Institution Application

Bronze and Silver Award

WORD COUNT

The overall word limit for applications are shown in the following table.

There are no specific word limits for the individual sections and you may distribute words over each of the sections as appropriate. At the end of every section, please state how many words you have used in that section.

We have provided the following recommendations as a guide.

Department application	Bronze	Used
Word limit	**10,500 + 750**	**11057**
Recommended word count		
1. Letter of endorsement	**500**	**408**
2. Description of the department	**500 + 250**	**800**
3. Self-assessment process	**1000**	**2205**
4. Picture of the department	**2000**	**1654**
5. Supporting and advancing women's careers	**6000**	**5644**
6. Case studies	**n/a**	**n/a**
7. Further information	**500 + 500**	**346**

We were granted 250 extra words used in Section 2 to describe the recent School restructuring (see Figure 0.1) and 500 words extra words for the impact of **Covid-19** on our Action Plan, used in Section 7.

INSTITUTION SUMMARY

Name of institution	**Royal Holloway, University of London**
Department	**Mathematics Department and Information Security Group**
Focus of department	**STEMM**
Date of application	**May 2020**
Award level	**Bronze**
Institution Athena SWAN award	**Date: November 2014 Level: Bronze**
Contact for application Must be based in the department	**Prof. Mark Wildon**
Email	**mark.wildon@rhul.ac.uk**
Telephone	**01784 414021**
Departmental website	**www.royalholloway.ac.uk/research-and-teaching/departments-and-schools/mathematics/**

From: Athena Swan [mailto:Athena.Swan@advance-he.ac.uk]
Sent: 27 February 2020 16:51
To: Finnis, Katerina <Katerina.Finnis@rhul.ac.uk>
Cc: Athena Swan <Athena.Swan@advance-he.ac.uk>
Subject: RE: [EXT] RE: Request for additional words

Hi again Katerina,

Thanks for providing all this information. Having looked at the details of the restructure and the subject splits, we are happy to grant an additional 250 words to the joint submission of the Departments of Maths and Information Security. The additional words should be used to provide contextual information about the changes that have taken place and impact they have had on gender equality and Athena SWAN activities.

Please include this email in your submission as confirmation and state in the submission where the additional words have been used.

Hope this helps,
Tamara

Tamara Szucs
Athena SWAN Programme Adviser
E tamara.szucs@advance-he.ac.uk

Please note: I work part-time (usually Tue to Thu) and flexibly (so may email at 'odd' hours – no pressure for a reply outside of your working hours).

www.advance-he.ac.uk
First floor, Napier House
24 High Holborn, London, WC1V 6AZ

Figure 0.1. *250 extra words granted by Advance HE to describe restructuring*

KEY TO ACRONYMS AND ABBREVIATIONS

AS	Athena SWAN
BAME	Black, Asian or Minority Ethnic
CDT	Centre for Doctoral Training (EPSRC sponsored PhD programme in ISG)
College	Royal Holloway, University of London
E&D	Equality and Diversity
EPMS	School of Engineering, Physical and Mathematical Sciences
EQUALS	UN body with aim to reverse the increasing gender digital divide
EPSRC	Engineering and Physical Sciences Research Council (part of UKRI)
FT	Full-time
HESA	Higher Education Statistics Agency
HoD	Head of Department
ISG	Information Security Group
M&ISG	Mathematics Department and Information Security Group
Moodle	Virtual Learning Environment used by College
PGT	Postgraduate Taught
PGR	Postgraduate Research
PT	Part-time
RDP	Researcher Development Programme (for PhD students)
REC	Race Equality Charter
RoWaN	Royal Holloway Women's Network
SAT	Self-Assessment Team (this is the M&ISG E&D Committee)
UG	Undergraduate
UKRI	UK Research and Innovation
WAM	Workload Allocation Model
WISDOM	Women in the Security Domain and/or Mathematics (PhD led group in M&ISG)

1. LETTER OF ENDORSEMENT FROM THE HEAD OF DEPARTMENT

Recommended word count: Bronze 500 words | Silver 500 words

An accompanying letter of endorsement from the head of department should be included. If the head of department is soon to be succeeded, or has recently taken up the post, applicants should include an additional short statement from the incoming head.

Note: Please insert the endorsement letter **immediately after** this cover page.

Prof Peter Komisarczuk
Head of ISG

Prof Ruediger Schack
Head of Department of Mathematics

Royal Holloway, University of London
Egham Hill
Egham TW20 0EX

Tel: +44 (0)1784 276881

15 March 2020

Dr Ruth Gilligan
Assistant Director, Equality Charters, Advance HE

Dear Dr Gilligan,

This is a joint letter from Professor Peter Komisarczuk, Head of the Information Security Group (ISG), and Professor Ruediger Schack, Head of the Department of Mathematics. We would like to express our full and enthusiastic support of this joint Athena Swan application. One of us (RS), before taking on his current role, was Equality and Diversity Champion and Head of the School of Mathematics and Information Security (when the two departments were still a single unit).

Our previous bid and Action Plan for Athena Swan bronze status in 2016, though unsuccessful, marked a significant change in culture. A prominent example is our policy that gives maternity leave returners a workload reduction equivalent to one term of sabbatical leave.

Both of us, as Heads of Department, sit on the joint Equality and Diversity (E&D) Committee, which functions as the Self Assessment Team. The committee has carried out the self-assessment process, which included three surveys of staff and students, the gathering of detailed statistics, and extensive qualitative interviews. The process has led to the evidence based Action Plan below. The Action Plan is a detailed roadmap for driving change and has been widely consulted on within both departments.

Our personal commitment and strategic vision is to embed E&D in everything we do. We can build on some successes (in recent years all female staff who applied for promotion were promoted), but there is no room for complacency. There are many areas where we must improve: for instance, we have had limited success in attracting female applicants for academic positions (see Action E.1).

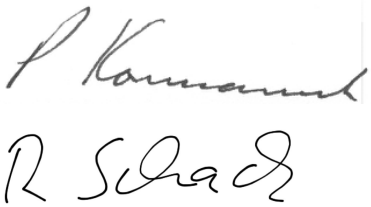
We routinely share good practice between Mathematics and ISG: the two departments were until 2019 part of a common school and have a long shared

history. An example is Action J.4 which brings the ISG workload model closer to the Mathematics workload model by recognising all committee and outreach work. We are also working together to budget for E&D initiatives. We will provide financial resources for training (Action H.2) and annual funding for the PhD student led 'Women in the Security Domain and/or Mathematics' group (Action G.3 on WISDOM). As Heads of Department we have full control of our operating budgets.

Finally, the Covid-19 crisis presents enormous challenges of many kinds. We will make sure that BAME students and staff and female students and staff are all fully considered in our response (Action A.1).

We certify that the information presented in the application (including qualitative and quantitative data) is an honest, accurate and true representation of the departments.

Yours sincerely,



Prof. Peter Komisarczuk
Head of Information Security Group

Prof. Ruediger Schack
Head of Department of Mathematics

Word count: 408

2. DESCRIPTION OF THE DEPARTMENT

Recommended word count: Bronze 500 words | Silver 500 words

Please provide a brief description of the department including any relevant contextual information. Present data on the total number of academic staff, professional and support staff and students by gender.

Structure. The Mathematics Department and Information Security Group (M&ISG) are two of the five departments in the School of Engineering, Mathematical and Physical Sciences (EPMS), part of Royal Holloway, University of London (the College). This follows a restructuring in August 2019. Before restructuring the two departments were formally joined as the School of Mathematics and Information Security. The two departments retain very strong links, and continue to share some teaching. Recognising our shared history (see the letter from the HoDs) Advance HE agreed a joint submission.

The School restructuring replaced three faculties, seen as remote and irrelevant by many academics, with the six schools below, including EPMS.

School of Engineering, Physical and Mathematical Sciences Physics; Computer Science; Electronic Engineering; **Information Security; Mathematics**	**School of Life Sciences and Environment** Biological Sciences; Earth Sciences; Geography; Psychology	**School of Law and Social Sciences** Economics; Law & Criminology; Politics, International Relations & Philosophy; Social Work
School of Humanities Classics; English; History; Language, Literatures & Cultures.	**School of Performing and Digital Arts** Drama, Theatre & Dance; Media Arts; Music	**School of Business and Management** Accounting & Finance Management; Digital Innovation Management; HR Management & Organisation Studies; Marketing; Strategy, International Business & Entrepreneurship

Figure 2.1. *Organization of Royal Holloway departments into six Schools after the 2019 academic restructuring.*

Faculty level committees were abolished and replaced with new School-level committees that sit closer to departments and allow them to influence central policies. M&ISG are very well represented at School level having three women and three men on the 11 person School Executive, not including ex-officio HoDs. These roles are rewarded in the M&ISG Work Allocation Model.

The M&ISG Equality and Diversity Committee (E&D Committee) agrees joint equality and diversity initiatives for both departments. It has met at least termly since 2012. It is the Self Assessment Team (SAT) for Athena SWAN.

As shown in Figure 2.2 (overleaf), the E&D Committee reports to the two departmental committees and to the School Board; in all three E&D is a standing item near the top of the agenda.

The restructuring has not reduced departmental autonomy: in particular each Head of Department controls their department's budget. It aimed to create bigger and more sustainable administrative teams. Administrative and technical staff sit in a School

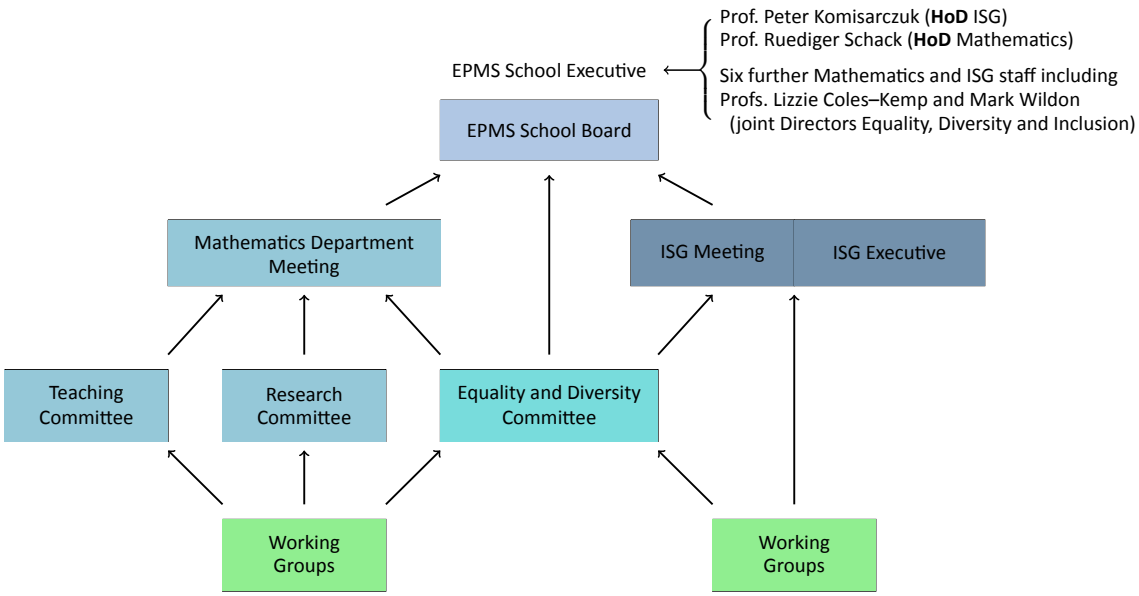


Figure 2.2. *Organogram of M&ISG showing representation on the EPMS School Executive.*

Administrative Office and support all departments within the school. The line manager, Mrs Vanessa Law, is an ex-officio member of the E&D Committee.

EPMS is led by its Head of School, Prof. Stewart Boogert. Stewart chaired the Physics Department E&D Committee in his previous role as HoD of Physics and is fully committed to E&D issues. During this time the department renewed its Athena SWAN Silver Award and JUNO Champion status. The joint Equality Diversity and Inclusion (EDI) Directors for EPMS are Prof. Mark Wildon (the Mathematics E&D Champion) and Prof. Lizzie Coles-Kemp (a senior member of ISG). They meet termly with E&D Champions from Computer Science, Electrical Engineering, Physics, and other departments to share good practice and identify College-wide issues. They also sit on the College EDI Committee.

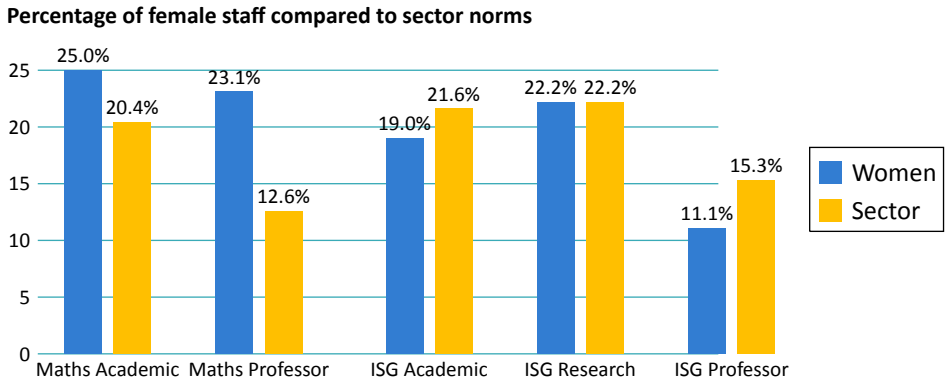
Staff. On 1st June 2019 there were 20 staff in the Mathematics Department, all academic staff on permanent teaching/research contracts. There were 30 staff in the ISG, 21 academic staff on permanent contracts and 9 postdoctoral researchers. There are 17 administrative and technical staff who work with all five departments within the School. The gender breakdown is shown in Table 2.3.

	Mathematics		ISG		School (all departments)	
	Academic	**Researcher**	**Academic**	**Researcher**	**Administrative**	**Technical**
F	5 (25.0%)	none	4 (19.0%)	2 (22.2%)	11 (84.6 %)	0 (0.0%)
M	15 (75.0%)	none	17 (81.0%)	7 (77.8%)	2 (15.4 %)	4 (100%)

Table 2.3. *Numbers of staff in M&ISG in 2019. For breakdown by grade see Table 4.24.*

- The proportion of female academics in the Mathematics Department is 25.0%, slightly higher than the national benchmark for academic mathematics staff of 20.4%. (Unless otherwise stated, all benchmarks in this application are HESA London and SE 2018/19.)
- Of the mathematics professors, 3 of 13, or 23.1%, are female; this is significantly ahead of the national benchmark of 12.6%.
- The proportion of female academics in ISG is 19.0%, slightly lower than the national benchmark for Computer Science of 21.6%.
- Of the ISG professors, 1 of 9 is female, lower than the national benchmark of 15.3%.

Overall 22.0% of academic and research staff in M&ISG are female.



Graph 2.4. *Percentage of female staff in M&ISG compared to HESA London and SE 2018/19 sector norms. Mathematics has no researchers (male or female).*

Of the three most recent appointments in Mathematics, two were female; one recruited as a lecturer in September 2016 (now senior lecturer) and one as professor in January 2013. In 2018/19 ISG recruited 10 new staff, equally male and female (for grades see Section 5.1). If this trend continues, ISG will also exceed sector norms by 2024.

Students. The Mathematics Department runs undergraduate and postgraduate taught courses and a PhD programme. ISG runs postgraduate taught courses and is home to a highly successful Centre for Doctoral Training in Information Security (CDT), sponsored by the relevant research council (EPSRC).

	Mathematics			ISG	
	UG	PGT	PGR	PGT	PGR
F	88 (40.6%)	2 (22.2%)	3 (33.3%)	61 (25.3%)	17 (28.8%)
M	129 (59.4%)	7 (77.8%)	6 (66.7%)	172 (74.7%)	42 (71.2%)
All	217	9	9	234	59

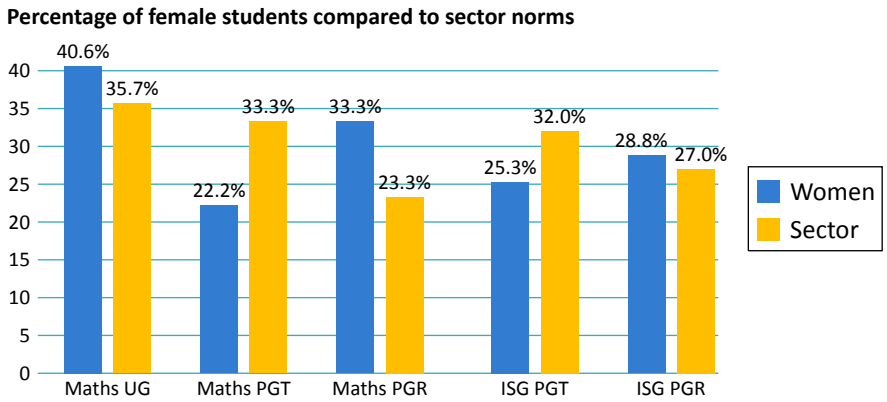
Table 2.5. *Numbers of students M&ISG in 2019: see also Graph 2.6*

The 2018/19 the undergraduate Mathematics cohort was 40.6% female, slightly ahead of the sector norm 35.7%. (As usual this benchmark is HESA 2018/19 London and SE.) The postgraduate course is small and has varied from 22.2% to 57.6% female since 15/16, compared to a sector norm of 33.3%. In 2018/19, 33.3% of Mathematics PhD students were female, compared to a sector norm of 23.3%.

The ISG PGT cohort was 26.1% female in 2018/19, behind the sector norm that 33.6% of PGT students in Computer Science are female. (No more accurate benchmark specific to Information Security is available: throughout we use the two areas of Computer Science most relevant to ISG; this underestimates the gender bias in the Information Security sector.) The PGR cohort was 28.8% female in 2018/19, slightly ahead of the sector norm of 26.6%. In 2018/19 the ISG recruited equally many female and male Ph.D students. If this trend continues, ISG PGR will significantly exceed sector norms by 2024.

These data are summarised in Graph 2.6 (overleaf).

Students on the four year ISG PhD programme spend the first year on taught courses before deciding a research topic. To date all but one student has done an industry internship as part of their PhD: industry partners include the Cabinet Office, IBM, Microsoft Research and Thales. The employment rate for graduates is close to 100%.



Graph 2.6. *Percentage of female students in 2019/20 compared to sector norms. The Maths PGT cohort is very small: in 2018/19 the gender balance was a more typical 9 women and 7 men.*

Word count: 800

Figure 2.7. *Members of the Mathematics Department and one from ISG, including the 7 female staff lecturing the Mathematics undergraduate courses.*

Figure 2.8. *Members of ISG, including 3 of the 4 female staff lecturing the PGT course.*

3. THE SELF-ASSESSMENT PROCESS

Recommended word count: Bronze: 1000 words

Describe the self-assessment process. This should include:

(i) a description of the self-assessment team

The Equality and Diversity Committee is the SAT. It reports to M&ISG department meetings and to the School Board, where E&D comes first in the agenda, after departmental reports. The E&D Committee consists of six women and five men, including both HoDs, three professors, two senior lecturers, one postdoctoral researcher, one PhD student, and the manager of EPMS professional and support staff.

Women are over-represented on the E&D Committee (54.5% compared to 22.0% across both departments). The amount of onerous work is more significant than raw numbers: this application was written mainly by the male E&D Champion. We will act to ensure that female staff are not overburdened with committee work and address the lack of UG and PGT representation.

B.1. (M&ISG) Expand E&D Committee with UG and PGT representation and refresh with male representation to reflect department gender balance. Ask for volunteers; HoDs will consider workload implications. Invite the elected UG and PGT representatives on the Staff-Student Committee: if they do not attend, ask for student volunteers. Meet online if required by **Covid-19**.

Name (⋆ ex-officio)	**Position and about**	**Main role**
Dr Katerina Finnis⋆	**College Equality and Diversity Co-ordinator.** [Personal information redacted.] Katerina sits on the AS institutional SAT and Race Equality Charter SAT and the College EDI Committee. *Central, HR*	Staff data, staff/student qualitative interviews, reviewing AS submission.
Ms Lydia Garms	**Postdoctoral Research Assistant.** [Personal information redacted.] *ISG*	Early career actions and representative for postdoctoral researchers.
Dr Aditi Kar	**Senior Lecturer**. [Personal information redacted.] *Mathematics*	Web champion with special responsibility for social media.
Catherine Keele⋆	**Co-president of WISDOM and PhD student.** [Personal information redacted.] *ISG*	PhD representation and WISDOM liaison.

Prof. Peter Komisarczuk* 	**Head of ISG**. Peter is a full time teaching academic with a research and industry background. [Personal information redacted.] Peter has flexible working from EPMS and the College. *ISG*	Driving change in ISG. Peter sits on ISG recruitment panels and the School Executive.
Mrs Vanessa Law*	**School Manager**. [Personal information redacted.] *EPMS*	Advice on AS submission and lead for administrative actions. Vanessa is a member of the College SAT team.
Prof. Iain Moffatt	**Deputy Head of Mathematics Department and Mathematics Joint Admissions Tutor**. [Personal information redacted.] *Mathematics*	Admissions actions and actions targeting BAME students.
Dr Liz Quaglia	**Senior Lecturer** and **Early Career Advisor** (new role, see Action D.12). [Personal information redacted.] *ISG*	Support for change in the ISG and promotion of diversity through WISDOM and TEQtogether activities. Liaison with Physics.
Prof. Ruediger Schack*	**Head of Mathematics Department**. [Personal information redacted.] *Mathematics*	Driving change in Mathematics. Ruediger is a previous E&D Champion and was the lead on the M&ISG Athena SWAN application in April 2016. He sits on recruitment panels and the School Executive.
Prof. Mark Wildon* 	**E&D Champion and joint School EDI Director.** [Personal information redacted.] *Mathematics*	Lead on AS submission. Mark has sat on the E&D Committee since 2012 and now chairs it. He sits on the School Executive and on promotions panels.
Prof. Stephen Wolthusen 	**School Director of PGT Education.** Works full-time and flexibly with two small children. *ISG*	Consultation on Action Plan with ISG. Driving change in ISG and advisor on teaching actions. Member of the E&D Committee from 2011.

It was of course entirely up to members how much personal information to include above.

Membership of the E&D Committee is considered in the Mathematics Workload Allocation Model and from 2020/21 will be considered in the ISG Workload Allocation Model (see Action J.4).

The five professors on the E&D Committee have senior positions in M&ISG and are committed to driving change. The wider representation on the E&D Committee and robust staff and student consultations ensures all views can be expressed. The E&D Committee is chaired by Prof. Mark Wildon, the Athena SWAN Champion and joint School EDI Director.

The E&D Committee has met at least termly since 2012 and sometimes twice a term in the lead-up to this application. Before **Covid-19**, members frequently met informally face-to-face and now meet online. E&D activity is disseminated to M&ISG through official minutes, informal conversations, the E&D intranet site and departmental noticeboards.

Strong policies that are proved to work for M&ISG, such as a workload reduction equivalent to a term of sabbatical leave for all returners from maternity/paternity leave, have been developed through the E&D Committee. Its activities have continued without interruption, despite an unsuccessful Athena SWAN submission in 2016 (see Section 2) and the **Covid-19** pandemic.

The E&D Committee works with the WISDOM group (Women in Information Security Domain or Mathematics). WISDOM was founded by PhD students and is run by a committee of PhD students and staff to raise the profile of women in Information Security and Mathematics. It is formally represented on the E&D Committee and financially supported by M&ISG (£1000 per year). Recent networking events have included invited speakers from Deloitte and British Aerospace and a quiz to mark International Women's Day. WISDOM instigated and run the Tampon Collective.

G.3. (M&ISG) Support WISDOM

(a) Continue with yearly budget of £1000 for WISDOM group split evenly between Mathematics and ISG. Make it clear that top-up funding is available if required for special events.

(b) Ensure administrative staff know that M&ISG supports the WISDOM group with a £1000 annual budget. Continue to invite President of WISDOM to administrative team meeting. Ensure administrative support, for instance access to mailing lists and timetables is in place. Support the Tampon Collective (free sanitary products in unisex and women's lavatories).

The financial and administrative support in Action G.3 is not enough: Action G.2 (see page 51) will encourage greater staff involvement in WISDOM.

