion, sex, gender identity, class, disability and/or sexual orientation.

## **B. The nature or extent to which women, ethnic minorities, people with disabilities and those from disadvantaged socioeconomic backgrounds are underrepresented in STEM in academia and industry**

**B.1.** UK-domiciled minority ethnic staff and research students, and Black British staff and students in particular, are consistently and considerably underrepresented in STEM disciplines.<sup>1</sup> Doctoral students from minority ethnic groups are less likely to be UKRI-funded than white students.<sup>2</sup> MRC and ESPRC funding rates are lower for ethnic minority applicants.<sup>3</sup>

**B.2.** Academic career progression for women in STEM disciplines does not reflect the number of women trained at undergraduate and postgraduate level. Currently, only 51% of female STEM graduates in the UK progress to STEM careers, compared with 68% of men. Women account for just 17% of full-time STEM professionals and, in some disciplines fewer than 20% of UKRI grant holders are women.<sup>4</sup> Research by the League of European Research Universities has shown that female researchers have a stronger sense of career insecurity and that a significant part of female talent vanishes at successive academic career stages.<sup>5</sup>

**B.3.** Students with disabilities experience persistent challenges to inclusive participation in STEM. Compared to non-STEM study, a lower percentage of first degree and postgraduate STEM students in the UK have a known disability, while postgraduate STEM students with a known disability are more likely to leave with no degree than those with no known disability.<sup>6</sup>

**B.4.** A recent intersectional survey of the experiences of women researchers in STEM fields<sup>7</sup> found that over half of Black and minority ethnic women would not feel confident reporting experiences of discrimination and 80% did not believe enough is being done to create inclusive workplaces and educational institutions. The same report identifies the need to focus institutional interventions on intersectional rather than single discriminations (e.g. only sex/ gender, only disability) and calls for more actions that target compound biases.

## **C. Reasons why these groups are underrepresented**

**C.1.** Lack of provision of information, guidance and resources, lack of confidence in ability, and lack of opportunity and family experience, contribute to lower levels of engagement by children and young people from underrepresented backgrounds in STEM subjects at school, resulting in their underrepresentation in STEM higher education. This is exacerbated by systemic discrimination in the availability of support, the inaccessible reputation of science, and the lack of diverse role models in STEM fields.<sup>8</sup>

**C.2.** Academic career structures create and exacerbate inequalities for individuals from marginalised groups. Job application and promotion practices, expectations around career trajectories, the prevalence of temporary contracts for early-career researchers, and lack of intersectoral mobility<sup>9</sup> can contribute to discrimination against individuals from marginalised groups and disadvantaged backgrounds, as well as those with non-traditional career paths, caring responsibilities, and disabilities.

**C.3.** The structure of university estates and resources can pose a barrier to full participation for those with physical disabilities, for example when wet labs, lecture theatres, and classrooms do not accommodate access needs.

**C.4.** Non-inclusive practices and behaviours, and issues of career insecurity and poor mental health impact staff and student attrition rates, progression to postgraduate research study and

progression to academic and research careers. These conditions are likely to have a negative effect on the quality of research being produced (see D.3).<sup>10</sup>

#### **D. Implications of these groups being underrepresented in STEM roles in academia and industry**

**D.1.** Underrepresented academics are less likely to be in senior decision-making roles compared to their white, male, non-disabled colleagues. This risks decisions not being inclusive. The low representation and lack of visibility of marginalised groups in leadership roles can lead to a lack of role models for aspiring researchers from these groups.

**D.2.** Ensuring that the production of knowledge is reflective of current society is fundamental to economic, scientific and social progress. The lack of equal opportunity to access and participate in STEM education and research has serious long-term consequences for social mobility and the perpetuation of systemic societal divisions.<sup>11</sup>

**D.3.** Best practices in equality, diversity and inclusion (EDI) in the scientific enterprise are as much a case of advancing science as they are about social justice. Lack of diversity among researchers restricts the range of research questions that are posed, and may increase the risk of underrepresentation of individuals with protected characteristics as research participants. Lack of diversity among research participants is a known issue that can lead to research findings not being applicable to the whole population. Criteria need to be developed for all human research to demonstrate EDI consideration to ensure higher quality, representative scientific outputs.

#### **E. What has been done to address underrepresentation of particular groups in STEM roles**

**E.1.** Across UCL, programmes and initiatives have been implemented to address the underrepresentation of women, people from minority ethnic groups, people with disabilities and people from LGBTQI+ communities in STEM study and careers.

##### *E.2. Recruitment*

**E.2.1.** To ensure diversity in recruitment panels, the Fair Recruitment Specialist Scheme<sup>12</sup> consists of volunteers from UCL staff who are from minority ethnic group backgrounds and has been put in place to support less diverse departments in their hiring processes.