(ii) an account of the self-assessment process

The evidence based Action Plan below was formulated after

(A) analysis of the quantitative data from three surveys,

(B) analysis of qualitative interviews conducted by the College's E&D Coordinator, Dr Katerina Finnis who sits on the E&D Committee.

(C) statistics gathered for Athena SWAN,

Actions were proposed by the E&D Committee and then refined, or in some cases dropped, after extensive consultation with staff, led by the M&ISG E&D Champion.

The Action Plan and the Athena SWAN bid were reviewed by the E&D Committee, and then by all M&ISG members during a formal two week consultation period in May 2020, led by the E&D Champion in Mathematics and Prof. Stephen Wolthusen (on the E&D Committee) in ISG. Ten staff members gave detailed comments and many further staff attended online meetings. The Action Plan is widely supported within M&ISG . All action owners have made a personal commitment to the plan.

(A1) **Athena SWAN Staff Survey (Term 1 2019).** To assess staff morale and experience of gender stereotyping and other discrimination. Designed by an expert in survey techniques in our Psychology Department and then modified by the Survey Working Group (a subcommittee of the E&D Committee) for use in M&ISG. The proportion of academic staff responding was 75.0% in Mathematics and 25.0% in ISG. Of all academic respondents, 28.6% were female, slightly higher than the proportion of female staff (22.0%).

	Maths	ISG	School
F	4 of 5	2 of 6	2 of 11
M	10 of 15	5 of 24	0 of 2
Not Say	1	1	0

	Maths	ISG	School
F	80.0%	33.3%	18.2%
M	66.7%	20.1%	none
All	75.0%	25.0%	15.4%

Table 3.1. *Left: numbers of responses to Staff Survey (Term 1 2019). Right: proportion of female / male / all staff responding. Here 'School' refers to all administrative and technical staff in EPMS.*

(A2) **Athena SWAN Student Survey (Term 1 2019)**. To assess all aspects of the student experience. Design as (A1). The proportion of students responding was 15.7% for UG and 21.8% for PGT (see Table 3.2.) Of all student respondents, 37.8% were female, in-line with the proportion of female students.

	UG	PGT	PGR
F	14 of 88	10 of 63	7 of 20
M	18 of 129	22 of 179	11 of 48
Non-binary	1	0	1
Other	1	0	0
Not Say	0	1	1

	UG	PGT	PGR
F	15.9%	15.9%	35.0%
M	14.0%	12.3%	22.9%
All	15.7%	13.6%	29.4%

Table 3.2. *Left: numbers of responses to Student Survey (Term 1 2019). Right: proportion of female / male / all students responding.*

(A3) **Training Survey.** A short 'light-touch' survey using Google forms, assessing experience and uptake of E&D training by members of staff and PhD students and awareness of the nine protected characteristic and unconscious bias. Designed by an ad-hoc subcommittee of the E&D Committee; a key concern was to discover any variation in awareness of these fundamental concepts across the department.

The results from the Training Survey informed many actions including Action I.1 (see page 18). The proportion of staff responding was 38.0% and for PhD students 23.5%. To maximize privacy, gender and department affiliation were not asked for: when re-run we will follow best practice and, as in (A1) and (A2), ask for both.

Action B.3 (see page 19) will increase the response rate from ISG and administrative and technical staff and students when we run refined versions of the Staff and Student Surveys in 2022.

(B) **Qualitative interviews.** All with female staff and PhD students: this is justified by the Athena SWAN principle '*Commit to removing the obstacles faced by women*' and limited resources for further interviews. The quotes used below reflect detailed analysis and synthesis of the interviews by Dr Katerina Finnis.

	Maths	ISG
Female staff	3 (2 Professors, 1 Senior Lecturer)	4 (3 Senior Lecturer, 1 Lecturer)
Female students	5 (3 UG, 2 PhD)	2 (both PhD)

Table 3.3. *Qualitative interviews conducted by E&D Co-ordinator Dr Katerina Finnis who is trained in interview technique and anonymising responses.*

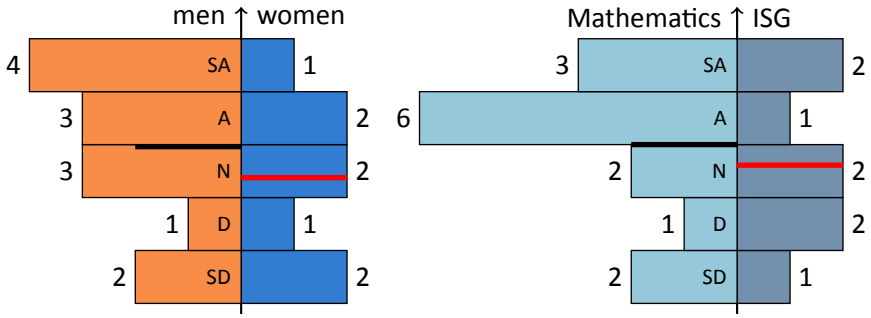
(C) **Statistics.** See Section 4.

After detailed analysis of (A), (B), (C), the E&D Committee identified five key issues and formulated the actions below to address them. These Key Actions are highlighted in blue in the Action Plan in Section 8.

● **Female staff and management:** Qualitative interviews (B) identified short-comings in workload allocation, and in particular, the ISG Workload Allocation Mode.

> *"Something that would make me, and also my colleagues, much happier would be to have workload transparency in the department. A clear idea of who does what and how things are weighted. This way, you don't create frustrations between colleagues."* (Female ISG staff member)

Results from Staff Survey (A1), see Survey 3.4 below, shows that women are significantly less likely than men to believe that workload is allocated fairly.



Survey 3.4. *Responses strongly agree, agree, neutral, disagree, strongly disagree (from top to bottom) to Staff Survey question 'My workload is allocated fairly'*

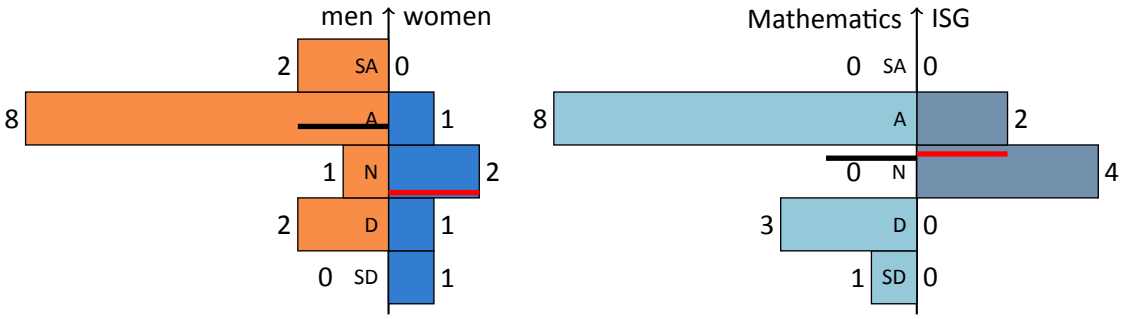
Survey 5.24 (on page 57), shows that female staff are far less likely to feel that committees have proportional representation.

J.4. (ISG) Review of ISG Workload Allocation Model (WAM) possibly introducing 'memory' (so points are carried forward across years) and considering direct and indirect gender bias, drawing on best practice from [19]**.** Reward membership of E&D Committee, WISDOM Committee and outreach work. Introduce points for Early Career Advisor (new role in M&ISG). Consider introducing points for small grant applications and external engagement, membership of ad-hoc working groups and influential external committees.

(References to recent research, such as [19], are collected in Section 7.) See page 58 for more context on Action J.4. Actions J.2 and J.3 (see pages 62 and 58) will also improve

the M&ISG Workload Allocation Models and bring the two models closer. (See page 58 for why complete harmonisation is not desirable.)

● **Female staff and research**: results from Staff Survey (A1) show that female staff are far less likely to feel their research is valued, with greatest dissatisfaction felt in Mathematics.



Survey 3.5. *Responses from strongly agree to strongly disagree to Staff Survey question* 'Staff are valued for their contributions to research'*; heavy lines indicate average response. (It is of course important to consider the distribution as well.)*

Qualitative interviews (B) identified lack of support for early-career researchers.

> *"What would have really helped me, would have been to have a mentor. I was given a probation advisor, which is great. But I also needed more specific research-related support, such as advice on what grants to apply for, when and how to say 'no', so that I could find my path. I had no one to look out for me. I think there is a need for that."*
>
> (Female ISG staff member)

We address this in the Key Actions F.3 and F.5. See also Survey 5.12 and page 41.

F.3. (M&ISG) Promote mentoring opportunities to staff and explore potential for expanding existing schemes.

(a) Promote existing College-wide mentoring and coaching scheme to staff.

(b) Explore feasibility of supporting external mentoring relationships.

(c) Provide testimonials and evaluations from research cohorts on targeted development schemes such as Project Aurora (for women), the Mandala Programme (for BAME staff), and Enabling Women through the Promotions process, stressing that these programmes focus on institutional and procedural barriers, rather than individual deficit, or trying to turn women into men (the Henry Higgins effect [6, Ch. 5]).

Make it clear staff may have two mentors, focusing on different aspects of career development.

F.5. (M&ISG) Support for grant applications. Create a bank of successful and unsuccessful grant applications. Ask colleagues who put applications in the bank to agree to discuss them with new grant applicants. Run drop-in session with Early Career Advisor (new role in M&ISG in 2020/21, Dr Liz Quaglia) targetting PhD students and junior staff.

● **Recruitment: low numbers of women applicants**: data in Table 5.1 show that only 13.8% of applicants for researcher positions in ISG were women, compared to 22.2% of women working in the sector (see Graph 2.4). One academic job had no women applicants. This and the further analysis on page 35, informed the Key Action below; (c), (d) and (e) formalize and extend existing initiatives.

E.1. (M&ISG) Increase the number of women applying for positions.

(a) Provide a department-specific job description template for staff involved in recruitment. It will include positive action statements, narrative on equality action within departments, accreditation logos, policy on flexible working and sabbatical leave for maternity leave returns and interdisciplinary research opportunities.

(b) Provide recruiting staff with guidance on inclusive language. Test recruitment advertisements with a software tool to detect gender biased language; this can deter good women applicants [6, page 110].

(c) Review person specifications to ensure they are inclusive and designed to attract a wide pool of applicants.

(d) Review and enhance webpages and upload case studies of researchers in the departments, including female academics.

(e) Encourage staff to advertise jobs widely (including through social media) and reach out to existing networks to help widen the pool of applicants, such as SIGMA-Network and European Women in Mathematics.

● **Teaching: hidden gender and racial bias**: Qualitative interviews (B) and Survey 5.20 (A2) identified that students are reluctant to ask questions in lectures and struggle to engage with the most typical lecturing styles. This is a source of gender bias. It disproportionately affects students from disadvantaged backgrounds.

> *"During lectures, many students seem to not want to ask questions. Only a few do ask, and they tend to be men. This could be that the type of people who take maths are not very confident or outgoing. When I did have the courage to ask a question, the lecturer was a bit sharp with me and that put me off asking further questions."* (Female Mathematics student)

Data from (C) show a trend for female applicants to be less likely than male applicants to accept an offer (see Graphs 4.3 and 4.13), and that BAME students are less likely than non-BAME students to get a 1st or 2:1 degree (see Table 4.6).

D.2. (Mathematics) Evaluate the four new Mathematics courses and changes to syllabi and new revision week to be introduced in 2020–2021 with the aim of improving attainment of all students. Use questionnaire developed by Dr Mark Crompton (Head of Education Development) and focus groups. Analyse gender balance and BAME status in those doing new courses.

● **Gender and culture:** results from Student Survey (A2) showed that 26.1% of responders (18.2% of women, 31.7% of men) had encountered gender stereotyping and gender-biased language used by students. Some staff interviewees (B) talked about biases held by students and how attitudes towards female and male academics are different. To counter this we will introduce E&D and unconscious bias into the curriculum. See also Action I.3 on page 53 on E&D in induction for new students.

D.5. (M&ISG) Hold workshop on the theme '*Engaging students from diverse backgrounds unprepared for university study*' for staff and PhD students. Four invited speakers including the world-leading researcher Lara Alcock, author of '*How to study for a mathematics degree*', and Maurice Chiodo, lecturer for an innovative course on mathematical ethics at Cambridge. The meeting is funded by a London Mathematical Society (LMS) Continued Professional Development Grant and M&ISG. There will be ample time for informal discussion. (Delayed from May 2020 by **Covid-19**.)

H.1. (Mathematics) Introduce E&D training into Mathematics curriculum.

(a) 15 minute session on Equality and Diversity issues in a core 1st year course. Content will include Moodle (Virtual Learning Environment) quiz on protected characteristics and video from Royal Society on unconscious bias. Content is already agreed between lecturer, E&D Champion and College E&D Coordinator. We planned a trial in March 2020, but this was impossible because of **Covid-19**.

(b) Introduce assessed work on E&D issues in compulsory 2nd year course Mathematical Programming. Reflection on working with someone from a possibly different background.

(c) Encourage lecturers to show a slide on unconscious bias before publicising course feedback questionnaires.

There is clear evidence that unconscious bias harms women's academic careers [1, pages 143, 239], [9], [12] and that unconscious bias training, provided it is long-term and includes bias mitigation strategies, effectively address this [3]. Training Survey (A3) shows that while 52.8% of staff and PhD students strongly agree that *'Unconscious bias exists and can prevent women from achieving their potential'*, 22.1% are neutral or disagree.

Our final Key Action will drive cultural change by educating staff on unconscious bias.

I.1. (M&ISG) New challenging workshop on unconscious bias and other E&D issues led by an external speaker, for staff and PhD students. Staff will be shown evidence for effectiveness of such training from Equality and Human Rights Commission [3] and strongly encouraged to attend. Attendance mandatory for staff involved in recruitment or senior roles. We have approached a leading Management Consultancy who may be willing to run such a session: it is with their pro-bono committee; decision delayed by **Covid-19**.

The data (C) and qualitative interviews (B) also gave us many things to celebrate:

- 78.3% of female and 78.0% of male students in M&ISG agreed that their department is committed to creating an inclusive environment for all staff and students, irrespective of gender. None of the students disagreed.
- Since 2010, 2 of 3 staff recruited in Maths, and 5 of 10 staff recruited in ISG have been women.
- Every woman applying for promotion in M&ISG in the most recent three years was successful.

> *"The atmosphere is very collegiate, friendly, collaborative and open. "*
> (Female ISG staff member)

> *"In terms of culture and support, the department is heaven in the big hell. We are very good at hiring women. We have lots of women here who are role models in the department. There is no animosity between women and men. I currently mentor a male colleague. "* (Female Mathematics staff member)

B.3. (M&ISG) Administer Biennial Staff and Student Survey on Equality and Diversity issues. E&D committee will revise the surveys used in Term 1 2019 for the AS Submission (see page 14) including questions on attitudes to and experience of unconscious bias. Run each survey in February 2022 and 2024, publicising it in lectures, email and noticeboards / screens. Target ISG staff through HoD and informally. Target professional and support staff through School Manager and informally. Data evaluated by E&D committee, shared with department, and used to inform future actions.

These surveys will be used to evaluate our Action Plan. For example, Action E.5 targets an increase from 71.4% to 100% in the proportion of new staff agreeing they were well supported at the start of their time at M&ISG.

(iii) plans for the future of the self-assessment team

The E&D Committee will meet on the same termly schedule and report on implementation of the Action Plan (see Section 7). Membership will be refreshed each year by HoDs balancing continuity with new perspectives and expertise (see Action B.1). We expect by the end of the award period in 2024 that almost all M&ISG members will either have served on the E&D Committee or had a role in implementing one or more actions.

We will share good practice across EPMS and plan to analyse all data for the intersection of gender and ethnic origin: this is already part of Actions D.1 and D.2. We hope to bid for a Silver Award in 2024, with greater focus on BAME students, disabled students and administrative staff, possibly in a new streamlined Athena SWAN process [4], [13].

B.2. (M&ISG) Use the experience of developing Equality and Diversity in M&ISG to inform School policy and learn from other departments in EPMS. In particular establish links with Physics who are Project Juno Champions and hold a Silver Athena SWAN award.

B.5. (M&ISG) Track progress on implementing the Action Plan. Each action owner will send a yearly report on its status using a green/amber/red status indicator to the relevant HoD (Prof. Ruediger Schack in Mathematics, Prof. Peter Komisarczuk in ISG). 'Reporters' on the E&D Committee (see Section 7) will assist action owners.

Word count: 2205 (including all words in table of E&D Committee)

4. A PICTURE OF THE DEPARTMENT

Recommended word count: Bronze: 2000 words | Silver: 2000 words

4.1. Student data

If courses in the categories below do not exist, please enter n/a.

Since the data are available we include student data going back to 2015/16.

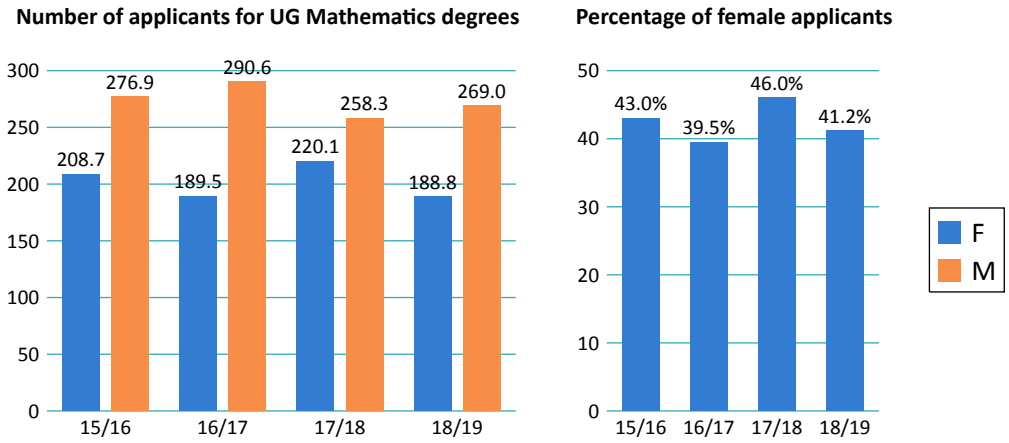
(i) Numbers of men and women on access or foundation courses

n/a

(ii) Numbers of undergraduate students by gender

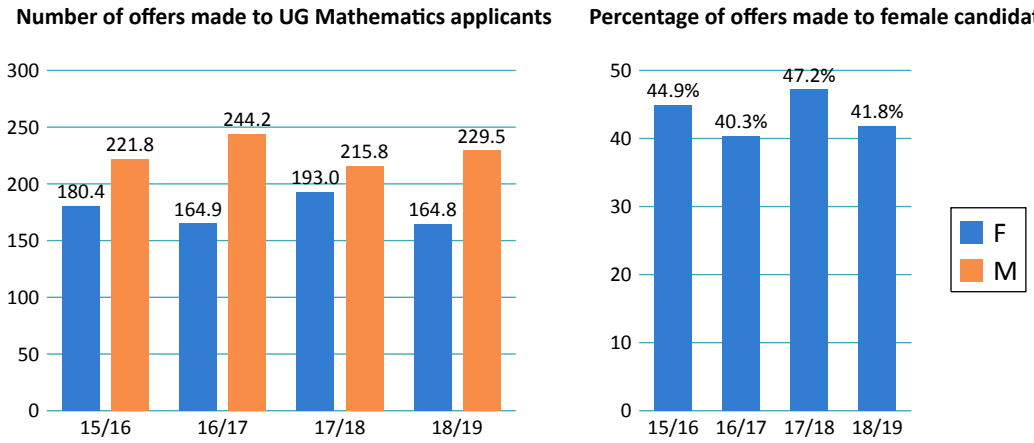
Full- and part-time by programme. Provide data on course applications, offers, and acceptance rates, and degree attainment by gender.

Mathematics UG. In 2018/19 38.8% of students taking A-Level Mathematics were female. The sector norm for Mathematics UG students is 35.7%. The gender balance is slightly ahead of both norms: see Graph 4.1.



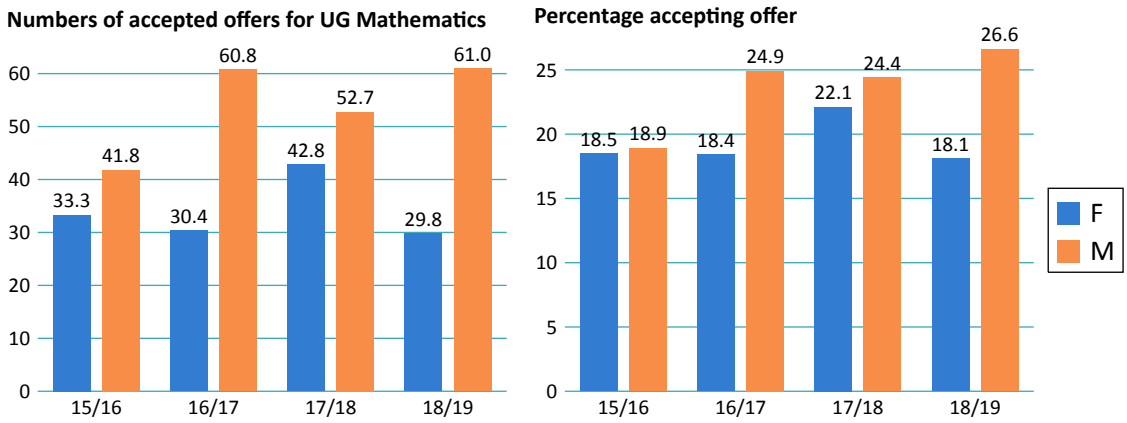
Graph 4.1. *Applications for UG Mathematics degrees*

In all years offers are made to female applicants in proportion to application numbers. In 2018/19, 87.2% of women and 85.3% of men received offers; this is typical of recent years.



Graph 4.2. *Offers made to applicants for UG Mathematics degrees*

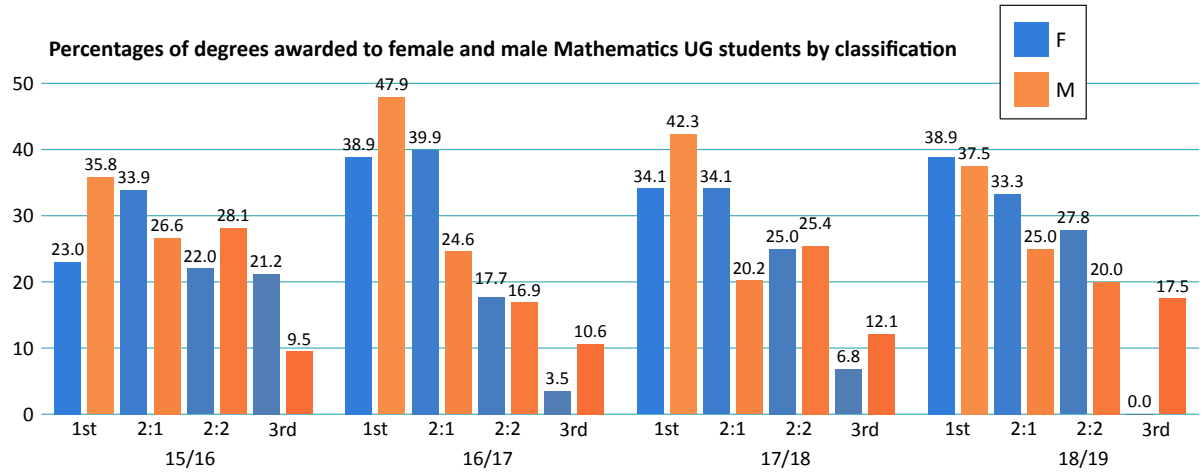
In 2018/19, 18.1% of women and 26.6% of men accepted an offer. If the trend continues, male candidates will be significantly more likely than female candidates to accept an offer: see Graph 4.3. We address this in Action C.1.



Graph 4.3. *Accepted offers for UG Mathematics degrees*

C.1. (M&ISG) Continue to analyse student applicant data and (new) consider intersectionality. In Mathematics look for trend that UG male applicants are more likely to accept offers. Consider intersections between gender and A/B in A-level Mathematics and ethnic origin. Report annually to E&D Committee and to Mathematics Department Meeting / ISG Meeting as appropriate. If trend continues, survey applicants and develop policies to address it.

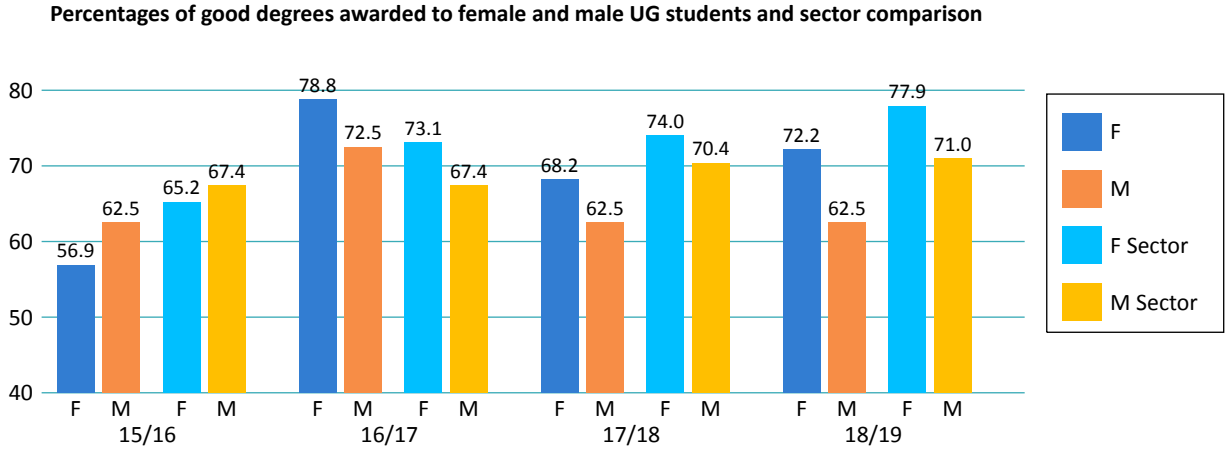
In 2016/17 the format of Mathematics examination papers was changed to increase the number of accessible questions and made all questions compulsory. External examiners welcomed the new system which is fairer to all students and has not lowered the standard required of Mathematics degrees. Graph 4.4 shows that in 2018/19 female candidates overtook male candidates for 1st class degrees for the first time.



Graph 4.4. *Percentages of degrees awarded to Mathematics UG students by classification. For example, in 2018/19, 33.3% of female candidates were awarded a 2:1 compared to 25.0% of male candidates. Overall numbers vary around 30 women and 50 men.*

The summary data in Graph 4.5 shows that in 2018/19, 72.2% of female candidates and 62.5% of male candidates achieved a 2:1 or 1st degree, compared to a sector average of 75.6% and 73.3%, respectively.

Note the improvement in recent years after the change in our examination structure. We will keep a close eye (Action D.1) on the trend for female students increasingly to outperform male students. Graph 4.5 shows this trend is sector-wide.



Graph 4.5. *Percentage of female and male Mathematics UG students awarded a 2:1 or 1st class degree compared to sector averages.*

A more immediate concern is that BAME students underperform compared to non-BAME students.

	1st	2:1	2:2	3rd
BAME	24.1%	28.9%	28.9%	18.1%
non-BAME	38.2%	34.9%	18.4%	3.9%

Table 4.6. *BAME and non-BAME student attainment aggregating 2015/16, 2016/17 and 2017/18.*

Because numbers are small, the table above shows aggregate data. Since 2015/16, 53.0% of BAME students but 73.1% of non-BAME students were awarded a 2:1 or 1st class degree; 53.7% of all UG students declaring an ethnicity were BAME.

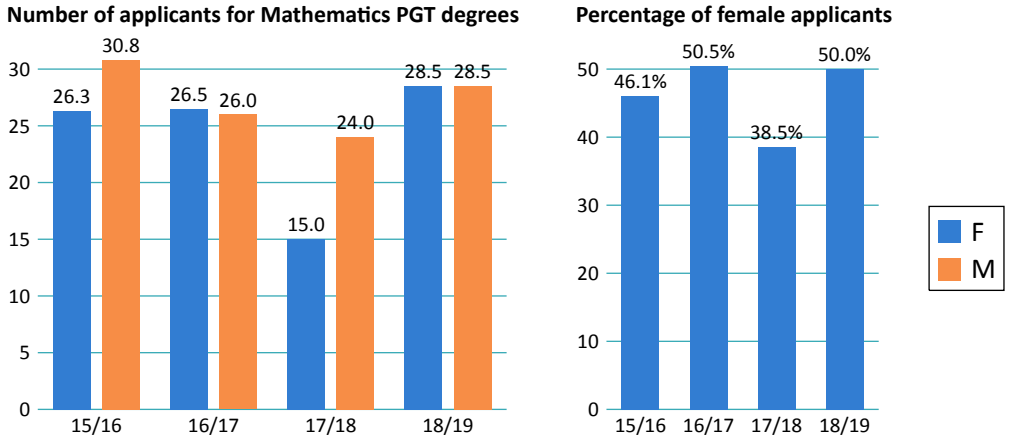
In addition to Action D.1, Action D.6 on recording lectures and Action D.7 improving our timetable (taking into account the many challenges raised by **Covid-19**) will benefit our many BAME students who either commute, or do not have English as a first language. See page 54.

D.1. (M&ISG) Continue to analyse progression between years and final degree attainment by gender and (new) consider intersectionality with ethnic origin, developing policy as part of Student Success Project (targetting BAME students). Receive data on progression and final degree attainment from Student Dashboard and/or Strategic Planning. Analyse for gender bias and possible bias against Mathematics BAME students. Report annually to E&D Committee and Mathematics Department Meeting / ISG Meeting.

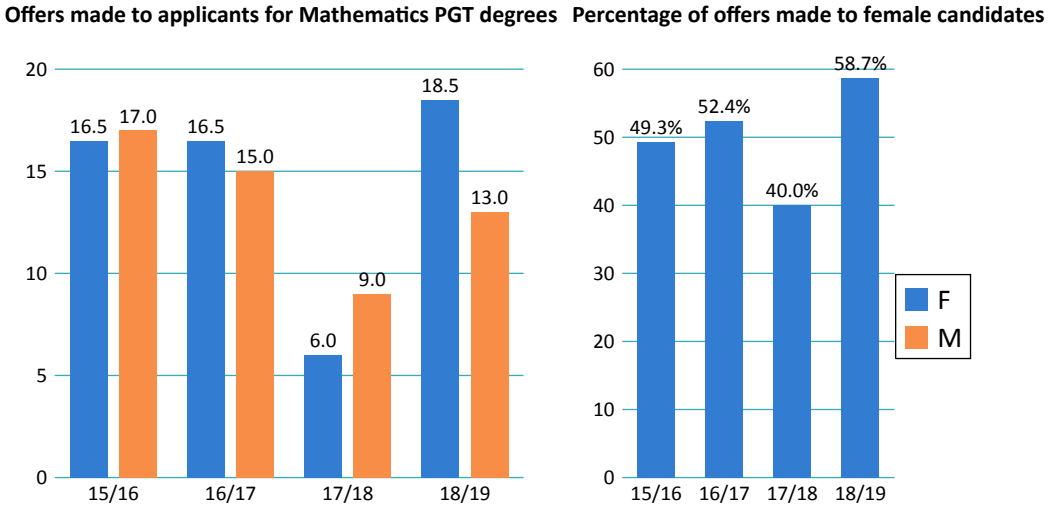
(iii) Numbers of men and women on postgraduate taught degrees

Full- and part-time. Provide data on course application, offers and acceptance rates and degree completion rates by gender.

Mathematics PGT. Mathematics runs two MSc courses differing only in the compulsory modules. The programme is small and considerable yearly variation occurs. Graph 4.7 shows that Mathematics receives roughly equally many applications from men and women, ahead of the benchmarks that 40.0% of mathematics graduates with a 1st or 2:1 degree are female and across the sector 38.1% of mathematics PGT students are female. Aggregating from 2015/16, 59.7% of women and 49.4% of men received an offer; with the exception of 2017/18 when unusually few offers were made, this is typical of recent years.



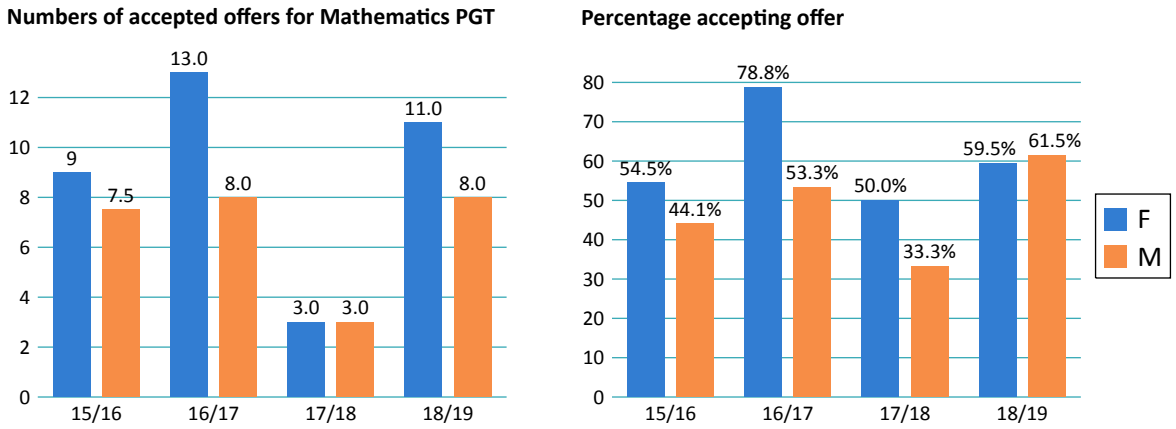
Graph 4.7. *Applications for Mathematics PGT degrees*



Graph 4.8. *Offers made for Mathematics PGT degrees*

Aggregating from 2015/16, 62.6% of women and 49.0% of mean accepted an offer. The full data shown in Graph 4.9 shows yearly variation.

The attainment data shows considerable yearly variation but is included in Table 4.10 for completeness. Women and men are roughly equally likely to receive each possible



Graph 4.9. *Accepted offers for Mathematics PGT degrees*

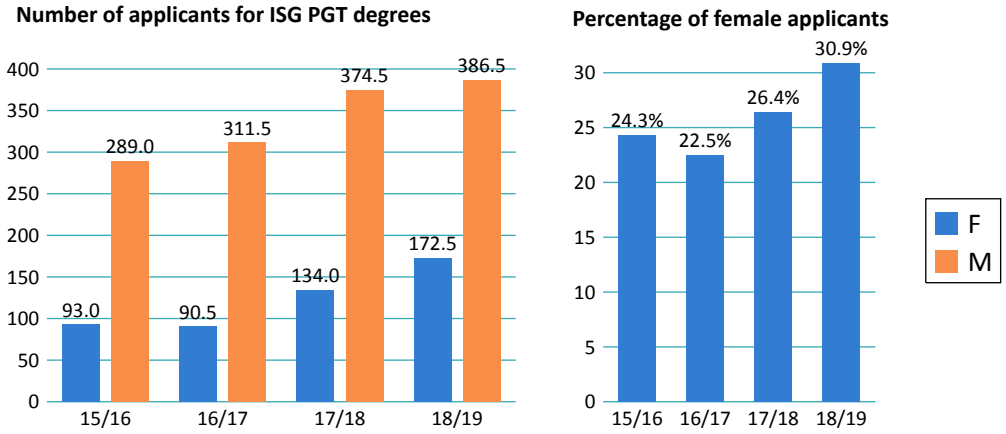
classification. Aggregating from 2015/16, 77.8% of female PGT students and 80.4% of male PGT students who took the MSc courses achieved a pass or better.

	2015/16		2016/17		2017/18		2018/19		All years	
	F	M	F	M	F	M	F	M	F	M
Distinction	1	$3\frac{1}{2}$	8	4	2	2	3	3	14	$12\frac{1}{2}$
Merit	1	0	0	1	1	0	1	0	2	1
Pass	1	1	2	5	0	0	2	1	5	7

Table 4.10. *Attainment in Mathematics PGT programme: part-time students count as* $\frac{1}{2}$.

ISG PGT. ISG runs the MSc in Information Security: this is the world's first course of its type and continues to be highly respected. Roughly 25% of students are half-time; about 50% intercalate a year in industry.

Graph 4.11 shows that the proportion of female applicants is slightly ahead of the benchmark that 20.0% of Computer Science graduates with a 1st or 2:1 degree are female, but significantly below the sector norm in Computer Science that 33.6% of PGT students are female. (As said on page 9, no fairer benchmark more specific to Information Security is available.)



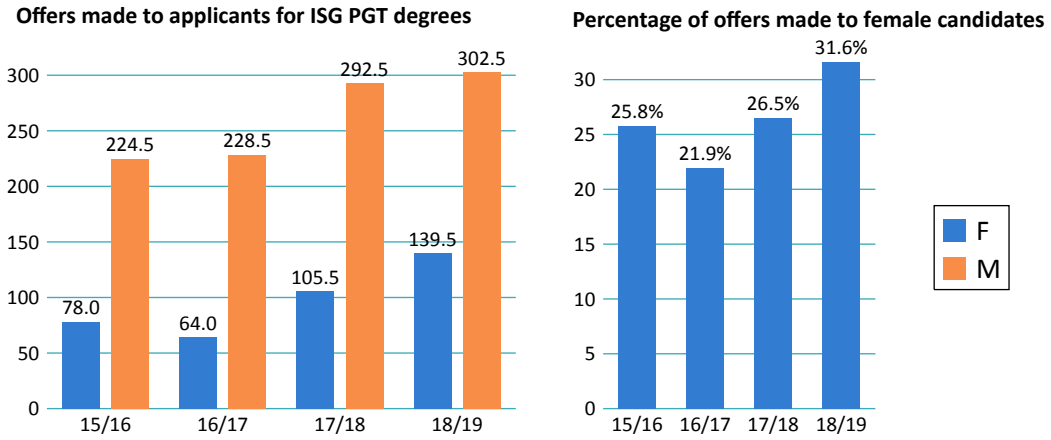
Graph 4.11. *Applications for PGT ISG degrees*

Actions D.3 will address this issue by ensuring the PGT curriculum remains relevant to the diverse cohort that ISG hopes to attract, while Action D.10 on careers in Mathematics and Information Security (see 30) will encourage female applicants, addressing the leaky pipeline from undergraduate degrees.

> **D.3**. **(ISG) Refresh ISG curriculum**. Run focus group with PGT students and engage with them informally to gain feedback on the topics covered in the MSc in Information Security syllabus and their accessibility and relevance. Invite staff working in all areas of Information Security to contribute to revision.

Action G.1 on page 52 will boost the profile of interdisciplinary work in Information Security and encourage collaboration with researchers of greater gender and ethnic diversity; this will drive cultural change making Information Security more attractive to women applicants.

In 2018/19 80.9% of female and 78.3% of male applicants received an offer: this is typical of recent years.



Graph 4.12. *Offers made for ISG PGT degrees*

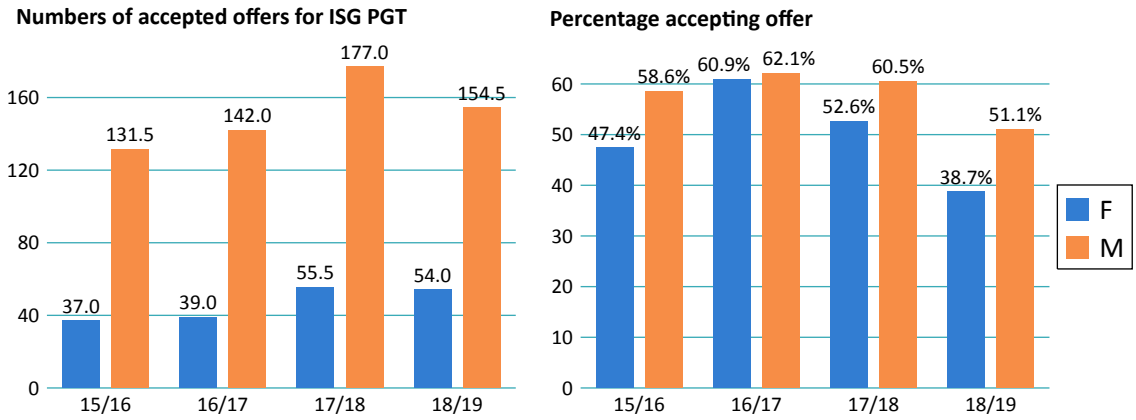
Graph 4.13 (overleaf) shows a trend (seen more strongly in UG Mathematics) for women to be less likely than men to accept an offer. Closer analysis shows this trend is due entirely to full-time students: while numbers are small, since 2015/16, every female part-time applicant has received *and* accepted an offer.

Graph 4.14 shows full attainment data for the ISG MSc courses. Apart from the year 2017/18, which appears to be exceptional, women attain more distinctions then men. Even full-time students typically take more than one year to complete the MSc; data shows that about 80% of both women and men achieve at least a pass.

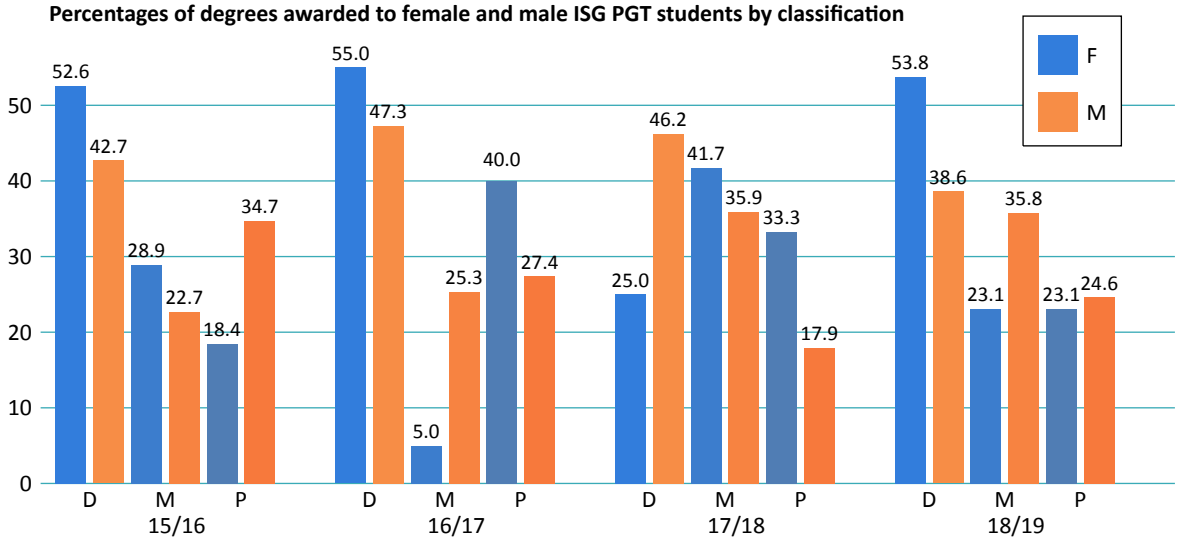
(iv) Numbers of men and women on postgraduate research degrees

Full- and part-time. Provide data on course application, offers, acceptance and degree completion rates by gender.

Mathematics PGR. Data for PhD applicants are shown in Table 4.15. Note numbers are small. Aggregating from 2015/16, 24.4% of applicants were women and 22.5% of offers were made to women. Across the sector 22.6% of Mathematics PGR students are women. Since 40.6% of our undergraduate students are women (see Graph 2.6), this shows a serious leak in the pipeline. We will address it by Action D.10 educating students



Graph 4.13. *Accepted offers for Mathematics PGT degrees*



Graph 4.14. *Percentages of degrees awarded to Mathematics PGT students by classification: distinction* (D)*, merit* (M)*, pass* (P)*. Overall numbers vary around 50 women and 150 men.*

on routes into academic careers (see page 30) and other awareness-raising measures, for instance Action G.7 (see page 59).

Women and men are roughly equally likely to accept an offer: 44.4% and 40.0% respectively.

	2015/16		2016/17		2017/18		2018/19		All years	
	F	M	F	M	F	M	F	M	F	M
Applications	4	18	6	14	2	11	3	$3\frac{1}{2}$	15	$46\frac{1}{2}$
Offers	0	7	$2\frac{1}{2}$	$6\frac{1}{2}$	0	3	2	$3\frac{1}{2}$	$4\frac{1}{2}$	20
Accepted offers	0	3	1	2	0	0	1	1	2	8

Table 4.15. *Admissions for Mathematics PGR: part-time students count as* $\frac{1}{2}$.

Most students are only able to accept an offer if it comes with funding. Therefore a further relevant measure is the number of scholarships allocated to female and male candidates. We do not track this at the moment but should.

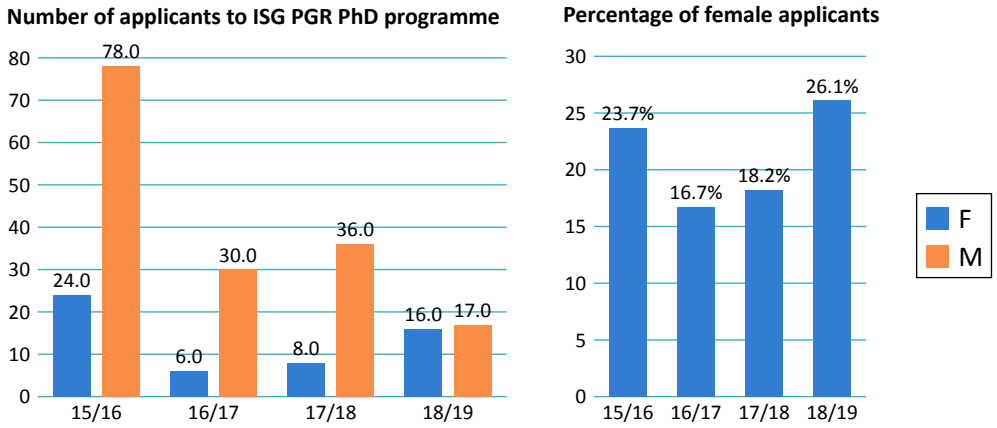
D.9. (M&ISG) Gather data and analyse allocation of funded PhD studentships in M&ISG by gender, reporting to Mathematics / ISG Meeting as appropriate. If allocation does not reflect proportion of female applicants assess fairness of interview process.

Numbers of graduating students are shown in Table 4.16. In recent years all admitted students have successfully completed a Ph.D within four years. Since numbers are small we will continue to monitor this informally.

	2015/16		2016/17		2017/18		2018/19		All years	
	F	M	F	M	F	M	F	M	F	M
Number of Mathematics Ph.D graduates	0	5	2	4	0	1	0	4	2	14

Table 4.16. *Number of graduates from Mathematics PGR PhD programme.*

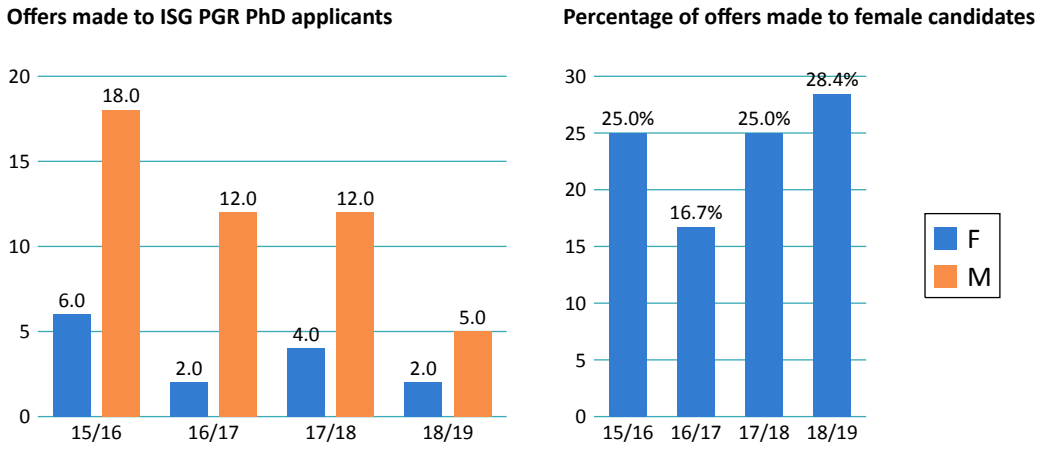
ISG PGR. The ISG PhD programme includes an EPSRC funded Centre for Doctoral Training (CDT). All successful candidates for the CDT are automatically offered EPSRC funding. Further students are funded from other sources or self-funded. Aggregating from 2015/16, 25.1% of applicants were female; across the sector 26.6% of PGR students are female.