**E.2.2.** In the recruitment process, the positive action equal merit provision within the Equality Act can be used in situations where two candidates are ranked evenly, whereby the job is offered to the individual from an underrepresented group.

**E.2.3.** The UCL Research Opportunity Scholarship is a positive action response to data showing that students from some ethnic groups, who are the most underrepresented, are also much more likely to experience financial challenges.<sup>13</sup> The scheme is directed at PhD applicants from UK-domiciled Black, Pakistani, and Bangladeshi groups in faculties with the most significant underrepresentation and includes consideration of financial need based on socioeconomic background.

##### *E.3. Mentoring, leadership and professional development opportunities*

**E.3.1.** UCL runs the *B-Mentor* Mentoring Scheme for academic, research and professional services staff from minority ethnic groups as a positive action initiative to pair staff with more senior colleagues who can provide mentorship and career advice.<sup>14</sup> *Emerging Leaders* is a leadership and development programme for mid-grade staff from minority ethnic groups to create a safe space to discuss themes of race, culture, leadership and career development.<sup>15</sup> *Women in Research* is a career and leadership development programme, open to women research and teaching staff (including trans women and non-binary people who are comfortable in a female-centred community).<sup>16</sup> UCL's *Inclusive Advocacy* programme aims to increase the proportion of minority

ethnic staff in HEI leadership. pairing participants with senior UCL advocates who are committed to sharing their networks, knowledge and social capital.<sup>17</sup>

#### *E.4. Outreach programmes*

**E.4.1.** UCL hosts open days for secondary schools and the Widening Participation (WP) Student Ambassador scheme.<sup>18</sup> The UCL Access and Participation office organises a large programme of events and activities for young people from backgrounds that are underrepresented at university to raise their aspirations, attainment and knowledge of higher education options.

**E.4.2.** UCL's STEM faculties have partnered with social mobility charity, In2scienceUK<sup>19</sup> to support students from disadvantaged backgrounds to pursue STEM study and research and to offer research experience placements, paid at the London Living Wage, through the In2research programme.<sup>20</sup>

**E.4.3** The Faculty of Medical Sciences has started the "Target Medicine" project to engage secondary school students from disadvantaged backgrounds in undergraduate education in medical sciences.<sup>21</sup>

**E.4.4** The Faculty of Engineering Sciences has developed and delivered 134 engagement and outreach programmes, activities and events, inviting over 6000 students from over 500 primary and secondary schools in London and the UK, to discover the creative, humanitarian and problem-solving nature of engineering and its significance to society.<sup>22</sup>

#### *E.5. Data gathering and evaluation*

**E.5.1.** Challenges related to sex, gender identity, ethnicity, disability, socioeconomic status and sexual orientation in STEM do not exist in isolation; they intersect and are part of wider, structural inequalities. Collecting, evaluating and responding to comprehensive and disaggregated data on underrepresented groups is required to identify and meaningfully address the issues, considering intersectional disadvantage. UCL has initiated data review processes, including collecting data on socioeconomic status and using exit surveys, to understand the barriers in recruitment, promotion and experience of underrepresented groups.

**E.5.2** Analysis of UCL data shows that there is a discrepancy in the rate of "good" degrees (1<sup>st</sup>/2:1) awarded to students from minority ethnic backgrounds compared with white students, and to those from socio-economically disadvantaged backgrounds compared with those from socio-economically more privileged backgrounds, despite entering UCL with the same high entry qualifications. Significant progress has been achieved in closing the ethnicity awarding gap in many science disciplines during the pandemic. It will be important to understand the causes of the gap and how to ensure progress made is maintained. UCL is committed to consolidating this progress through the BAME Awarding Gap Project: this includes a Student Curriculum Partners Scheme, enabling staff and students to work together to review assessment types and modes, inclusivity of curriculum materials, and inclusive teaching practice.<sup>23</sup>

#### *E.6. Internal policies*

**E.6.1.** Several UCL Faculties hold an annual promotions committee meeting in which all individuals eligible for senior promotion are considered and invited to apply, whether they have put themselves forward or not. This has been effective in enabling the promotion of staff from underrepresented groups.

### **F. What could and should be done by the UK Government, UK Research and Innovation, other funding bodies, industry and academia to address the issues identified**

**F.1.** Crucially, the responsibility for change should not be placed on underrepresented groups. Those who hold the 'power' must create meaningful and inclusive change. Structural changes and clear targets are needed, but so is a shared, consistent and system-wide commitment to dismantling barriers and actively supporting diversity and inclusion in STEM. A commitment to creating, implementing and evaluating interventions in partnership with underrepresented groups is

fundamental to the design of inclusive, meaningful and sustained improvements to diversity in STEM.