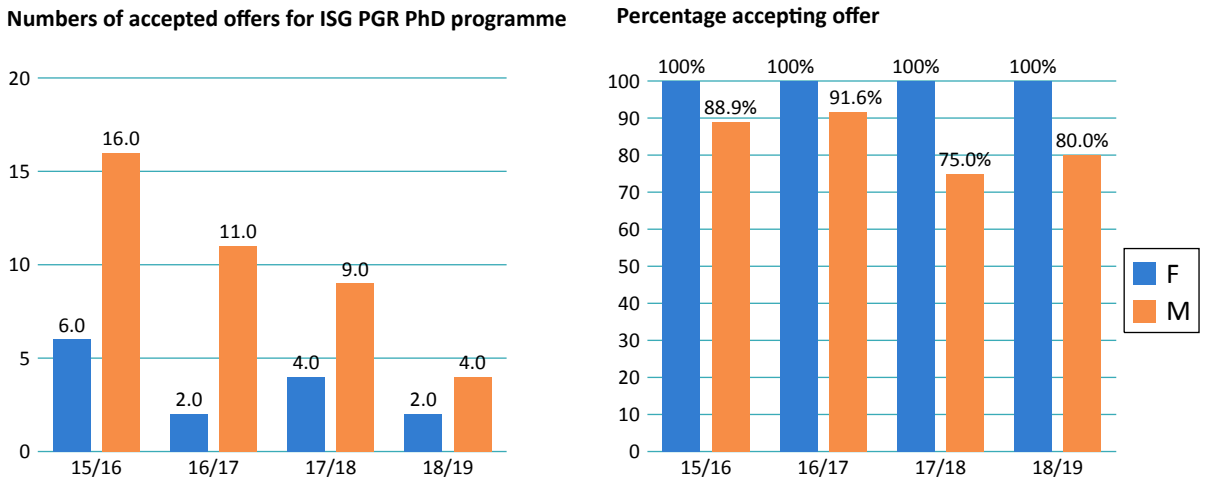
Graph 4.17. *Applicants to ISG PGR PhD programme.*

Aggregating from 2015/16, 30.4% of female applicants and 29.2% of male applicants to the CDT were made an offer. See Graph 4.18 (overleaf). We will continue to monitor this as part of Action D.9 (above).

While numbers are small, it is striking that since 2015/16, no female candidate has rejected an offer from the ISG CDT. Graph 4.18 shows a trend for more female candidates to be made an offer. We take this as a positive sign that the mixture of taught, industry and research components in the CDT PhD programme, and the increasing number of



Graph 4.18. *Offers made for ISG PGR PhD programme.*



Graph 4.19. *Accepted offers for ISG PGR PhD programme.*

	2015/16		2016/17		2017/18		2018/19		All years	
	F	M	F	M	F	M	F	M	F	M
Number of ISG PhD graduates	3	$11\frac{1}{2}$	1	$11\frac{1}{2}$	7	9	2	$13\frac{1}{2}$	13	$45\frac{1}{2}$

Table 4.20. *Number of graduates from ISG PhD programme, including CDT: part-time students are counted as* $\frac{1}{2}$.

female academic staff and researchers in ISG (see Table 4.23) make the course attractive to prospective PhD students.

In 2018/19, 86.7% of those due to finish the ISG PhD programme successfully graduated, 6.7% left for employment, and 6.7% left for reasons unknown. This is typical of the excellent completion rate in recent years.

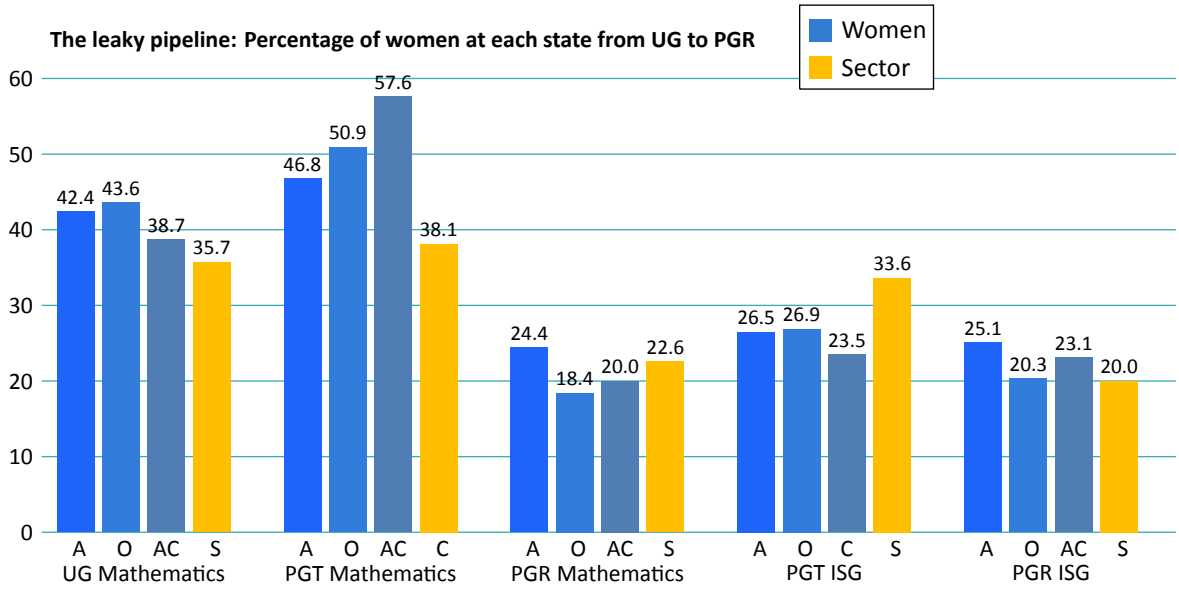
(v) Progression pipeline between undergraduate and postgraduate student levels

Identify and comment on any issues in the pipeline between undergraduate and postgraduate degrees.

Table 4.21 and Graph 4.22 shows the percentage of women at each stage of the pipeline, aggregated the years 2015/16 to 2018/19 from the data above, using the benchmarks above.

	Applications		Offers		Acceptances		Benchmark
	F	M	F	M	F	M	F
UG Mathematics	42.4%	57.6%	43.6%	56.4%	38.7%	61.3%	35.7%
PGT Mathematics	46.8%	52.3%	50.9%	49.1%	57.6%	42.4%	40.0%/38.1%
PGR Mathematics	24.4%	75.6%	18.4%	71.6%	20.0%	80.0%	22.6%
PGT ISG	26.5%	73.5%	26.9%	73.1%	23.5%	66.5%	20.0%/33.6%
PGR ISG	25.1%	74.9%	20.3%	79.7%	23.1%	76.9%	26.6%

Table 4.21. *Percentage of women at each stage of the pipeline, aggregating data from 2015/16 to 2018/19. The corresponding total numbers of men and women may be obtained from the graphs above. For example 38.7% of all candidates in these years accepting an UG Mathematics offer were female (136.3 women and 216.3 men). The benchmarks 40.0%/38.1% and 20.0%/38.1% are the proportion of women graduates with a good degree, and the proportion of women in PGT courses across the sector.*



Graph 4.22. *UG to PG pipeline showing data from Table 4.21: application* (A)*, offer* (O)*, accept* (AC)*, percentage of women in comparable courses across the sector* (S)*. As said on page 9, PGT ISG is benchmarked using Computer Science; no more accurate benchmark is available.*

Action D.3 (see page 69) will refresh the ISG curriculum to ensure the syllabus remains relevant to a diverse cohort. Qualitative interviews suggest many undergraduates are unclear on the route to an academic career and their options for further study.

D.10. (M&ISG) Hold a Careers Colloquium at School level inviting speakers in Computer Science, Information Security, Mathematics and Physics from a broad range of backgrounds. Short research talks will be followed by a panel discussion on Equality and Diversity issues and career progression. Audience of undergraduate, MSc, PhD students. and staff. Encourage staff to suggest speakers and invite TEQtogether (`teqtogether.org`, co-founded by Dr Liz Quaglia on E&D Committee) to exhibit.

This and Action D.9 (see page 72) will address the leaky pipeline from UG/PGT to PGR in both Mathematics and Information Security.

4.2. Academic and research staff data

(i) Academic staff by grade, contract function and gender: research-only, teaching and research or teaching-only

Look at the career pipeline and comment on and explain any differences between men and women. Identify any gender issues in the pipeline at particular grades/job type/academic contract type.

		2016/17			2017/18			2018/19			Benchmark
		F	M	F%	F	M	F%	F	M	F%	F%
Maths	Academic	5	15	25.0%	5	15	25.0%	5	15	25.0%	20.4%
	Researcher	0	0	n/a	0	0	n/a	0	0	n/a	21.4%
ISG	Academic	3	15	16.7%	4	17	19.0%	4	17	19.0%	21.6%
	Researcher	2	14	12.5%	1	11	8.3%	2	7	22.2%	22.1%

Table 4.23. *Numbers of M&ISG staff with percentages of female staff compared to sector benchmark (as usual, HESA 2018/19 London and SE). Note Mathematics has no researchers: all staff are employed on permanent contracts.*

Mathematics is slightly above the sector benchmark for female staff, ISG slightly above for researchers and slightly below for staff. More detailed data for academic staff are shown in Table 4.24 below, and for 2018/19 in Graph 4.25. Benchmarks for the grades below professor are from HESA. These are categorized by salary range, not job title: to reflect the RHUL payscale we used £33,518 to £44,991 for Lecturer, £44,992 to £60,410 for Senior Lecturer/Reader.

Going back to 2015/16, in Mathematics the professorial balance rose from 1 women and 9 men (10.0%) to 3 women and 10 men (23.1%) in 2018/19. In ISG the proportion of female professors decreased from 1 women and 7 men (12.5%) in 2016/17 to 1 women and 9 men (10.0%) in 2018/19. While there is good progression of female Lecturers to Senior Lecturers, the lack of women Readers in either department is a concern.

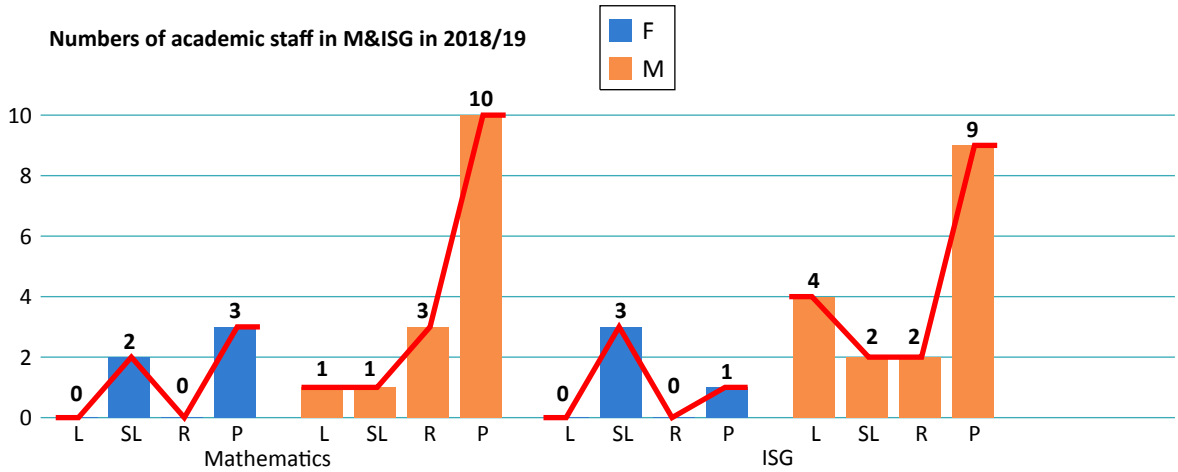
This is addressed by Action F.1 below and Action F.4 (overleaf).

F.1. (M&ISG) Ensure School promotion panel members have unconscious bias training and access to relevant contextual data. Ensure that disciplinary norms (such as expected publication frequency and top journals/conference venues) are up-to-date, correctly reflect the cultures within different subjects within M&ISG, and are not implicitly biased against women.

Mathematics	2016/17			2017/18			2018/19			Benchmark
	F	M	F%	F	M	F%	F	M	F%	F%
Lecturer	1	1	50.0%	0	1	0.0%	0	1	0.0%	31.1%
Senior Lecturer	1	1	50.0%	2	1	66.7%	2	1	66.7%	26.6%
Reader	0	5	0.0%	0	3	0.0%	0	3	0.0%	26.6%
Professor	3	9	25.0%	3	10	23.1%	3	10	23.1%	12.6%

ISG	2016/17			2017/18			2018/19			Benchmark
	F	M	F%	F	M	F%	F	M	F%	F%
Lecturer	1	3	25.0%	2	4	33.3%	0	4	0.0%	27.4%
Senior Lecturer	1	3	25.0%	1	3	25.0%	3	2	60.0%	22.2%
Reader	0	2	0.0%	0	1	0.0%	0	2	0.0%	22.2%
Professor	1	7	12.5%	1	9	10.0%	1	9	10.0%	15.3%

Table 4.24. *Numbers of Mathematics and ISG academic staff by grade and percentage women with sector benchmarks.*



Graph 4.25. *Numbers of Mathematics and ISG academic staff by grade in 2018/19: Lecturer* (L)*, Senior Lecturer* (SL)*, Reader* (R)*, Professor* (P)*.*

F.4. (M&ISG) Ensure appraisals are effective and carried out appropriately by senior staff rather than HoDs.

(a) Ensure appraisers complete unconscious bias training (mandatory for all line managers)

(b) Ensure appraisers discuss promotion criteria including those dealing with administration, knowledge transfer and external engagement and the new professorial banding criteria.

(c) Ensure appraisers are aware of targetted mentoring opportunities such as our workshop Enabling Women in the Promotion Process, project Aurora (for women), and the Mandala Programme (for BAME staff) and grant awarding bodies relevant to each career stage.

In addition, our Key Action F.3 on mentoring highlighted in Section 3 will improve career progression for women. See page 43 for more context.

ISG research staff have appointments at Grades 6, 7 (on Lecturer payscale) and 8 (on Senior Lecturer payscale). All researchers are fixed-term apart from one full-time permanent male (grade not specified for reasons of confidentiality).

ISG	2016/17			2017/18			2018/19			Benchmark
	F	M	F%	F	M	F%	F	M	F%	F%
Grade 6										
Grade 7										
Grade 8										

Table 4.26. *Numbers of ISG research staff by grade and percentage female with sector benchmark. Note that Mathematics has no research staff.* ***Redacted.***

Professors are appointed and promoted within five bands. Table 4.27 aggregates Mathematics and ISG and some of the bands to preserve confidentiality, while still giving a good impression of the overall trend. (The unaggregated data was available to the E&D Coordinator and E&D Champion when preparing this bid.)

	2016/17			2017/18			2018/19		
	F	M	F%	F	M	F%	F	M	F%
Band 1									
Band 2/3	0								
Band 4/5									

Table 4.27. *Numbers of Mathematics and ISG professorial staff and percentage female by band.* ***Redacted.***

We identified from qualitative interviews and staff data that new female professors are invariably promoted to Band 1 (the lowest) and that promotion from this band appears to be slow. Some male candidates have been promoted directly to Band 2. Action F.2 on page 39 below will ensure all future candidates make the case for direct promotion to higher bands.

Tables 4.28 show numbers of part-time and full-time staff academic staff. Mathematics has no research staff. All research staff in ISG since 2016/17 are full-time, with a single exception of a male member of staff in 2016/17.

Maths		2016/17		2017/18		2018/19	
		F	M	F	M	F	M
L/SL/R	PT	0	0	0	0	0	0
	FT	4	15	4	15	5	15
Prof.	PT	1	0	1	0	0	0
	FT	0	9	2	10	3	10

ISG		2016/17		2017/18		2018/19	
		F	M	F	M	F	M
L/SL/R	PT	1	0	1	0	1	1
	FT	1	6	2	6	2	5
Prof.	PT	0	2	0	2	0	2
	FT	1	7	1	9	1	7

Table 4.28. *Numbers of M&ISG academic staff working full-time* (FT) *and part-time* (PT).

(ii) Academic and research staff by grade on fixed-term, open-ended/permanent and zero-hour contracts by gender

Comment on the proportions of men and women on these contracts. Comment on what is being done to ensure continuity of employment and to address any other issues, including redeployment schemes.

All Mathematics academic staff are on permanent open-ended contracts. There are no Mathematics research staff.

		2016/17		2017/18		2018/19	
		F	M	F	M	F	M
Academic	Fixed term	0	1	1	2	0	2
	Permanent	3	14	3	15	4	15
Researcher	Fixed Term	2	13	1	0	2	7
	Permanent	0	1	0	1	0	0

Table 4.29. *Numbers of ISG academic and researcher staff on fixed-term and permanent contracts.*

All female academic staff are on permanent contracts. Typically funding for researchers in Mathematics and Information Security is only available for fixed-term contracts. Building a career around such contracts is particularly challenging for women staff [6, page 135], [17, Sections 11, 12].

We recognise this challenge in Actions K.2, K.3 and K.4 (see pages 47 and 49), while emphasising in Action E.1 that academic careers are wholly compatible with caring and family responsibilities.

While across the sector women are more likely than men to be on fixed-term contracts [6, page 133], in Mathematics all staff have permanent contracts and in ISG 33.3% of women are on fixed-term contracts, compared to 37.5% of men. Mathematics and ISG have thus resisted the creeping casualization of the Higher Education sector commented on in [17].

No staff are on zero-hours contracts.

(iii) Academic leavers by grade and gender and full/part-time status

Comment on the reasons academic staff leave the department, any differences by gender and the mechanisms for collecting this data.

Almost all leavers in recent years are researchers from ISG. The most common reason for leaving is end-of-contract. One member of M&ISG academic staff left for a new position at another university.

	2016/17		2017/18		2018/19	
	F	M	F	M	F	M
End of fixed-term contract	0	3	0	1	0	3
Made redundant	1	1	0	0	0	0
Resigned	0	2	0	1	0	3

Table 4.30. *Reasons for ISG researchers leaving. Mathematics has no research staff.*

Data is collected by Human Resources. All leavers are offered an exit interview.

No academic or research staff in M&ISG or administrative or technical staff in EPMS have been furloughed to date in the **Covid-19** crisis, and there are no plans to do so.

Word count: 1654

5. SUPPORTING AND ADVANCING WOMEN'S CAREERS

Recommended word count: Bronze: 6000 words | Silver: 6500 words

5.1. Key career transition points: academic staff

(i) Recruitment

Break down data by gender and grade for applications to academic posts including shortlisted candidates, offer and acceptance rates. Comment on how the department's recruitment processes ensure that women (and men where there is an underrepresentation in numbers) are encouraged to apply.

As part of the College's Race Equality Charter (REC) 2019 Action Plan, all applications are anonymised. Since 2019, all recruitment panels must have at least one male/one female panel member: Action J.3 (see page 58) will ensure this does not overburden female staff.

Training on advertising, shortlisting and interviewing is mandatory for panel chairs. Unconscious bias training is mandatory for all staff involved in recruitment. Our Key Action I.1 will ensure this training is high quality.

The most recent new appointment in Mathematics is a female lecturer who joined in September 2016. Only ISG has recruited since September 2016.

		Applicants			Shortlisted			Made offer		
		F	M	F%	F	M	F%	F	M	F%
2016/17	Researcher (Grade 7)	2	17	10.5%	0	4	0.0%	0	1	0.0%
	Lecturer (Fixed-term Grade 8)	7	11	38.9%	3	5	37.5%	1	1	50.0%
	Lecturer (Grade 8)	14	20	41.1%	0	4	0.0%	0	1	0.0%
2017/18	Researcher (Grade 7)	5	31	16.3%	2	13	13.3%	0	4	0.0%
	Researcher (Grade 8)	0	2	0.0%	0	1	0.0%	0	1	0.0%
	Senior Lecturer / Reader	0	10	0.0%	0	7	0.0%	0	1	0.0%
2018/19	Researcher (Grade 7)	2	6	25.0%	1	2	33.3%	0	0	0.0%
All years	Researcher	9	56	13.8%	3	20	13.0%	0	6	0.0%
	Academic	21	41	33.9%	6	17	35.3%	1	3	25.0%

Table 5.1. *Recruitment to ISG. One female applicant for the Researcher (Grade 7) position in 2017/18 withdrew after interview. Mathematics has not recruited in these three years.*

That there were no female applicants for the Senior Lecturer/Reader position in ISG advertised in 2017/18 is a serious concern.

It is clear from Table 5.2 that female applicants are less likely to be shortlisted.

Proportion shortlisted	**All applicants**	
	F	**M**
Researcher	25.0%	35.7%
Academic	28.6%	41.5%

Table 5.2. *Proportion of women and made shortlisted of all those applying for jobs since 2016/17. For example, 25.0% of women applying for a researcher job were shortlisted, compared to 35.7% of men.*

Two further important statistics are the proportions of women applicants who are made offers of (i) all applicants and (ii) those shortlisted.

Proportion made offers	**(i) All applicants**		**(ii) Shortlisted**	
	F	**M**	**F**	**M**
Researcher	0.0%	14.2%	0.0%	30.0%
Academic	4.8%	7.3%	16.7%	17.6%

Table 5.3. *Proportion of women made offers of all applicants and of those shortlisted. For example, 4.8% of women applying for an academic job were made offers, compared to 7.3% of men.*

Table 5.3 shows that of those shortlisted, men and women are roughly equally likely to be offered an academic position, but overall female applicants are less likely than male applicants to be made an offer (4.8% versus 7.3%). If we are recruiting the right people from those who apply then

(a1) not enough strong women candidates apply;
(a2) at the moment we shortlist too many women.

The alternative is that

(b1) our shortlisting procedures working reasonably well;
(b2) our interview procedures are biased.

Table 5.2 is evidence against (b1) and there is no direct evidence for (b2). Since (a2) seems unlikely, we conclude (a1); this conclusion is also suggested on other grounds, for example, our failure to make an offer to any shortlisted women for a research position.

This analysis informs our Key Action E.1; Action E.2 should also increase female applicants.

E.2. (M&ISG) Ensure recruiters consider pay-spine and professorial banding when recruiting. Advise recruiting staff that they should not assign new staff to the bottom pay-spine point or new professorial staff to Band 1 (lowest), but instead make recommendation reflecting candidates' experiences. Ensure that new professorial banding criteria are disseminated to staff and that HoDs are familiar with them.

In responses to '*The application, shortlisting and interview process ran smoothly and fairly when I joined*' in the Staff Survey, 66.7% of women agreed and 100% of men agreed. No-one disagreed. Action E.3 will refine our procedures.

E.3. (M&ISG) Increase the proportion of women who are offered position after shortlisting and final round interviews and reward work on recruitment panels.

(a) Recruitment & Selection training, and Unconscious Bias training are already mandatory for all staff involved in recruitment. M&ISG will work with the College to ensure 100% completion rates for panels. Give external panel members Royal Society briefing on unconscious bias [9].

(b) The new College Recruitment and Selection Policy mandates that all recruitment panels have representation from women and men. To avoid overloading women staff, we will introduce formal workload points for recruitment panels.

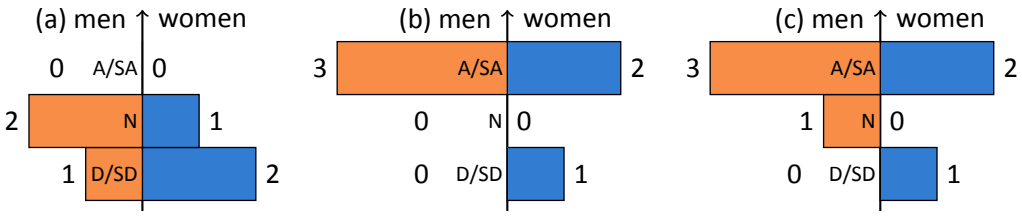
(ii) Induction

Describe the induction and support provided to all new academic staff at all levels. Comment on the uptake of this and how its effectiveness is reviewed.

All new academic and administrative/support staff attend a College induction event in which the College Principal and Deputy Principal (operations) affirm the College's commitment to gender equality. New staff are introduced to representatives from College diversity networks, including the Royal Holloway Women's Network (RoWaN), the LGBT+ Staff Network, the Staff Disability Forum and the Cultural Diversity network, and are invited to network during a lunchtime session.

New starters are required to do the basic 'Equality Essentials' E&D training. This training includes a quiz on the nine protected characteristics and unconscious bias.

Survey responses and informal feedback suggest that not all staff were made aware of the online. We will formalize this training requirement in Action E.4



Survey 5.4. *Responses from strongly agree to strongly disagree to Staff Survey questions*
(a) *'There was useful Equality and Diversity training as part of my induction'.*
(b) *'I was provided with the information that I needed for a smooth start shortly after joining the Mathematics Department or Information Security Group',*
(c) *'I was well-supported at the start of my time in the Mathematics Department or Information Security Group'*
Responses were aggregated because of small numbers of relevant staff.

E.4. (M&ISG) Improve induction for new staff with more focus on E&D training.

(a) Review new central induction form (due September 2020) to ensure it includes all issues relevant to M&ISG , for instance research groups and seminars.

(b) Ensure 100% completion rates for E&D training for all new staff. (We have the same target for all staff: see Action I.4.)

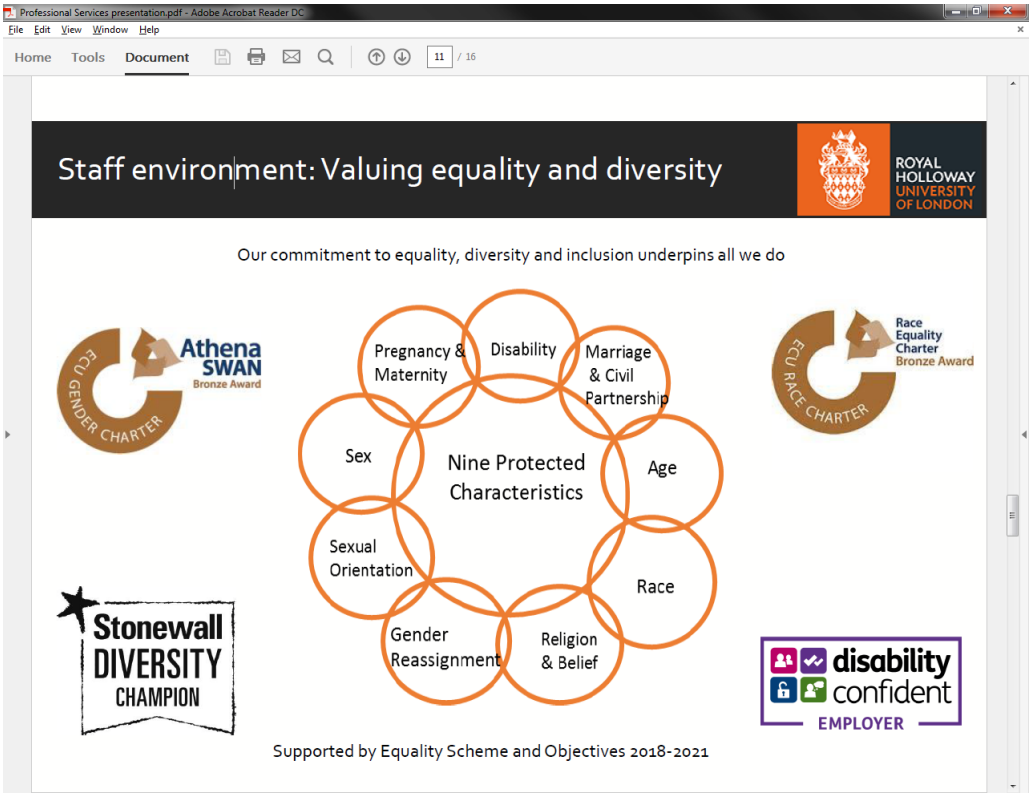


Figure 5.5. *Slide from the Principal's talk to new staff showing College accreditations.*

In qualitative interviews one staff member commented

> *"When I joined as a lecturer, I was given an extremely heavy admin task which took up most of my time. I understand that there are jobs to fill, so newcomers tend to get what's left and undesirable. That experience had a really negative impact on my first two years here."*
>
> (Female Mathematics staff member)

Action E.5 will remind HoDs and all staff of our policy that new starters (except for new professors) have no administrative duties and ensure that it is followed.

E.5. (M&ISG) Ensure new non-professorial staff do no administration during their first year and give all staff a reduced administrative load throughout the three year probation period.

(iii) Promotion

Provide data on staff applying for promotion and comment on applications and success rates by gender, grade and full- and part-time status. Comment on how staff are encouraged and supported through the process.

The College academic promotion processes have developed over many years to ensure fairness, transparency and objectivity. Specific criteria are set out within a matrix, divided into:

- Teaching,
- Research (scholarship for teaching-focused staff),
- External engagement and impact,
- Leadership and enhancement.

There are separate criteria for promotion to Senior Lecturer, Reader, and Professor.

Since 2016/17 *all* female applicants for promotion have been successful, as have 66.7% of male applicants. The finer-grained data split by type of promotion (to Senior Lecturer, Reader or Professor) and by department were available to the E&D Committee; for reasons of confidentiality we aggregate below.

	Applications		**Promotions**	
	F	**M**	**F**	**M**
Promotion to Professor/Reader/SL	6	12	6	8

Table 5.6. *Applications for promotion to Senior Lecturer, Reader or Professor since 2016/17.*

In 2016-17 the promotion process changed with all applications assessed anonymously by a School Panel (whose members see comments from HoDs), removing a 'gate-keeping' effect of the old Department Panels and their high potential for unconscious bias. External references are sought for those candidates recommended for promotion to Reader or Professor.

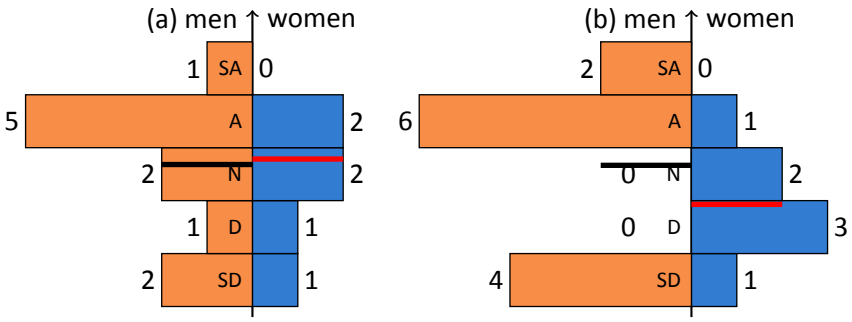
Departments and HoDs continue to have a supportive role in reviewing *all* staff CVs annually: this often leads to a suggestion to apply for promotion, and helps remove another barrier. Staff are supported by Appraisals (see Action F.4 on page 31).

The departments are generally seen as places which support and encourage applications to promotion.

> *"After just over a year in the ISG as a Lecturer, I was encouraged by my Head of Department, and a close colleague, to apply for promotion. I submitted my CV without a formal application … I ended up securing a Senior Lectureship, which is also what I applied for."* (Female ISG staff member)

Survey 5.7 (overleaf) is however less positive. Closer analysis shows only small differences between Mathematics and ISG.

Qualitative interviews suggest that some of the unfairness identified in Survey 5.7(b) lies in professorial banding. The criteria are felt to be unclear, and not to recognise all relevant activities.



Survey 5.7. *Responses from strongly agree to strongly disagree to Staff Survey questions*
(a) *'The criteria for promotion are clear to me',*
(b) *'The promotions process was conducted fairly'.*

> *"During the women's promotion workshop, we were told 'not to worry' and that everyone who applies successfully to professorship will be promoted to professorial band 1. We accepted that. But fellow male colleagues went for Band 2. I don't think we should have been advised to settle for Band 1."*
> (Female Mathematics staff member)

The banding criteria were revised in 2019/20. Actions F.4 (see page 31) and Action F.2, complementing Action E.2, will ensure the new criteria are widely disseminated and understood.

F.2. (M&ISG) Support progression within professorial banding to contribute towards reducing the College gender pay gap.
(a) Ensure staff know that they should make the case for appointment at higher bands when applying for promotion to professor and are familiar with new professorial banding criteria.
(b) Ensure appraisers encourage applications for professorial rebanding where appropriate.

(iv) Department submissions to the Research Excellence Framework (REF)

Provide data on the staff, by gender, submitted to REF versus those that were eligible. Compare this to the data for the Research Assessment Exercise 2008. Comment on any gender imbalances identified.

M&ISG have a complex history of submission in which many M&ISG staff were submitted as part of the returns from the College's Physics and Computer Science departments. Considering in addition the small numbers involved, the best metric is the number of staff submitted to the pure mathematics assessment unit.

RAE 2008			REF 2014		
F	**M**	**F%**	**F**	**M**	**F%**
5	31	13.8%	3	16	15.8%

Table 5.8. *Numbers of staff submitted to pure mathematics assessment unit in RAE 2008 and REF 2014 and percentage of women amongst all those submitted.*

While numbers are small, we note that the proportion of women amongst those submitted in 2014 was below the 20% of female academic and research staff in the department at this time.

We believe the new 2021 REF in which staff are decoupled from outputs ([14, paragraph 153]) and all research active staff are returned is fairer than its predecessors; our 2021 submission will reflect the gender balance in the department: see Table 2.3.

All staff preparing the REF submission are required to do the College's training 'Unconscious bias and the REF'; this included strategies that individuals can adopt to mitigate bias in REF decisions.

5.3. Career development: academic staff

(i) Training

Describe the training available to staff at all levels in the department. Provide details of uptake by gender and how existing staff are kept up to date with training. How is its effectiveness monitored and developed in response to levels of uptake and evaluation?

All staff are required to do the 'Equality Essentials' training: see page 36.

Probationary academic and research staff are required to attend the Core Advance programme session, which facilitates effective networking and collaborative links, academic career development at the College, and covers priorities for RCUK and other major funders, and support available at RHUL for research and enterprise activities.

Across M&ISG, 45.5% of female staff and 28.2% of male staff have done some form of unconscious bias training.

	Maths		ISG		Maths		ISG	
	F	M	F	M	F%	M%	F%	M%
Promotions	1	2	0	4	20.0%	13.3%	0.0%	16.7%
Researcher Development	1	3	4	13	20.0%	20.0%	66.7%	54.2%
Unconscious Bias	3	4	2	7	60.0%	26.7%	33.3%	29.2%

Table 5.9. *Uptake of College training session by academic and researcher staff in M&ISG in 2016/17, 2017/18 and 2018/19, grouping courses under three headings. Unconscious Bias includes the REF specific training course. For example, 4 of the 15 male Mathematics staff (26.7%) have done some form of unconscious bias training.*

The low uptake will be addressed by Actions I.1, I.2 and I.4.

A special subgroup of the E&D Committee worked on training actions, beginning by surveying all members of M&ISG (see page 14).

The group identified a clear demand for unconscious bias training. Table 5.9 shows that only 16 of the 50 academic and research staff in M&ISG have done the College's training, and men are far less likely than women to have done the training. Informal feedback suggests that that some staff who have done it detected a lack of rigour. Our Key Action I.1 on an externally led workshop on unconscious bias addresses this: see page 18.

Following a suggestion from a qualitative interviewee we will also fund Active Bystander training from the leading external provider, giving staff the resources to challenge discriminatory behaviour.

> *"We need more training for students, including unconscious bias. We need to let incoming students be aware of the fact that they need to respect everyone. That there is a code of conduct. Ally training and 'standing up for yourself' training would be good. We need a clear message from staff that they don't tolerate discrimination from anyone."*
>
> (Female ISG PhD student)

I.2. (M&ISG) Run active bystander training tailored to M&ISG staff by a leading external provider `activebystander.co.uk`**.** Financial support of £800 for a half-day session for up to 50 people to come from M&ISG budget.

In addition we will raise awareness of the training offered by the College.

I.4. (M&ISG) Remind staff to do compulsory e-course Equality Essentials. Uptake reported to HoDs and, if IT issues permit, staff informed what courses they have done each year.

I.5. (M&ISG) Highlight Equality and Diversity training in Researcher Development Programme (RDP) for PhD students. Encourage students to do E&D training as part of their required 5 days of generic skills training per year.

(ii) Appraisal/development review

Describe current appraisal/development review schemes for staff at all levels, including postdoctoral researchers and provide data on uptake by gender. Provide details of any appraisal/review training offered and the uptake of this, as well as staff feedback about the process.

All staff in M&ISG completed an appraisal in the 2018/19 academic year.

In M&ISG appraisals are conducted by senior staff. Since female staff are significantly less likely than male staff to feel comfortable discussing career development and training with their line-manager / supervisor (see Survey 5.10 overleaf), we believe this is the best model. A weakness is that ISG only has one female professor; she was not available in 2018/19, so in the most recent year, all ISG appraisals were conducted by men.

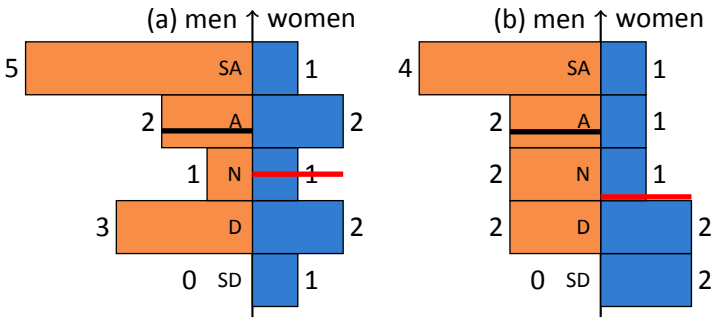
Action F.4 on appraisals was highlighted on page 31.

(iii) Support given to academic staff for career progression

Comment and reflect on support given to academic staff, especially postdoctoral researchers, to assist in their career progression.

We are proud of the 100% female success rate in M&ISG for promotions (see page 38).

We believe this is due to a combination of factors, including mandatory unconscious bias training for panel members and effective development opportunities such as the targetted workshop 'Enabling Women in the Promotion Process', which won a Times Higher Education Award for Outstanding Contribution to Leadership Development and the Mandala Programme, which was commended by the Race Equality Chartermark panel at the College's 2019 renewal (see Action F.3 on page 16).



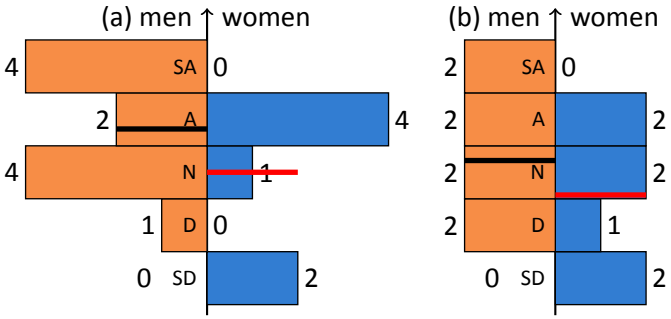
Survey 5.10. *Responses from strongly agree to strongly disagree to Staff Survey questions*
(a) *Appraisals: 'I have had useful and constructive feedback on my performance in the last 12 months',*
(b) *Career guidance: 'I feel comfortable discussing career development and training with my line-manager/supervisor'.*

> *"The promotions workshop was eye-opening. It was a good workshop delivered by competent people."*
>
> (Female Mathematics staff member)

When publicising these programmes we stress that they are *not* about changing people to behave in a stereotypical male way (the Henry Higgins effect [6, Ch. 5]): for instance the Mandala Programme specifically looks at 'How to become even more impactful through being you skilfully.' Such interventions remain controversial:

> *"Promotions workshops for women and for BAME staff make individual women and BAME staff responsible for structural and systematic problems. Be more like men! Be more white!"* (Female staff member of M&ISG)

Despite the 100% success rate for promotions, responses to the Staff Survey show that women are far less likely than men to feel they have received good career support.



Survey 5.11. *Responses from strongly agree to strongly disagree to Staff Survey questions*
(a) *Progression: 'The Mathematics Department or Information Security Group has given me the support that I need to advance in my career'*
(b) *Career guidance: 'I have had useful guidance on career development in the last 12 months'*

Women also report less awareness of mentoring opportunities than men. Uptake of mentoring is low for both genders.

Action F.3 will ensure that new staff are assigned a probation advisor who acts as mentor, and formalize existing arrangements.

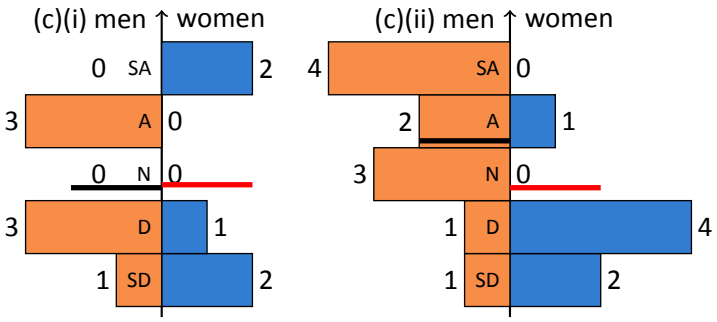


Table 5.12. *Responses from strongly agree to strongly disagree to Staff Survey questions on mentoring:*
(a) *'I have benefited from the guidance provided by a mentor from M&ISG ',*
(b) *'I am aware of mentoring opportunities available to me.'*

> *"My mentor has always been my 'go-to' person. The mentoring relationship however was not set up by the department; it is an informal arrangement. I just happen to call it 'mentoring'."*
>
> (Female ISG staff member)

Departmental policy is that new staff have no administrative duties during their probationary period, but this has not always be followed in ISG (see the highly critical quote on page 37 and Action E.5). In Mathematics the experience has been much more positive.

> *"I can't complain about workload. When I was on probation, I had no admin duties. I think they try to keep a reasonable account of who is doing what and make it fair. I am not aware of there being any difference in the way workload is allocated."* (Female Mathematics staff member)

(iv) Support given to students (at any level) for academic career progression

Comment and reflect on support given to students at any level to enable them to make informed decisions about their career (including the transition to a sustainable academic career).

Support and encouragement for UG Mathematics students to enter technical careers is provided by a new course MT2500 Scientific Programming introduced in 2019/20 into the second year curriculum. It is compulsory for all UG Mathematics students and most joint honours students. As part of the course students produce a professional C.V. and covering letter, tuned to a particular job advertisement. They discuss the application, and careers in general, with their Personal Advisor. A welcome side-effect is that we get to know our students better.

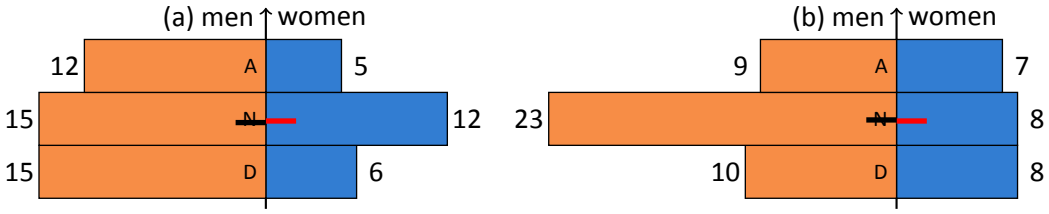
> *"It covers CV writing, with external lecturers talking about careers. It forces you to get your act together!"* (Female Mathematics student)

As part of our Key Action H.1, highlighted on page 18, we will introduce assessed work on E&D issues into this course.

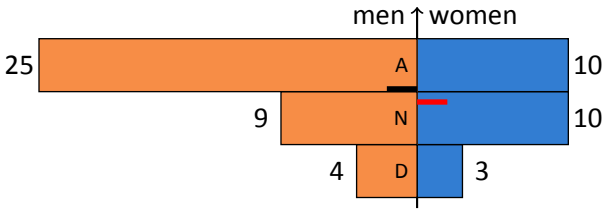
The WISDOM group regularly runs events at which external employees in Information Security and related areas speak about careers. These reach PGT and PGR students in M&ISG.

> *"WISDOM organised a talk by Anne Benischek from the Bank of America, who came to speak openly about pay discrepancies between her and her male partners. Through this contact, I managed to set up a placement with her."* (Female ISG PhD student)

Student Survey responses showed that women and men were almost equally likely to want to pursue an academic career. Questions on careers show remarkably little gender disparity, except that women tend to be more certain about their goals than men.



Survey 5.13. *Student Survey responses to (a) 'I would like to pursue an academic career' and (b) 'I would like to pursue a scientific career'.*



Survey 5.14. *Student Survey responses to 'I am confident of finding a job when my degree finishes'.*

(Note this survey is from November 2019. A national survey [16] conducted three weeks after the lockdown began in March 2020 reports that 37% of UK students are worried whether they will get a job when they graduate, with a further 26% feeling less confident about their professional futures.)

Qualitative interviews suggest that while the central Careers and Employability Service is of some use to students, there is a need for further careers support specifically targetting mathematical careers.

> *"It would definitely be good for Maths to get more involved in the careers side and talk to students about maths-related industry opportunities and careers. … Having women talk about careers would help and encourage me to be brave enough to enter maths-related industry"* (Female Mathematics UG student)

Another interviewee talked about her perception of an academic career being '*competitive and ego-driven*' and taking place within '*a stressful environment*'. Our Key Action D.10 on a half-day School wide colloquium and panel session on academic and industry careers will address these potential misconceptions and other issues (see page 30). We also propose two further actions.

D.11. **(M&ISG)** Analyse destination data for UG, PGT and PGR students by gender. Use expertise in Careers Service more effectively to understand careers destinations of our students.

D.12. (M&ISG) Support students in career choices and pathways (academic and industry)

(a) Personally invite PhD students to talks by postdoctoral researchers to improve the pipeline of women into academia.

(b) Support PhD students to learn more about early career grants through talks for all students and drop-in session with Early Career Advisor (new role in M&ISG).

(v) Support offered to those applying for research grant applications

Comment and reflect on support given to staff who apply for funding and what support is offered to those who are unsuccessful.

The substantial work required to submit a major grant application is acknowledged in the M&ISG Workload Allocation Models. The Researcher Development Programme (see Table 5.9) includes sessions on grant applications. Administrative support for costings is provided by a named contact in Research and Enterprise.

Staff Survey responses show a marked gender disparity on research environment, across both Mathematics and ISG.

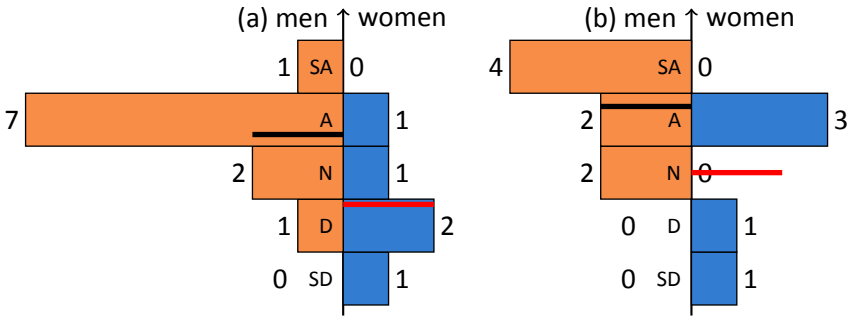


Table 5.15. *Responses from strongly agree to strongly disagree to Staff Survey questions*

(a) *'The research environment allows me access to the support and facilities that I need to conduct my research'.*

(b) *'The internal grants peer review system provides useful feedback on draft grant application'.*

Note also the worrying responses to the Staff Survey question on the perceived value of research (see page 16). Qualitative interviews suggest that part of the problem is a lack of formal support for grant applications to the funders specific to M&ISG.

> *"The grant support is informal. I have asked a colleague to send me their successful grant application so that I can have a look through it."*
>
> (Female ISG staff member)

Actions F.3 on mentoring and F.5 on grant applications, highlighted earlier on page 16 will address this issue. As part of the latter we have appointed Dr Liz Quaglia (a Senior Lecturer on the E&D Committee) to the new role in M&ISG of 'Early Career Advisor': she will act as a go-to person for PhD students and starting researchers seeking advice on funding opportunities. Workload points will be allocated as part of Action J.4 (see page 15).

Action F.4 on appraisals on page 31 will also increase support for grant applications.