### *F.2. Early education intervention*

**F.2.1.** Early exposure to STEM is key. This could include increased government funding for affordable, convenient (local) and inclusive after-school and school holiday activities, university open days and industry open days for pupils from low-socioeconomic areas.

**F.2.2.** The Government should consider incentivising STEM industry to offer appropriate work experience placements, especially for secondary-school students from low-socioeconomic backgrounds.

### *F.3. Funding*

**F.3.1.** Funders should require diversity of representation in the membership of their governing bodies and on funding panels, including panel chairs.<sup>24</sup> However, asking individuals from underrepresented groups to take these responsibilities to ensure "diversity" on panels creates additional workload for underrepresented staff. Work done by people from underrepresented groups on governing bodies and funding panels under the premise of diversity should be recognised/rewarded and considered in staff appraisal and promotion. Double-blind (and track record free) peer review on UKRI grants should be introduced.

**F.3.2.** Funders should include a budget line for EDI-related contingencies in funded projects/programmes (e.g. caring responsibilities; recruitment costs to ensure the best and widest reaching recruitment).

**F.3.3** Funders should avoid scheduling funding calls over short timeframes or over holiday periods, as this will disadvantage applicants with caring responsibilities, instead providing longer lead times between grant scheme announcements and deadlines.

**F.3.4.** Research Councils should ringfence postgraduate research studentships for underrepresented students and fund more 1+3 (postgraduate taught degree to postgraduate research) programmes for disadvantaged applicants.

**F.3.5.** University budget holders and leadership (including at Faculty and department level) should prioritise funds to support EDI work. Where Fair Recruitment Specialist positions are introduced, there should be a system of recognition in place.

### *F.4. Benchmarking, targets and data gathering*

**F.4.1.** UKRI should be more explicit about their definitions of "commitment to EDI." If a commitment to EDI is required in funding applications, then the evaluation panel must be sufficiently trained and diverse to effectively evaluate that commitment.

**F.4.2.** Funders have significant power to effect change and demonstrate accountability by publishing their data on funding award gaps.

**F.4.3.** There has been a focus on addressing underrepresentation as it relates to sex/ gender and ethnicity. However, other characteristics (e.g. neurodiversity, invisible disabilities) have been more challenging to identify and monitor. More research is needed to gather qualitative data on people's experiences and educational journeys alongside the quantitative data on access and progression.

**F.4.4.** Senior leadership in universities and industry can increase the number of staff sharing their disability status by running a campaign highlighting the importance of this data and clearly explaining what the data will be used for. Internal EDI teams can also run targeted surveys and focus groups with staff identifying as disabled to better understand best practices and barriers to progression.

## *F.5. Recruitment*

**F.5.1.** Encouraging the use of narrative CVs, as promoted by UKRI and the Royal Society, would help to improve recruitment diversity. A focus on research metrics and researchers' track record risks disadvantaging applicants from non-traditional backgrounds. Narrative CVs enable a more inclusive assessment of an applicant's strengths and experience.<sup>25</sup> Reviewing recruitment processes including EDI criteria in job descriptions, using anonymous applications, and surveying successful and unsuccessful candidates would help funders to further understand applicants' experiences of systemic barriers and make improvements.

**F.5.2.** Positive action recruitment processes can encourage people from underrepresented groups – including those with diverse needs or with a background of disadvantage or low participation – to apply for jobs. Funders or employers could consider ringfencing roles for such groups. One potential action is for HEIs to shortlist for particular jobs all candidates from evidenced underrepresented groups who meet the essential recruitment criteria to interview stage.

## *F.6. Career development and promotion practices*

**F.6.1.** Universities should encourage the following good practice:

- limiting senior leadership role holders to two terms in the role, to enable more junior colleagues and those from underrepresented groups to progress to further roles
- considering all eligible staff during the promotions cycle (rather than only those who self-nominate)
- providing promotion and career development workshops and structured CV reviews and feedback for all staff from underrepresented groups, as well as career progression coaches for all individuals who demonstrate potential or aspiration for senior leadership roles
- creating institutional leadership and advocacy programmes for people from underrepresented groups to build confidence and skills in navigating the STEM sector and tackle systemic barriers to inclusive experience and career development
- providing anti-racism training in addition to implicit bias training<sup>26</sup> for all staff involved in student and staff recruitment, appraisal and promotion.