Female staff also reported some more positive experiences in qualitative interviews:

> *"There is support for research in the department. I have support to attend conferences and colleagues will stand in for me if I need to attend during term time."* (Female Mathematics staff member)

Academic staff are entitled to apply for one term of sabbatical leave for every nine terms at the College. While an application is required, in practice members of M&ISG are able to make a strong case and it is rare for leave to be refused. As part of the College's response to **Covid-19**, two planned sabbaticals in 2020–21 were cancelled to concentrate all resources on teaching. While a concern for morale, there is no evidence of gender bias in this policy.

Since 2016/17, 5 of the 9 female and 13 of the 32 male members of staff in M&ISG have taken sabbatical leave.

5.5. Flexible working and managing career breaks

Note: Present professional and support staff and academic staff data separately

(i) Cover and support for maternity and adoption leave: before leave

Explain what support the department offers to staff before they go on maternity and adoption leave.

Staff are supported before leave by extra lecture cover.

> *"Colleagues were generally very supportive before the start of my leave. My head of Department stepped in the last few weeks before I left to take on a few lectures for which I was grateful."* (Female ISG staff member)

> *"Before I left for my maternity leave I was quite nervous as I knew we were already short-staffed. So I prepared a sheet of paper, a strategic plan, outlining what will happen to my supervisees etc. As far as I am aware, there is no other official handover process in place."* (Female ISG staff member)

Our policy is that staff going on leave formally hand-over their administrative duties to a named stand-in, arranged in a meeting with their HoD. The second quote shows this policy is not clear to all staff, and may not be followed in all cases. We address this in Action K.1 on page 47.

(ii) Cover and support for maternity and adoption leave: during leave

Explain what support the department offers to staff during maternity and adoption leave.

Staff on leave remain on emailing lists and are able to come in to M&ISG using a 'Keeping in Touch' day. These days are paid as a normal work day and need not be booked in advance. Academic staff remain eligible for travel support for workshops and conferences offered by M&ISG. As part of Action K.1 we will consider staff preferences for the amount of email they receive while on leave, while respecting legal requirements to inform staff of job opportunities. Most recently an ISG member on maternity leave took 6 KIT days: this is evidence they were found useful.

(iii) Cover and support for maternity and adoption leave: returning to work

Explain what support the department offers to staff on return from maternity or adoption leave. Comment on any funding provided to support returning staff.

All staff returning from leave are offered a 'catch-up' meeting with their HoD, introducing any new members of staff, discussing work handover, and ensuring that any training needs are met.

M&ISG is proactive and supportive. For example, when a member of administrative staff was preparing to take maternity leave in 2015 (this is the most recent example), we persuaded security to create a special car parking space opposite where she worked. We then worked with HR to agree a permanent reduction in the working hours for this staff member, more flexible than a simple change from full-time to part-time working.

There is a dedicated space for breastfeeding and expressing milk in one of the EPMS buildings. We will monitor to see if more provision is needed, bearing in mind that all academic staff have private offices.

Academic staff returning from leave get a workload reduction equivalent to a sabbatical term. This is a policy of M&ISG (not the College) that we are proud of. Recognising that new parents have diverse caring arrangements, this leave does not have to be taken immediately on return. Staff on maternity leave accrue entitlement to sabbatical leave as if they were working.

K.2. (M&ISG) Inform staff of grants available for child-care costs when attending meetings and conferences.

> *"What I would like to see now I am back and focused on my research, is more support for travel. … In the future, I am planning on factoring such costs into my grant applications."* (Female ISG staff member)

We will also make it clear that staff are welcome to take their children into M&ISG if this suits their schedule.

K.4. (M&ISG) Make it clear that staff may take children into departments and personal offices without close supervision (when age appropriate).

See also Action K.1 overleaf. This acknowledges that caring responsibilities fall disproportionately on women and adversely effect academic careers [6, Chapter 3], [18].

K.1. (M&ISG) Formalize processes for maternity/paternity/adoption/family leave.

(a) Establish official handover process prior to the start of leave.

(b) Ensure staff are aware of Keeping-in-Touch days.

(c) Yearly reminder of M&ISG policy that staff returners from maternity/paternity leave get a workload reduction equivalent to a term of sabbatical leave, either when they return, or at a later time of their choice.

(d) Gather data on uptake of sabbatical leave by staff returners.

(e) Allow staff to express a preference to receive only essential announcements by email while on leave.

(f) Publicise College policy on shared parental leave to all staff by regular email.

(iv) Maternity return rate

Provide data and comment on the maternity return rate in the department. Data of staff whose contracts are not renewed while on maternity leave should be included in the section along with commentary.

Since 2016/17, one Lecturer (ISG) went on maternity leave in 2018. She was promoted to Senior Lecturer in 2019. Going back further a female Reader (Mathematics) took maternity leave and returned; she was later promoted to Professor. Both benefitted from our policy on sabbatical leave. No Mathematics staff are on fixed-term contracts, no ISG researchers have had their contract length shortened by taking maternity leave.

Since 2016/17 no administrative staff have taken maternity / adoption leave.

(v) Paternity, shared parental, adoption, and parental leave uptake

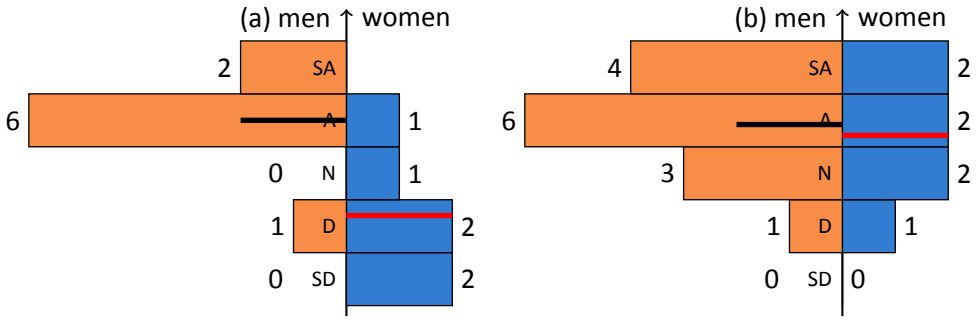
Provide data and comment on the uptake of these types of leave by gender and grade. Comment on what the department does to promote and encourage take-up of paternity leave and shared parental leave.

No staff have taken paternity, shared parental, adoption or parental leave since 2016/17. (We believe it is unreasonably intrusive to ask staff to declare new children, so do not know how many were eligible.) One male staff member took paternity leave in 2014. As part of Action K.1 we will publicise the new College policy on shared parental leave.

(vi) Flexible working

Provide information on the flexible working arrangements available.

Flexible working is available to all staff, including professional and support staff. Staff Survey responses on the support for flexible working show one of the largest gender disparities seen in this survey. It seems that the problem is not lack of awareness of the policy, but how it is implemented.



Survey 5.16. *Responses to Staff Survey questions*
(a) *'I feel supported to work flexibly'*
(b) *'I am aware of the Mathematics Department and Information Security Group's practices on flexible working and career breaks'.*

After extensive discussion the Mathematics department introduced in 2020/21 a revision week in the middle of each term, to coincide with half-term when possible. We believe this and Action D.7 on improvements to our timetable (see page 54) will help staff and students with caring responsibilities.

> *"Maths don't have a reading week. This would be really helpful and give us time to catch up on content. Having to attend lectures continuously for 11/12 weeks can get pressurising and draining."*
>
> (Female Mathematics UG student)

K.3. **(Mathematics) Introduce revision week in 2020–21**, where possible to coincide with half-term.

Only two administrative staff responded to the Staff Survey. Both responses showed unhappiness with how overtime and workload were allocated, but were very positive about the overall culture in M&ISG. These concerns were raised with the School Manager.

Timetabling requests from staff are always accepted for core hours working, and accommodated when feasible in other cases. It is clear from qualitative interviews that some staff are happy with their flexible working arrangements.

> *"Every year I submit a request to timetabling for my teaching to be scheduled within core hours. This works well for me."*
>
> (Female Mathematics staff member)

(vii) Transition from part-time back to full-time work after career breaks

Outline what policy and practice exists to support and enable staff who work part-time after a career break to transition back to full-time roles

One member of M&ISG academic staff agreed a half-time return to work after maternity leave in 2016 and then transitioned to full-time work in 2017/18. M&ISG assisted this by negotiating with Human Resources and using the full flexibility of our Workload Allocation Model.

A member of administrative staff who returned from leave in 2015 was supported to reduce her working hours after returning from maternity leave.

Since numbers are small and each case is different, our only formal policy is to be as flexible as possible in response to requests for reduced or increased hours, drawing on our experience that such requests can be successfully accommodated.

5.6. Organisation and culture

(i) Culture

Demonstrate how the department actively considers gender equality and inclusivity. Provide details of how the Athena SWAN Charter principles have been, and will continue to be, embedded into the culture and workings of the department.

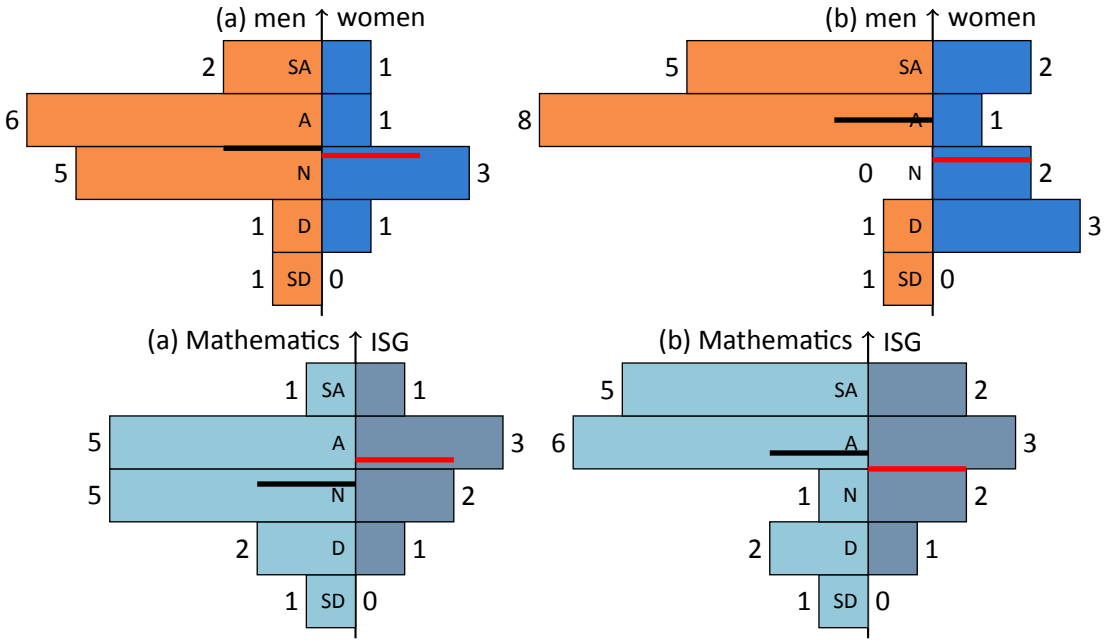
Our democratic tradition and embedding E&D. The Mathematics Department and ISG are proud of their long history of working by consensus. Changes are typically proposed by ad-hoc working groups (see Figure 2.2) and then agreed at department meetings. While votes are sometimes required, this is unusual. Except for new starters, most staff have some administrative role. In recent years all roles, including that of HoD, have been openly advertised to all staff. Roles in the School of Engineering, Mathematics and Physical Sciences (EPMS) were also openly advertised on its formation.

Qualitative interviews with both staff and students show that culture had changed for the good within the department in recent years. We believe a large part of this is due to our success in recruiting and promoting female staff. Our Action Plan builds on this by formally embedding the Athena SWAN principles in everything M&ISG does.

> *"Generally, there is good support in the department. I like being here, which is why I stayed on for the post-doc position. There are lots of people here who really care for equality and diversity, including men. The department is getting richer in terms of female staff and is less male-centred."*
>
> (Female ISG staff member)

> *"When I first started my course here, I was one of two women, out of a total of twelve PhD students. The atmosphere at the time was very 'masculine' and competitive. I didn't always feel part of the group … I was scared of getting the reputation of being a disruptive person. I think things are better now, both within the department and also the wider College."*
>
> (Female ISG PhD student)

These views are confirmed by the Staff Survey.

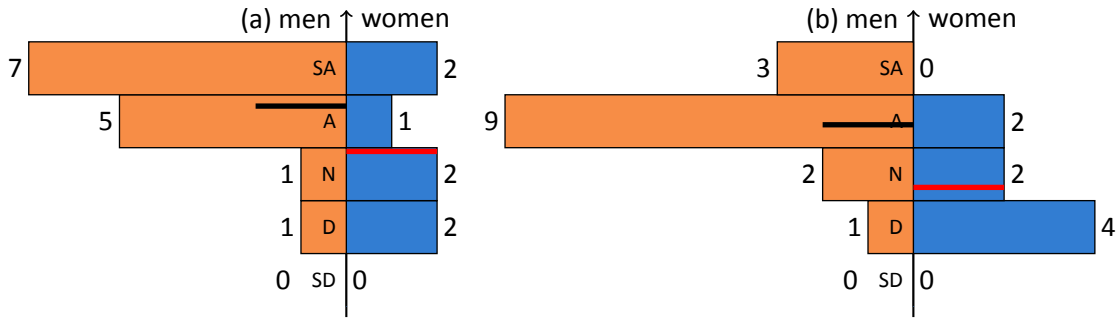


Survey 5.17. *Responses from strongly agree to strongly disagree to Staff Survey questions*
(a) *'Culture and practices within the department that promote equality and inclusion have improved the last three years' (left)*
(b) *'I am aware of the Equality and Diversity Committee and its activities' (right)*
Mean responses combining both genders on -2 to 2 scale are (a) 0.42 and (b) 0.74 (both between neutral and agree). Note not all staff answered every question.

We will use question (a) as part of the overall evaluation of our Action Plan (see Action B.5) targetting an improvement in the mean response to 'agree' for both men and women, across both departments, by 2023.

Women are overworked with E&D activities. Our democratic tradition is recognised in responses to the Staff Survey question 'I am given opportunities to contribute views on how the department is managed': see Survey 5.18(a).

It is far more concerning that only 25.0% of women, but 80.0% of men agree the gender balance in the department is fair. Qualitative interviews suggest that an important reason for this is the perception that women do a disproportionate share of the work to promote gender equality.



Survey 5.18. *Responses from strongly agree to strongly disagree to Staff Survey question*
(a) *'I am given opportunities to contribute views on how the department is managed'*
(b) *'The gender balance in the department is fair'.*
Overall mean responses on −2 to 2 scale are 1 (agree) and 0.52 (half-way between neutral and agree).

> *"Lots of women are invited to do administrative tasks and be involved in WISDOM. But gender equality needs the support from men, too. WISDOM isn't really supported by men in the department. We definitely need more men involved. Many aren't involved as they don't see there is an issue and refuse to listen, including fellow PhD students. This can be very upsetting."*
> (Female Mathematics PhD student)

This perception is true. For instance, the E&D Committee has 6 women and 5 men, while only 22.0% of all staff in M&ISG are female. Action B.1 (see page 11) and the action below will address this.

G.2. (M&ISG) Educate staff around gender equality and increase engagement with E&D.

(a) Educate staff on the gender pay gap by yearly statistical emails and informal discussion.

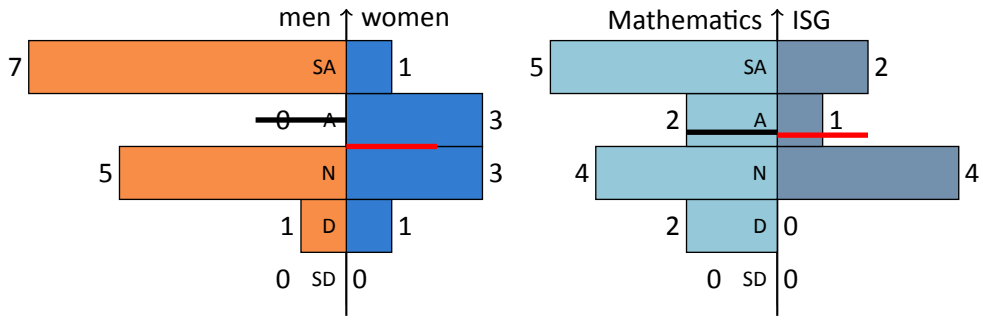
(b) Encourage male students and staff to support the WISDOM committee and engage with activities. In Mathematics, we will introduce workload points for WISDOM committee membership. (For ISG see Action J.4.) Hold free lunch with WISDOM members inviting all staff and PhD students, followed by a Q&A session with two staff sharing experience of the main steps in their career progression and obstacles and challenges they face: trial in November 2021 and repeat yearly if successful.

(c) Regular emails on E&D events, for example, Women in Mathematics Day, International Women's Day and Black History Month sent to all staff along with E&D news

Seminars. The Mathematics Seminar and Information Security Seminar are central to the culture of the departments. Speakers are usually external. Both seminars are well attended by staff and PhD students. Opportunities for informal networking occur before and after.

Since 2017 about 33.3% of mathematics speakers were female: while ahead of the sector benchmark that 20.4% of mathematics staff are female, we are not complacent, and plan to broaden representation further. As a first step, we retitled the Mathematics Seminar

in June 2019 to make it clear that its remit was not confined to pure mathematics. We are experimenting with an online seminar in May 2020 beginning in week six of the **Covid-19** lockdown.



Survey 5.19. *Responses from strongly agree to strongly disagree to Staff Survey question 'The gender balance in invited speakers is fair'. (Note not all respondents declared a gender.)*

G.6. (Mathematics) Detect possible gender bias in external seminar speakers. Yearly statistics on gender balance of seminar speakers in Mathematics Seminar will be collected, analysed with comparison to sector norms, and presented to School Board. Staff will be reminded to consider women and early career researchers when suggesting speakers. At option of Seminar Convener, gender statistics collected by anonymous web form.

This action is a rare instance where there is no counterpart for ISG. The reason is that the ISG Seminar Conveners had strong and cogently argued objections to monitoring gender that the E&D Champion (working with the support of the E&D Committee) was unable to overcome. Respecting our tradition of working by consensus and staff autonomy, the action was dropped.

Survey 5.19 gives no cause for concern in the ISG seminar; qualitative interviews with ISG members report that the gender balance in the ISG seminar improved in recent years and that, in the spirit of Action G.6, a wide range of speakers are now invited.

Action G.1 will further improve the diversity of the culture in the ISG.

G.1. (M&ISG) Build the digital leadership capacity of the ISG by adapting the internal ISG mentoring scheme to meet this need and, where possible, through the ring-fencing of time to work on existing interdisciplinary digital projects. Digital leadership takes several forms including: thought leadership in security related areas of digital research, leadership of digital research projects and grant proposals and facilitation of interdisciplinary working in security related areas of digital research and teaching. As part of this capacity building, the ISG will work with the wider Maths and ISG E&D initiative to champion changes to the promotions process to achieve better recognition for interdisciplinary scholarship in cyber security.

Awareness of unconscious bias.

Qualitative interviews identified a clear need for unconscious bias training. We will address this as part of our Key Action I.1 (see page 18). To promote wider culture change we will also begin a reading group on E&D issues, giving those attending new resources to challenge discriminatory behaviour.

G.4. **(M&ISG) Build a lending library of E&D literature.** We will create a collection of rigorous and well-researched books and papers on E&D issues. Lend out titles to staff and PhD students and put links on intranet. Trial reading group (maybe online) focused on chosen E&D reading.

See also Actions I.2, I.4, I.5 on page 41.

Students' attitudes to staff.

Qualitative interviews report that students are more demanding of female staff.

> *"Rules of engagement for students should be part of the induction process. When I speak to male colleagues, I realise that my experience of teaching year 1 students is different for me in terms of their behaviour and discipline. They are less forgiving. We have to make students aware of how they interact with staff."* (Female Mathematics staff member)

Indeed, research shows that teaching evaluations are 'biased against female instructors by an amount that is large and statistically significant' [5]. While such evaluations are not used directly by promotions panels, they have an obvious negative effect on staff morale. Our Key Action H.1 will combat this and the other biases identified in these quotations.

In addition we will instigate three actions.

H.2. **(Mathematics) Discuss Equality and Diversity issues in 1st year mathematics tutorials.** Staff provided with resources on unconscious bias, bullying and harassment and appropriate language.

H.3. **(M&ISG) Encourage supervisors to discuss E&D issues with PhD students in M&ISG and to recommend training and the WISDOM group.** Provide staff with resources. Ask College to make discussion with supervisor of E&D issues and completion of basic training a mandatory part of the Annual Review.

I.3. **(Mathematics) Introduce E&D training into induction for new Mathematics students.** Provisionally we will trial a 15 minute session concentrating on the nine protected characteristics and unconscious bias. The **Covid-19** crisis will require some students to be inducted online: this is a chance for us to update our provision and foster a sense of community.

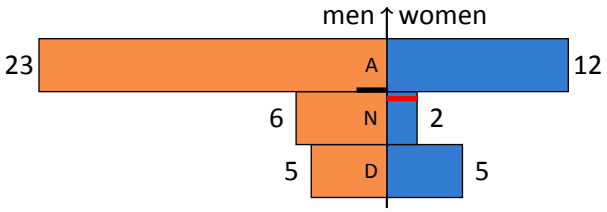
UG Student Experience.

Qualitative interviews with undergraduate students give us much to celebrate.

> *"I haven't felt I need to prove myself more because I am a woman. My gender hasn't felt relevant."* (Female Mathematics UG student)

> *"I feel that everyone was welcomed when we arrived. Being there at the start as a whole group, I felt I was part of everything. I didn't feel I stood out in any way. … I didn't feel I was in a minority as there is a good group of women here, and the proportion is increasing. I can see it."* (Female Mathematics UG student)

Despite many positives stories, qualitative interviews identified a general unwillingness to ask questions in lectures (see quote on page 17) and difficulties engaging with the academic environment. Survey data confirms this, but does not show any gender bias. We will address this in our Key Action D.5.



Survey 5.20. *Student Survey responses to 'I feel confident to ask questions in lectures'.*

One student interviewee commented on the challenges of being a commuting student:

> *"My travel time to College is two hours each way and attending a drop-in session for half an hour is not favourable. "* (Female Mathematics undergraduate student)

BAME students frequently live in London and face lengthy commutes to Egham. Action D.7 will improve their timetable, and Action D.6 will also make it easier for all students to manage their studies around caring and other responsibilities.

D.7. **(Mathematics) New parallel/plenary system for third and fourth year timetable.** This will slightly restrict student choice but allow for a much more convenient timetable for all our students and staff. Evaluate trial in 2020–21. Affected by **Covid-19**: to allow for online learning we have to reduce live lectures and schedule live lectures in the morning.

D.6. **(M&ISG) Increase video capture of lectures, building on experience during Covid-19 lockdown.**

(a) Encourage staff to use Panopto Replay technology to record lectures and visualizer (captured) rather than whiteboards (not captured). Training provided centrally and by video tutorial by Prof. Simon Blackburn.

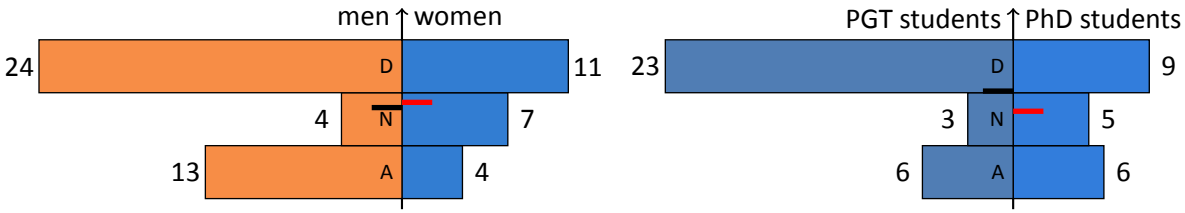
(b) Equip new lecture room with multiple video cameras and Kaptivo system to give very high quality capture of lectures and seminars.

(c) Purchase iPad Pro and supporting software for making short instructional videos.

The College is funding (b) and (c) after a successful bid for £2460 led by Dr Alastair Kay. If the **Covid-19** situation requires it (as at the time of writing in early May 2020 seems almost certain), we will go further: see Action A.1.

PG Student Experience.

Qualitative interviews with postgraduate students reported far more instances of discriminatory behaviour. Survey 5.21 (reported on before our Key Action I.1 on page 18) shows that such discrimination is felt significantly more strongly by PhD students than PGT students. (Action G.5 will make it easier to report such discrimination.)



Survey 5.21. *Student Survey responses to 'I have come across gender stereotyping and gender-biased language used by students' in order 'disagree, neither, agree' from top to bottom.*

The two quotes on page 51 are representative. Action H.3 was motivated by a PhD student's suggestion that male PhD students should discuss E&D issues with their supervisors. We will invite PhD students to the workshop on unconscious bias planned in Action I.1 (see page 18 and to the externally led Active Bystander training in Action I.2 (see page 41).

Action D.3 and the two actions below will ensure that the ISG curriculum and assessment procedures remain relevant to the diverse cohort of PGT students taking the ISG's MSc courses.

D.4. (ISG) Refresh the practitioner panel of external information security experts advising the ISG to reflect the diversity of skills, education and practice background of contemporary information security practice.

D.8. (ISG) Detect possible gender bias in appointment of internal and external examiners. Present yearly statistics on gender balance of external examiners (UG) and internal and external examiners (PGR) to Mathematics Department Meeting or ISG Meeting as appropriate. Gather gender information by anonymous web form to be sent to all external examiners.

There were also positive comments from qualitative interviews.

> *"One male lecturer wears a T-shirt with the writing 'This is what a feminist looks like'. He wears it every time he starts a new lecture series."*
>
> (Female ISG PhD student)

Disabled students. We note that M&ISG and Royal Holloway have strong policies that enable disabled students to flourish. We allocate high quality note-takers to students needing this support and have considerable experience of dealing with students with autistic spectrum conditions.

(ii) HR policies

Describe how the department monitors the consistency in application of HR policies for equality, dignity at work, bullying, harassment, grievance and disciplinary processes. Describe actions taken to address any identified differences

between policy and practice. Comment on how the department ensures staff with management responsibilities are kept informed and updated on HR polices.

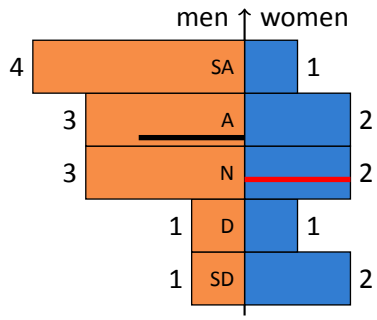
HR policies are located on the staff intranet and are available to everyone. Line managers and HoDs are informed of updates by email. The new Dignity at Work Policy defines bullying and harassment, provides information complaints processes and manager responsibilities.

Anonymous statistical data on bullying and harassment is collected by the College through staff surveys, exit interviews and formal disciplinary and grievance cases and is reported to the College Equality, Diversity and Inclusion Committee.

A new College wide scheme giving staff more ways to report discriminatory behaviour is under development, replicating a successful scheme for students.

Staff Survey responses (see Survey 5.22) show that only 28.4% of female staff (but 58.3% of male staff) agreed when asked '*I am confident that my line-manager/supervisor will deal effectively with problems related to harassment*'. Only two administrative staff responded to the Staff Survey; both strongly disagreed.

Action G.5 addresses this: it will allow staff to raise concerns with M&ISG without involving their line-manager, and anonymously if desired. We will also remind line-managers of the Dignity at Work Policy.



Survey 5.22. *Responses from strongly agree to strongly disagree to Staff Survey question 'I am confident that my line-manager/supervisor will deal effectively with problems related to harassment'.*

G.5. (M&ISG) New clear and anonymous (if desired) reporting line for instances of discrimination to HoDs or E&D Champion.

(iii) Representation of men and women on committees

Provide data for all department committees broken down by gender and staff type. Identify the most influential committees. Explain how potential committee members are identified and comment on any consideration given to gender equality in the selection of representatives and what the department is doing to address any gender imbalances. Comment on how the issue of 'committee overload' is addressed where there are small numbers of women or men.

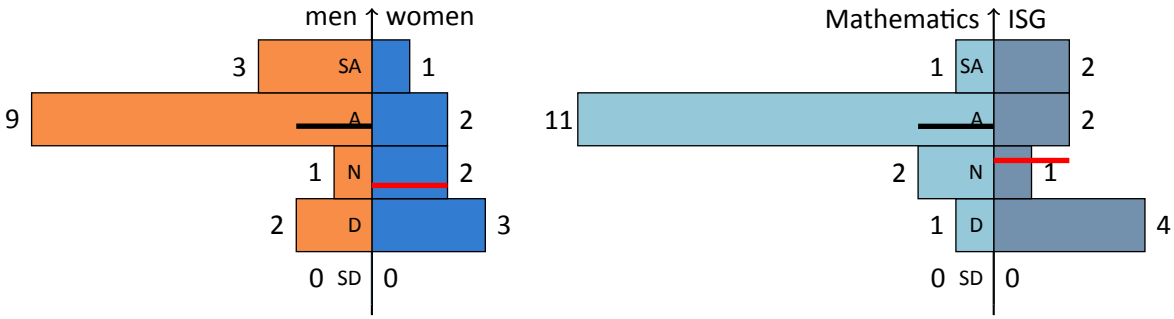
See Table 5.23. Committee members are either ex-officio, recruited through their roles, or suggested by HoDs considering workload and the need not to overburden female staff with committee work. All members of M&ISG attend the relevant departmental meeting.

The imbalance in the E&D Committee is addressed in Action B.1.

Committee	F	M	%F	%eligible F
Mathematics Meeting (all staff)	5	15	25.0%	25.0%
Mathematics Research	1	3	25.0%	25.0%
Mathematics Teaching	1	3	25.0%	25.0%
ISG Meeting (all staff)	6	23	20.7%	20.7%
ISG Executive	1	3	25.0%	20.7%
Equality and Diversity	6	5	54.5%	22.2%

Table 5.23. *Membership of M&ISG committees, percentage of female staff, and percentage of eligible female staff. See Figure 2.2 on page 8 for the structure of M&ISG.*

While other committees broadly reflect departmental gender balances, Survey 5.24 shows that women are far less likely to feel that committees have proportional representation.



Survey 5.24. *Responses from strongly agree to strongly disagree to Staff Survey question 'Women and men are proportionately represented on committees in the department'*

We believe this reflects committee workload. Our Key Action J.4 (see page 15) reviewing the ISG Workload Allocation Model will address this. In particular this action will introduce 'history' into the model, and recognise service on the E&D Committee.

(iv) Participation on influential external committees

How are staff encouraged to participate in other influential external committees and what procedures are in place to encourage women (or men if they are underrepresented) to participate in these committees?

Participation on external committees such as Athena SWAN panels, EPSRC Panels and committees of the London Mathematical Society (LMS) is explicitly recognised by the 'External engagement' promotion criterion. Opportunities to sit on such committees are raised at appraisals (see Action F.4 on page 31) and service is rewarded in the Mathematics Workload Allocation Model.

(v) Workload model

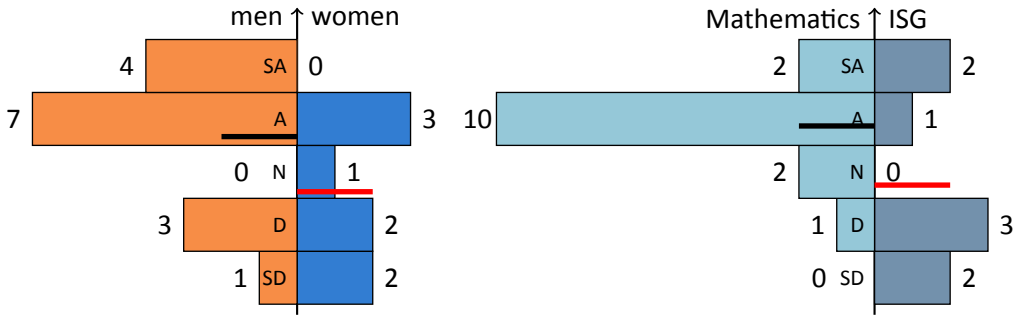
Describe any workload allocation model in place and what it includes. Comment on ways in which the model is monitored for gender bias and whether it is taken into account at appraisal/development review and in promotion criteria. Comment

on the rotation of responsibilities and if staff consider the model to be transparent and fair.

The two departments in M&ISG each have their own Workload Allocation Model (WAM). This is necessary to reflect the different student cohorts: ISG has no undergraduate programme, Mathematics has a far smaller PGT programme. Points are allocated for all teaching, external engagement and administrative duties, and for PhD students and grant applications. Following the best practice identified in [19] the models are not too fine-grained, weightings are known to all staff, and roles are allocated reflecting individuals' preferences and skills. We deliberately do not include research: the purpose of the model is instead to ensure that other duties do not crowd out research time (again this follows [19].)

The Mathematics WAM was improved in 2019/20 by introducing points for E&D Committee membership (see Action B.1 on page) and WISDOM Committee membership (see Action G.3 on page 13).

Survey 3.4 on page 15 shows that female staff are also less likely than male staff to feel workload is fairly allocated. A follow up question confirms this and identifies a clear lack of transparency in ISG.



Survey 5.25. *Responses from strongly agree to strongly disagree to Staff Survey question 'Workload is allocated transparently'*

These survey findings are confirmed by qualitative interviews.

> *"The workload allocation process is opaque. Admin tasks are not assigned to reflect development or interests. They are just a list of tasks distributed on an ad hoc basis."* (Female ISG staff member)

Our Key Action J.4 reviewing the ISG Workload Allocation Model (see page 91) will address these issues. In addition, we will ensure that service on one-off panels is recognised across M&ISG.

J.3. (M&ISG) Recognise service on recruitment and promotion panels in Workload Allocation Model (WAM).

(vi) Timing of departmental meetings and social gatherings

Describe the consideration given to those with caring responsibilities and part-time staff around the timing of departmental meetings and social gatherings.

Policy is that all committee meetings are scheduled in the core hours 10am to 4pm. Many exceptions have occurred, particularly in the hectic period in the first two months of **Covid-19** quarantine measures while we agreed on examination and other

arrangements. In the Staff Survey 95.5% of responders agreed or strongly agreed that meetings are held in core hours.

Members of the department frequently eat lunch together. During the **Covid-19** crises we have instead held a weekly 'virtual breakout room' for all staff to meet informally, and organized lunch-time get-togethers for staff in groups of four to boost morale.

(vii) Visibility of role models

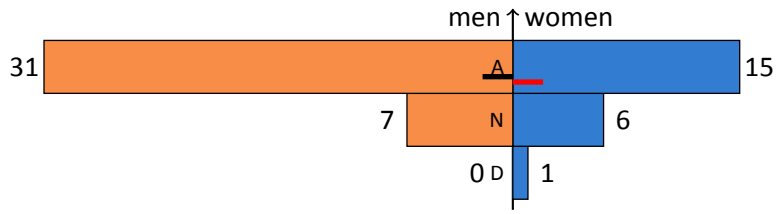
Provide data on the staff and students from the department involved in outreach and engagement activities by gender and grade. How is staff and student contribution to outreach and engagement activities formally recognised? Comment on the participant uptake of these activities by gender.

Visible female role models are important in combatting unconscious bias [1, p173–178] and help to create a positive atmosphere in the department. When applicants visit Mathematics, they attend at least one talk from a female staff member.

C.2. (Mathematics) Continue with policy to have one male and one female staff speaker at Applicant Visit Days. Encourage more male students to volunteer as helpers by publicising College Ambassador scheme in lectures at end Term 2, just before they are recruited. Gather data gender balance in student helpers.

We rely on the Mathematics workload allocation model to ensure this does not overwork female staff.

Noticeboards, plasma screens and free-standing posters in both buildings showcase female and LGBT+ role models. (See Figures 5.27 and 5.28.)



Survey 5.26. *Student Survey responses to 'There are good academic/career role models for me in the department'.*

Survey data suggests this effort has paid off. We plan to go further.

G.7. (M&ISG) Giant posters of role models in M&ISG locations. New poster with female staff member(s) or, following a suggestion from two department members, the Finnish female mathematician Kaisa Matomäki. E&D content on noticeboards and plasma screens will be updated termly.

G.8. (M&ISG) Print LGBT+ Ally Cards (see Figure 5.29) and make them available to members of department. If **Covid-19** quarantine measures continue into 2021/22, instead issue 'virtual' cards instead for staff webpages and emails. Promote College workshops *'How to be an LGBT ally'* and *'How to be a trans ally'* and the online *'Introduction to Trans Awareness'*, and the excellent external SafeZone training [15].

Figure 5.27. *Roller banner posters of Mathematics alumni Sophie Christiansen (paralympian) and Bobby Seagull (polymath PhD student) on display in the Mathematics Department.*

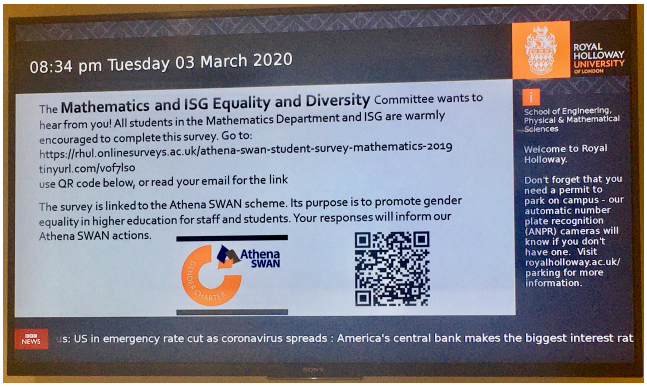


Figure 5.28. *E&D content on display on the Plasma screen in the Bedford Building, home to ISG.*

(viii) Outreach activities

Provide data on the staff and students from the department involved in outreach and engagement activities by gender and grade. How is staff and student contribution to outreach and engagement activities formally recognised? Comment on the participant uptake of these activities by gender.

Figure 5.29. *Planned LGBT+ Ally card front and back.*

M&ISG have well-established links with schools across Surrey and London. Staff who speak in schools receive workload points that recognise the substantial travel and time commitment required.

Mathematics holds an annual public lecture given by a prominent external mathematician. In the most recent four years, three of the speakers were women. Each June the department holds a conference 'Exploring Maths' for 6th formers. Since 2017 it has been run by Prof. Stefanie Gerke and before that by Prof. Mark Wildon (the E&D Champion). Table 5.30 shows staff and students giving talks at this conference; staff receive workload points. We note an encouraging trend for more female staff to volunteer; we expect this to continue in 2020 when the **Covid-19** situation will require us to move the conference online.

	2017		2018		2019	
	F	M	F	M	F	M
Student	1	1	0	2	0	2
Lecturer/Senior Lecturer	0	1	0	1	0	1
Reader	0	1	0	1	0	0
Professor	0	3	1	4	2	4
Overall	0	6	1	7	3	7

Table 5.30. *Students and staff contributing talks at 'Exploring Maths'.*

We do not monitor student attendance by gender but should.

J.1. (Mathematics) Detect possible gender bias in Mathematics outreach events. Collect yearly statistics on gender balance of student volunteers and Mathematics staff and external speakers at outreach events, analyse them and present conclusions to Mathematics Department Meeting and School Board. From Summer 2022: analyse gender breakdown in A-level students attending Exploring Maths. Use to inform policy and encourage schools to send female students if this is indicated.

ISG runs an open day for the public showcasing their diverse research and a two day conference for Information Security researchers with international speakers and attendees. The action below brings ISG into line with Mathematics in formally recognising outreach work and monitoring gender balance at these events.

J.2. (ISG) Detect possible gender bias in ISG outreach events. Include outreach activities in ISG Workload Allocation Model for first time and inform staff of change. Collect yearly statistics on gender balance of student volunteers and ISG staff and external speakers at outreach events, analyse them and present conclusions to ISG Meeting and School Board, informing policy.

All outreach events use student volunteers who are disproportionately female students. This reflects greater uptake of the College's 'ambassador' scheme by women. While a concern (addressed as part of Action C.2), it is also a strength that 6th form students and others visiting the College have enthusiastic female students as role models.

Word count: 5644

7. FURTHER INFORMATION

Recommended word count: Bronze: 500 words | Silver: 500 words

Please comment here on any other elements that are relevant to the application.

Covid-19 and UCU strike. This submission was prepared under doubly challenging conditions. We will adopt a flexible approach to implementing the Action Plan: where the **Covid-19** situation requires it, we will adapt actions and vary the staging of others. The situation will force us to make dramatic changes in how we administrate, research and (most of all) teach. We will take this as an opportunity to ensure that Equality and Diversity is considered in everything we do. For example, we may find that online meetings, which do not require staff with caring responsibilities to come into College, are the best option, even when physical meetings are feasible.

A.1. (M&ISG) Evaluate all response to Covid-19 crisis for impact on Equality and Diversity. Quarantine and social distancing measures may require far reaching changes to the way we teach, for example, moving to substantial (or total) online delivery of courses.

(a) Make it clear M&ISG will pay all reasonable expenses incurred by staff working from home because of **Covid-19**.

(b) Publicise support from the College including diversity networks: RoWaN and LGBT+ Rainbow Lunches.

The College has already put substantial online resources in place: see Figure 7.1. It is made clear to all staff that M&ISG will pay all expenses incurred because of home working.

TEQtogether. Liz Quaglia, on the E&D Committee is one of the founders of TEQtogether, an initiative to address gender inequality in ICT, with a focus on changing men's attitudes and to involve men in changing behaviours that lead to the marginalisation of women, but also the harassment and abuse of women through technology. We plan to work with TEQtogether in Action D.10.

About our Action Plan. All our proposed actions are led by the staff member with closest responsibility. For example, Action C.1 on admissions is led by the Joint Admissions Tutor in Mathematics and HoD ISG (both members of the E&D Committee). Where no staff member is on the E&D Committee, a 'reporter' chosen from the committee will report on the action's progress to the E&D Committee and have an advisory role. (Reporters are

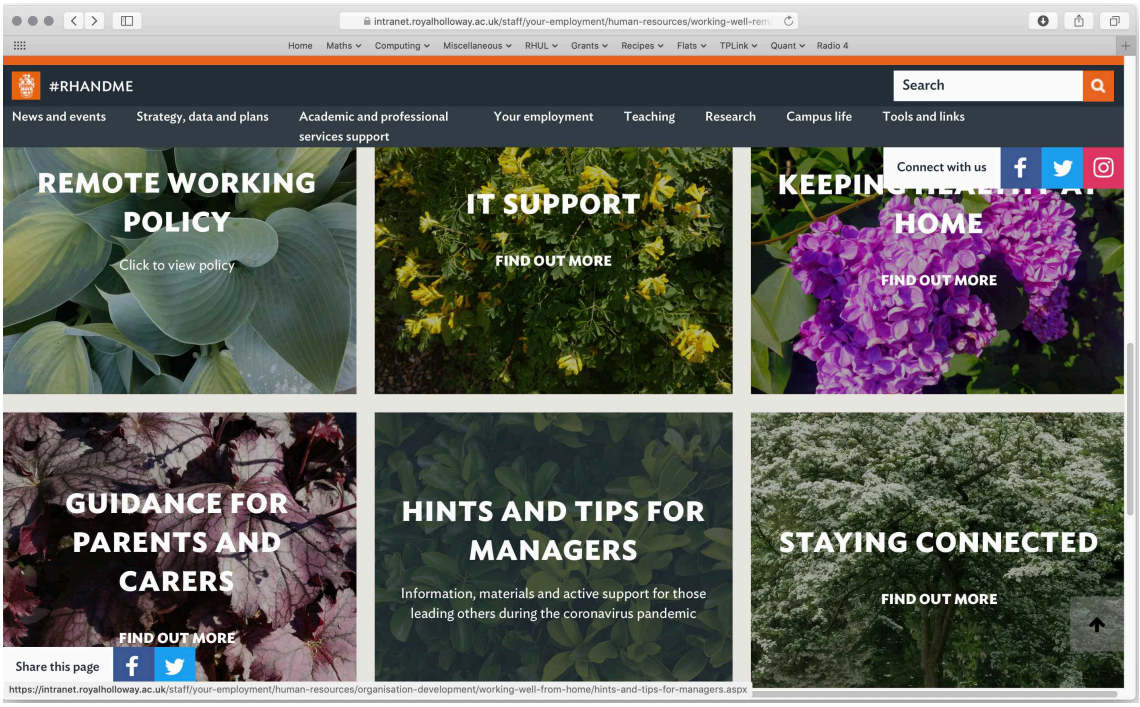


Figure 7.1. ***Covid-19*** *support offered online by the College*

shown in italics in the Action Plan.) For instance Action J.2 on ISG outreach is led by the ISG Outreach Officer; the reporter is the E&D Champion.

These actions, and others such as our Key Action D.2 require new statistics to be collected, reported on, and (most importantly) used to inform future policy.

> **B.4. (M&ISG) Share E&D data from gather data/analyse/report actions below.** Setup new Wordpress or Sharepoint site all staff can easily access to post, store and download data. Update summary of key indicators yearly before annual review in Action B.5.

The Action Plan is followed by a summary table grouped by theme (showing owner): we expect this to be helpful to department members and E&D Committee members monitoring the progress of the Action Plan in Action B.5.

References

[1] Pragya Agarwal, *SWAY: Unravelling unconscious bias*, Bloomsbury, 2020.
[2] Robert W. Aldritch *et al*, *Black, Asian and Minority Ethnic groups in England are at increased risk of death from COVID-19: indirect standardisation of NHS mortality data [version 1; peer review: awaiting peer review]*, Wellcome Open Research, Coronavirus (COVID-19) collection, 6 May 2020.
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[18] Sandra Tzvetkova and Esteban Ortiz-Ospina, *Working women: What determines female labor force participation?*, Our World in Data (2017), ourworldindata.org/women-in-the-labor-force-determinants.
[19] Liz Whitelegg, Jennifer Dyer and Eugenie Hunsicker, *Work allocation models*, Athena Forum, January 2018, www.athenaforum.org.uk/media/1144/athena-forum-wam-reportjanuary2018.pdf.

Word Count (excluding references): 346

8. ACTION PLAN

The action plan should present prioritised actions to address the issues identified in this application.

Please present the action plan in the form of a table. For each action define an appropriate success/outcome measure, identify the person/position(s) responsible for the action, and timescales for completion.

The plan should cover current initiatives and your aspirations for the next four years. Actions, and their measures of success, should be Specific, Measurable, Achievable, Relevant and Time-bound (SMART).

See the awards handbook for an example template for an action plan.

Action	Rationale	Timeframe		Owner and *reporter*	Success measure
		Start	**End**		
A. Covid-19					**Section 7**
A.1. (M&ISG) Evaluate all response to Covid-19 crisis for impact on Equality and Diversity. Quarantine and social distancing measures may require far reaching changes to the way we teach, for example, moving to substantial (or total) online delivery of courses. (a) Make it clear M&ISG will pay all reasonable expenses incurred by staff working from home because of **Covid-19**. (b) Publicise support from the College including diversity networks: RoWaN and LGBT+ Rainbow Lunches. *(See pages **62** and 34, 52, 59, 61)*	We are in the middle of a consultation on wide-spread changes to how we teach as we move to a model of mixed online and campus teaching. We must ensure that all changes respect the Athena SWAN principles, and are not implicitly biased against women or BAME students (who evidence shows are at greater risk from **Covid-19** [2]). It may be that staff with caring responsibilities are particularly likely to incur extra expenses.	April 2020 (consultation begun)	Ongoing	***HoDs*** (*Profs. Ruediger Schack* and *Peter Komisarczuk*) with **E&D Champion** (Prof. Mark Wildon)	All proposed changes evaluated for implicit bias against women and impact on BAME students. Expenses action, instigated by E&D Champion is already Mathematics policy. At the time of writing (May 2020) the situation is unclear so we cannot set more explicit targets.
B. E&D Committee membership, Athena SWAN process and data collection					**Sections 3, 5.6(i)**
B.1. (M&ISG) Expand E&D Committee with UG and PGT representation and refresh with male representation to reflect department gender balance. Ask for volunteers; HoDs will consider workload implications. Invite the elected UG and PGT representatives on the Staff-Student Committee: if they do not attend, ask for student volunteers. Meet online if required by **Covid-19**. *(See pages **11** and 19, 58)*	Students from all levels were invited to be interviewed and to fill in the Athena SWAN survey to ensure all opinions and experiences were considered in the Action Plan. But good practice requires official UG and PGT representation on the SAT. Only 5 of the 11 committee members are men, compared to 78.0% across staff in both departments.	Sept 2020	Oct 2020	***HoDs*** (*Profs. Ruediger Schack* and *Peter Komisarczuk*)	New UG and PGT representatives in place and proportion of men on the committee increases to at least 70% by Oct 2020.