## *F.7. Disability and campus/content accessibility*

**F.7.1** Further research is needed to understand why scientists with disabilities have left STEM and what could be done to support the engagement of students with disabilities with STEM at primary and secondary level. Research by the Careers Research & Advisory Centre also recommends that "funders should promote the availability of specific adjustments in the support available to disabled awardees such as: allowing grants to be taken up on a part-time/flexible basis, potential for discrete additional funding for costs incurred specifically by disabled scientists, and clarifying with HEIs where financial responsibilities lie for providing different types of adjustments."<sup>27</sup>

## *F.8. Support for staff with caring responsibilities*

**F.8.1.** HEIs should:

- work towards offering sufficient capacity for on-site childcare and caring facilities that are also available for last-minute or ad-hoc childcare.

Funders should:

- fund care cover for staff to attend conferences/training opportunities and allow for funded projects to charge for childcare and care of dependents
- make additional funding available to cover the costs of carers' leave (e.g. allowing researchers to apply for costed extensions for carers' leave).<sup>28</sup>

## Acknowledgments

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<sup>1</sup> <https://www.grad.ucl.ac.uk/strategy/barriers-to-doctoral-education.pdf>

<sup>2</sup> <https://leadingroutes.org/mdocs-posts/the-broken-pipeline-barriers-to-black-students-accessing-research-council-funding>

<sup>3</sup> <https://mrc.ukri.org/research/funded-research/success-rates/#grant>; <https://epsrc.ukri.org/funding/edi-atepsrc/collecting-and-analysing-diversity-data/>

<sup>4</sup> <https://www.ukri.org/about-us/equality-diversity-and-inclusion/diversity-in-research-and-innovation/>

<sup>5</sup> <https://www.leru.org/publications/delivering-talent-careers-of-researchers-inside-and-outside-academia>

<sup>6</sup> <https://royalsociety.org/-/media/policy/topics/diversity-in-science/210118-disability-STEM-data-for-students-and-staff-in-higher-education.pdf>

<sup>7</sup> <https://equatescotland.org.uk/wp-content/uploads/2020/05/Women-in-STEM-report-2.pdf>

<sup>8</sup> <https://www.raeng.org.uk/publications/reports/uk-stem-education-landscape>

<sup>9</sup> <https://www.scienceeurope.org/media/bpdib1xg/2021-science-europe-high-level-workshop-report.pdf>

<sup>10</sup> <https://royalsociety.org/-/media/policy/projects/changing-expectations/changing-expectations-conference-report.pdf>;

<sup>11</sup> <https://www.ukri.org/about-us/equality-diversity-and-inclusion/diversity-in-research-and-innovation/>

<sup>12</sup> <https://www.ucl.ac.uk/equality-diversity-inclusion/equality-areas/race-equality/fair-recruitment-specialist-scheme>

<sup>13</sup> <https://www.ucl.ac.uk/scholarships/ucl-research-opportunity-scholarship>

<sup>14</sup> <https://www.ucl.ac.uk/equality-diversity-inclusion/equality-areas/race-equality/b-mentor-academic-mentoring-scheme>

<sup>15</sup> <https://www.ucl.ac.uk/human-resources/learning-development/learning-academy/ucl-leadership-programmes/emerging-leaders>

<sup>16</sup> <https://www.ucl.ac.uk/human-resources/learning-development/learning-academy/researcher-development/researcher-initiatives-networks/women>

<sup>17</sup> <https://www.ucl.ac.uk/equality-diversity-inclusion/equality-areas/race-equality/inclusive-advocacy>

<sup>18</sup> <https://www.ucl.ac.uk/widening-participation/current-ucl-students/work-us/widening-participation-student-ambassador-scheme>

<sup>19</sup> <https://www.ucl.ac.uk/widening-participation/about-us/partnerships/in2scienceuk>

<sup>20</sup> <https://in2scienceuk.org/in2research/>

<sup>21</sup> <https://www.ucl.ac.uk/medical-school/partnerships-and-consultancy/target-medicine>

<sup>22</sup> <https://www.ucl.ac.uk/engineering/collaborate/schools-engagement>

<sup>23</sup> <https://www.ucl.ac.uk/teaching-learning/education-strategy/1-personalising-student-support/bame-awarding-gap-project/about-bame-awarding-gap>

<sup>24</sup> Uchegbu, I. (2021). Ethnic Diversity in Science. <https://doi.org/10.31219/osf.io/qnzh6>

<sup>25</sup> <https://www.ukrn.org/2021/08/18/university-of-glasgow-pilots-the-resume-for-researchers-narrative-cv-format/>

<sup>26</sup> <https://www.equalityhumanrights.com/sites/default/files/research-report-113-unconscious-bias-training-an>

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<sup>27</sup> <https://royalsociety.org/-/media/policy/topics/diversity-in-science/qualitative-research-on-barriers-to-progression-of-disabled-scientists.pdf>

<sup>28</sup> <https://russellgroup.ac.uk/media/5924/rce-toolkit-final-compressed.pdf>