Action	Rationale	Timeframe		Owner and *reporter*	Success measure
		Start	**End**		
B.2. (M&ISG) Use the experience of developing Equality and Diversity in M&ISG to inform School policy and learn from other departments in EPMS. In particular establish links with Physics who are Project Juno Champions and hold a Silver Athena SWAN award. *(See page **19**)*	The current E&D Champion is joint EDI Director for the School until March 2022. This gives an opportunity to share initatives and set up termly meetings that will continue (organized by successor) until 2024 and beyond. A planned event organized by Dr Liz Quaglia (ISG) with Physics had to be postponed because of **Covid-19**.	May 2020	Ongoing. Provision-ally early 2021 for event with Physics.	**EDI Directors** (Profs. Lizzie Coles-Kemp and *Mark Wildon*) and successor and Dr Liz Quaglia	New contacts made with other departments, regular meetings held with summaries circulated to E&D Committee and policy informed.
B.3. (M&ISG) Administer Biennial Staff and Student Survey on Equality and Diversity issues. E&D committee will revise the surveys used in Term 1 2019 for the AS Submission (see page 14) including questions on attitudes to and experience of unconscious bias. Run each survey in February 2022 and 2024, publicising it in lectures, email and noticeboards / screens. Target ISG staff through HoD and informally. Target professional and support staff through School Manager and informally. Data evaluated by E&D committee, shared with department, and used to inform future actions. *(See page **19**)*	To measure progress and impact of our E&D activities and inform future action plans. • 75.0% of Mathematics staff but 33.3% of ISG staff completed the survey in 2019. This is the main imbalance our analysis revealed. • Unconscious bias question was a helpful indicator on Training Survey run as a one-off in November 2019.	Oct 2021 (redesign)	Feb 2022 (first run of redesigned survey), Feb 2024 (second run)	***E&D Co-ordinator*** (*Dr Katerina Finnis*) and **survey working group** from E&D Committee including **E&D Champion** (Prof. Mark Wildon)	Increased survey response rates with focus on ISG staff targetting an increase from 25.0% to 60% for ISG staff, from 15.4% to 50% for administrative and technical staff and 16.5% to 30% for all students in 2022. Maintain Mathematics response rate at 75.0%. Results used by M&ISG to inform policy and future actions.
B.4. (M&ISG) Share E&D data from gather data/analyse/report actions below. Setup new Wordpress or Sharepoint site all staff can easily access to post, store and download data. Update summary of key indicators yearly before annual review in Action B.5. *(See page **63**)*	Staff already gather and analyse data relevant to their roles and typically share their conclusions, but not the raw data, within the department. This is useful but we need to make data more accessible and recognise that staff periodically rotate roles.	Sept 2020	2024	**All staff with administrative responsibilities**. Initial set-up and termly summaries by ***E&D Champion*** (*Prof. Mark Wildon*)	New data sharing measures in place and used by all staff to inform future policy of M&ISG .

Action	Rationale	Timeframe		Owner and *reporter*	Success measure
		Start	**End**		
B.5. (M&ISG) Track progress on implementing the Action Plan. Each action owner will send a yearly report on its status using a green/amber/red status indicator to the relevant HoD (Prof. Ruediger Schack in Mathematics, Prof. Peter Komisarczuk in ISG). 'Reporters' on the E&D Committee (see Section 7) will assist action owners. *(See page **19**)*	A light-touch system is essential. Staff must be free to focus on the implementation of actions rather than writing lengthy reports. For the target we use the Staff Survey questions (see Surveys 5.17 and 5.18) • *'Culture and practices within the department that promote equality and inclusion have improved the last three years'* • *'The gender balance in the department is fair'* as a useful summary measure.	Sept 2021	2024	**All owners of Athena SWAN actions** and ***E&D Champion*** (*Prof. Mark Wildon*)	Status reports sent to E&D Champion and yearly report made to department meetings and School. Target increase by 2024 to a mean response of 1.0 on -2 to 2 scale from 0.52 and 0.42 for the survey questions in the rationale; we deliberate reuse this target in other actions below.
C. Student recruitment					**Sections 4.1(ii), 5.6(vii)**
C.1. (M&ISG) Continue to analyse student applicant data and (new) consider intersectionality. In Mathematics look for trend that UG male applicants are more likely to accept offers. Consider intersections between gender and A/B in A-level Mathematics and ethnic origin. Report annually to E&D Committee and to Mathematics Department Meeting / ISG Meeting as appropriate. If trend continues, survey applicants and develop policies to address it. *(See page **21**)*	Data is on the Student Dashboard (available to all staff) but this can be awkward to use, does not include A-level results, and does not allow full intersectional analysis. It will work best to coordinate with Strategic Planning and receive annual data in the most convenient form.	Feb 2021	2024	***Joint Admissions tutor in Mathematics*** (*Dr Yiftach Barnea*) and ***HoD ISG*** (*Prof. Peter Komisarczuk*)	Data received and analysed and annual reports delivered. Coordination with Strategic Planning improved. Trends identified and any causes for concern raised at the appropriate meetings, informing future policy.

Action	Rationale	Timeframe		Owner and *reporter*	Success measure
		Start	**End**		
C.2. (Mathematics) Continue with policy to have one male and one female staff speaker at Applicant Visit Days. Encourage more male students to volunteer as helpers by publicising College Ambassador scheme in lectures at end Term 2, just before they are recruited. Gather data gender balance in student helpers. *(See pages **59** and 62)*	In recent terms most student employees have been female: most recently all were female. We believe it is more important to give students female role models than that staff speakers reflect the gender balance in department (25.0% female). This will fight a trend (see Graph 4.3) for female students to be less likely than male students to accept an offer (18.1% compared to 26.6% in 2018/19). The Mathematics Workload Allocation Model already includes points for open days; it will ensure this action does not lead to female staff being overworked.	Sept 2020	2024	**Joint Admissions Tutor Mathematics** (Prof. Iain Moffatt), reporter ***E&D Champion*** (*Prof. Mark Wildon*)	More male students recruited as helpers. Positive feedback from AVD questionnaires with target of overall positive response (measured numerically on 1–5 scale) on all questions.
D. Student progression and attainment					**Sections 4.1(ii), 3, 4.1(iii), 5.6(i), 5.6(iii), 4.1(iv), 4.1(v), 5.3(iv)**
D.1. (M&ISG) Continue to analyse progression between years and final degree attainment by gender and (new) consider intersectionality with ethnic origin, developing policy as part of Student Success Project (targetting BAME students). Receive data on progression and final degree attainment from Student Dashboard and/or Strategic Planning. Analyse for gender bias and possible bias against Mathematics BAME students. Report annually to E&D Committee and Mathematics Department Meeting / ISG Meeting. *(See page **22**)*	• Analysis shows female students increasingly outperforming male students. • A much greater concern, flagged by the Student Success Project is Mathematics BAME students, who underperform: Table 4.6 shows 53.0% of BAME students get a 1st or 2:1 degree, compared to 73.1% of white students. • Student Dashboard is a new resource (2019–); greater use by academics will drive improvements to interface and data.	Feb 2021 for gender, ongoing for ethnic origin, consider intersection from Februrary 2022	2024	**Academic Coordinator Mathematics** (Prof. Jens Bolte), **Programme Director ISG** (Jorge Blasko) and ***HoD ISG*** (*Prof. Peter Komisarczuk*), Mathematics reporter ***E&D Champion*** (*Prof. Mark Wildon*)	Data received and analysed and annual reports delivered. Trends identified and any further causes for concern raised at the appropriate meetings, informing future policy. The reasons for the BAME attainment gap are complex: while we believe timetable improvements in Action D.7 may help, these reasons need to be investigated more fully. It is therefore premature to set a target.

Action	Rationale	Timeframe		Owner and *reporter*	Success measure
		Start	**End**		
D.2. (Mathematics) Evaluate the four new Mathematics courses and changes to syllabi and new revision week to be introduced in 2020–2021 with the aim of improving attainment of all students. Use questionnaire developed by Dr Mark Crompton (Head of Education Development) and focus groups. Analyse gender balance and BAME status in those doing new courses. *(See pages **17** and 19)*	• Curriculum revision is driven by our changing cohort (more students with B at A-level Mathematics) and by the Student Success Project (targetting BAME students). • In Mathematics 72.2% of women students and 62.5% of male students got a 2:1 or 1st class degree, below the sector averages 75.6% and 73.3%. • The new courses, on game theory, differential equations, knot theory and vector calculus, are intended to be accessible and appealing to our diverse cohort and drive up attainment, without lowering our high academic standards.	Dec 2020 (first evaluation)	Sept 2021	**Academic Coordinator** (Prof. Jens Bolte), ***HoD Mathematics*** (*Prof. Ruediger Schack*), **E&D Champion** (Prof. Mark Wildon), **E&D Co-ordinator** (Dr Katerina Finnis)	Statistics on attainment analysed and reported each year. Focus group run by Dr Katerina Finnis and positive feedback on the new courses. Target: improvement in proportion getting 1st or 2:1 degrees to sector average (see Graph 4.5).
D.3. (ISG) Refresh ISG curriculum. Run focus group with PGT students and engage with them informally to gain feedback on the topics covered in the MSc in Information Security syllabus and their accessibility and relevance. Invite staff working in all areas of Information Security to contribute to revision. *(See pages **25** and 29)*	The ISG MSc attracts students from diverse academic backgrounds, a wide range of professional backgrounds, and many different countries, who go to a wide range of careers. To ensure the syllabus remains relevant we must understand how it is experienced by this diverse cohort and ensure that all views are represented.	Sept 2020	Sept 2022	***HoD ISG*** (*Prof. Peter Komisarczuk*) and **ISG Executive**	Discussion of feedback at ISG Meeting and revision where appropriate of syllabus. Target that women and men are equally likely to accept offer for ISG MSc, reversing trend for women to be less likely (38.7% versus 51.1% in 2018/19).

Action	Rationale	Timeframe		Owner and *reporter*	Success measure
		Start	**End**		
D.4. (ISG) Refresh the practitioner panel of external information security experts advising the ISG to reflect the diversity of skills, education and practice background of contemporary information security practice. *(See page **55**)*	It is important that the ISG is supported by its wider practice community in shaping and nurturing diversity in cyber / information security so that its research and teaching remain relevant to contemporary issues.	Sept 2020	Sept 2021	***HoD ISG*** (*Prof. Peter Komisarczuk*) and **ISG Executive**	Refreshed ISG Practitioner Panel formed and consulted with.
D.5. (M&ISG) Hold workshop on the theme '*Engaging students from diverse backgrounds unprepared for university study*' for staff and PhD students. Four invited speakers including the world-leading researcher Lara Alcock, author of '*How to study for a mathematics degree*', and Maurice Chiodo, lecturer for an innovative course on mathematical ethics at Cambridge. The meeting is funded by a London Mathematical Society (LMS) Continued Professional Development Grant and M&ISG. There will be ample time for informal discussion. (Delayed from May 2020 by **Covid-19**.) *(See pages **18** and 54)*	• Evidence from NSS and student interviews suggest that many students find it hard to approach lecturers with questions and do not learn best from traditional lectures: one interviewee commented that those asking questions in class 'tend to be men'. • Student Success Project raised concerns about engagement of BAME students. • The meeting follows a similar workshop organised by the E&D Champion in 2015 that energised staff and led many of us to change how we teach.	May 2021 (delayed from 2020 because of **Covid-19**)	Ongoing positive effects	***E&D Champion*** (*Prof. Mark Wildon*) and Prof. Stefanie Gerke	• Meeting publicised on web and by subject-specific mailing lists. 75% attendance from staff. • Blog post summarising meeting written by E&D Champion. Report sent to LMS. • From 2021–22: staff experiment with new approaches (some forced on us by **Covid-19**). Ideas from workshop feed into curriculum redesign. • Positive feedback in student surveys and interviews on inclusive teaching environment.

Action	Rationale	Timeframe		Owner and *reporter*	Success measure
		Start	**End**		
D.6. (M&ISG) Increase video capture of lectures, building on experience during Covid-19 lockdown. (a) Encourage staff to use Panopto Replay technology to record lectures and visualizer (captured) rather than whiteboards (not captured). Training provided centrally and by video tutorial by Prof. Simon Blackburn. (b) Equip new lecture room with multiple video cameras and Kaptivo system to give very high quality capture of lectures and seminars. (c) Purchase iPad Pro and supporting software for making short instructional videos. The College is funding (b) and (c) after a successful bid for £2460 led by Dr Alastair Kay. If the **Covid-19** situation requires it (as at the time of writing in early May 2020 seems almost certain), we will go further: see Action A.1. *(See pages **54** and 22)*	Evidence from NSS and Student Success Project tells us students want to review lectures in their own time. This action will particularly help BAME students (who often live in London and have difficult commutes), students who do not have English as a first language, and be inclusive of different ways of learning (so relevant to our Athena SWAN agenda). Many staff were obliged to use the technology, often for the first time, at the end of Term 2 in the **Covid-19** lockdown. This action provides resources for them to continue.	(a) Ongoing; (b), (c) in Sept 2020	Ongoing	**All staff**, focus groups for evaluation run by **E&D Co-ordinator** (Dr Katerina Finnis), analysis by reporter ***E&D Champion*** (*Prof. Mark Wildon*)	Improvement in NSS 'Student Voice' score from 76% in 2018/19 to 80%. Positive feedback in 2022 Student Survey and qualitative interviews / focus groups.
D.7. (Mathematics) New parallel/plenary system for third and fourth year timetable. This will slightly restrict student choice but allow for a much more convenient timetable for all our students and staff. Evaluate trial in 2020–21. Affected by **Covid-19**: to allow for online learning we have to reduce live lectures and schedule live lectures in the morning. *(See pages **54** and 22, 48)*	NSS comments were highly critical of our timetable: *'Acknowledging students who commute. The change to start lectures at 9 o'clock caused difficulties and timetables were hard. I had two days with 7-hour gaps.'* The inconvenient timetable is a particular problem for women students and staff (who are more likely to have caring responsibilities [6, Chapter 3], [18]) and some BAME students (who very often have lengthy commutes into College).	Sept 2020	Review in August 2021 after publication of NSS data	***HoD Mathematics*** (*Prof. Ruediger Schack*)	Improvement in NSS 'Student Voice' score from 76% in 2018/19 to 80%.

Action	Rationale	Timeframe		Owner and *reporter*	Success measure
		Start	**End**		
D.8. (ISG) Detect possible gender bias in appointment of internal and external examiners. Present yearly statistics on gender balance of external examiners (UG) and internal and external examiners (PGR) to Mathematics Department Meeting or ISG Meeting as appropriate. Gather gender information by anonymous web form to be sent to all external examiners. *(See page **55**)*	The informal way in which ISG external examiners are appointed is a possible source of bias: we do not have a clear picture.	Sept 2020	2024	***HoD ISG*** (*Prof. Peter Komisarczuk*)	Statistics reported and analysed each year and gender balance considered in future appointments.
D.9. (M&ISG) Gather data and analyse allocation of funded PhD studentships in M&ISG by gender, reporting to Mathematics / ISG Meeting as appropriate. If allocation does not reflect proportion of female applicants assess fairness of interview process. *(See pages **27** and 30)*	• Mathematics typically can ofer two PhD studentships each year. Their allocation, after ad-hoc interviews, is a potential source of gender bias: we do not have a clear picture at present. • The ISG CDT (Centre for Doctoral Training) uses a formal structured interview and funds all the students it admits: here the statistics show no gender bias, but they should be formally recorded and evaluated each year. • PhD students are vital to the life of the department and form a valuable link between the student body and staff.	Sept 2020	2024	**PGR Tutor in Mathematics** (Prof. Pat O'Mahony) and **Head of CDT** (Prof. Keith Martin), *reporter Prof. Stephen Wolthusen*	Data collected and analysed. Any bias this reveals addressed by review of interview process and other appropriate steps.

Action	Rationale	Timeframe		Owner and *reporter*	Success measure
		Start	**End**		
D.10. (M&ISG) Hold a Careers Colloquium at School level inviting speakers in Computer Science, Information Security, Mathematics and Physics from a broad range of backgrounds. Short research talks will be followed by a panel discussion on Equality and Diversity issues and career progression. Audience of undergraduate, MSc, PhD students. and staff. Encourage staff to suggest speakers and invite TEQtogether (`teqtogether.org`, co-founded by Dr Liz Quaglia on E&D Committee) to exhibit. *(See pages **30** and 44, 62)*	Qualitative interviews suggest undergraduates lack knowledge about routes into academic and industry careers, and will benefit from more role models: *'I would expect something to be in place to give me more encouragement about what to do regarding a career in maths.'* (see page 44)	Nov 2021 (delayed because of **Covid-19**)	Possible repeat in 2023	**E&D Champion** (Prof. Mark Wildon), *Dr Liz Quaglia* and **Deputy Director of Careers** (Simon Mantell)	• Colloquium held and well attended by UG, PGT, PGR students and staff. • Funding secured from an external source, for instance Institute of Mathematics and its Applications (IMA) or London Mathematical Society (LMS). • Positive student responses in survey and interviews regarding support for progression to a career. • Destination data comparing 2021 and 2024 shows increase in females entering technical careers. • Increase in number of female Mathematics PhD applicants from 24.4% to 30%.
D.11. (M&ISG) Analyse destination data for UG, PGT and PGR students by gender. Use expertise in Careers Service more effectively to understand careers destinations of our students. *(See page **44**)*	Need to feed the pipeline into technical jobs and academia to address the under-representation of women. Data is available but we do not currently make much use of it.	May 2020	2024	**Careers Tutor Mathematics** (Dr Yiftach Barnea) and **Deputy Director of Careers** (Simon Mantell), reporter ***E&D Champion*** (*Prof. Mark Wildon*)	Destination data gathered, analysed and used to evaluate Action D.12.

Action	Rationale	Timeframe		Owner and *reporter*	Success measure
		Start	**End**		
D.12. (M&ISG) Support students in career choices and pathways (academic and industry) (a) Personally invite PhD students to talks by postdoctoral researchers to improve the pipeline of women into academia. (b) Support PhD students to learn more about early career grants through talks for all students and drop-in session with Early Career Advisor (new role in M&ISG). *(See page **45**)*	• At the moment only supervisors tell students about grants. Students and early-career staff will benefit from having an independent person talk to them about opportunities and processes. • Need to feed the pipeline into academia to address the under-representation of women. • Address qualitative interview comment *'Having women talk about careers would help and encourage me to be brave enough to enter maths-related industry.'*).	Sept 2020	2024	(a) **E&D Champion** (Prof. Mark Wildon), (b) ***Early Career Advisor*** (new role in M&ISG, *Dr Liz Quaglia*)	• Improvement to 0.25 from near 0 (on -1 to 1) scale in responses to Student Survey questions 'I would like to pursue an academic career' and (b) 'I would like to pursue a scientific career'. • Qualitative interviewees report stronger support for progression to a career. • Destination data shows more students entering technical careers comparing 2021 and 2024. (We do not have a baseline for a target here: one will be set in 2021.)

Action	Rationale	Timeframe		Owner and *reporter*	Success measure
		Start	**End**		
E. Academic and research staff recruitment and induction					**Sections 5.1(i), 5.6(i), 5.2(ii)**
E.1. (M&ISG) Increase the number of women applying for positions. (a) Provide a department-specific job description template for staff involved in recruitment. It will include positive action statements, narrative on equality action within departments, accreditation logos, policy on flexible working and sabbatical leave for maternity leave returns and interdisciplinary research opportunities. (b) Provide recruiting staff with guidance on inclusive language. Test recruitment advertisements with a software tool to detect gender biased language; this can deter good women applicants [6, page 110]. (c) Review person specifications to ensure they are inclusive and designed to attract a wide pool of applicants. (d) Review and enhance webpages and upload case studies of researchers in the departments, including female academics. (e) Encourage staff to advertise jobs widely (including through social media) and reach out to existing networks to help widen the pool of applicants, such as SIGMA-Network and European Women in Mathematics. *(See page **17**)*	• Of 7 roles advertised since 2016 (all in ISG), two had no female applicants (see Table 5.1). • The proportion of female applicants was overall 19.1%, below the sector norm 21.6% for staff, and well below the sector norm of 26.6% for PhD students. • MIT analysis shows that strong women candidates are missed by standard recruitment procedures [11]. We want to demonstrate that academic careers are compatible with family responsibilities.	(a), (b) Jan 2021, (c) Sept 2021, (d) Sept 2021, (e) Sept 2020	2024	(a), (b), (c) **E&D Co-ordinator** (Dr Katerina Finnis) and *Dr Aditi Kar*, (d) **E&D Champion** (Prof. Mark Wildon) and ***Web Champion*** (*Dr Aditi Kar*), (e) **All staff** and ***E&D Champion*** (*Prof. Mark Wildon*)	Increase in proportion of women applicants to 25% by 2022 and 30% by 2024 in each department.

Action	Rationale	Timeframe		Owner and *reporter*	Success measure
		Start	**End**		
E.2. (M&ISG) Ensure recruiters consider pay-spine and professorial banding when recruiting. Advise recruiting staff that they should not assign new staff to the bottom pay-spine point or new professorial staff to Band 1 (lowest), but instead make recommendation reflecting candidates' experiences. Ensure that new professorial banding criteria are disseminated to staff and that HoDs are familiar with them. *(See page **35**)*	Royal Holloway has a mean gender pay gap of 24.9%, far worse than the poor sector average of 15.3%. Analysis shows the pay gap comes almost entirely from the upper quartile. M&ISG must work to decrease the gap and raise awareness.	Sept 2020	2024	***HoDs*** (*Profs. Ruediger Schack* and *Peter Komisarczuk*), **E&D Co-ordinator** (Dr Katerina Finnis)	New professorial banding criteria disseminated to staff. New non-professorial appointments made at appropriate levels on pay-spine, not necessarily bottom of grade. New professorial appointments made at appropriate bandings. Reduction in College gender pay gap.
E.3. (M&ISG) Increase the proportion of women who are offered position after shortlisting and final round interviews and reward work on recruitment panels. (a) Recruitment & Selection training, and Unconscious Bias training are already mandatory for all staff involved in recruitment. M&ISG will work with the College to ensure 100% completion rates for panels. Give external panel members Royal Society briefing on unconscious bias [9]. (b) The new College Recruitment and Selection Policy mandates that all recruitment panels have representation from women and men. To avoid overloading women staff, we will introduce formal workload points for recruitment panels. *(See page **36**)*	Across all posts advertised by ISG since 2016, a lower proportion of women than men are made offers after final round interviews (11.1% versus 16.7%) and a lower proportion of women than men were shortlisted after applying (30.0% versus 38.1%). See Table 5.1.	Sept 2020	Ongoing	(a), (b) ***HoDs*** (*Profs. Ruediger Schack* and *Peter Komisarczuk*) and, for (a), **E&D Champion** (Prof. Mark Wildon)	After shortlisting men and women equally likely to be offered position. This is a sign of success, *not* a quota, and will have to be interpreted appropriately if (as is likely) the number of advertised positions is small.

Action	Rationale	Timeframe		Owner and *reporter*	Success measure
		Start	**End**		
E.4. (M&ISG) Improve induction for new staff with more focus on E&D training. (a) Review new central induction form (due September 2020) to ensure it includes all issues relevant to M&ISG , for instance research groups and seminars. (b) Ensure 100% completion rates for E&D training for all new staff. (We have the same target for all staff: see Action I.4.) *(See page **37**)*	Staff Survey data shows that not all staff feel supported when joining M&ISG. Qualitative interviews show departmental induction process lacks structure. No Staff Survey respondents agreed there was useful E&D training in their induction.	Oct 2020	Ongoing	***E&D Co-ordinator*** (*Dr Katerina Finnis*), **E&D Champion** (Prof. Mark Wildon), **HoDs** (Profs. Ruediger Schack and Peter Komisarczuk)	Target that 100% of Staff Survey responders agree they had useful E&D training in their induction. Target of mean response of 'agree' to Staff Survey question *'Culture and practices within the department that promote equality and inclusion have improved the last three years'* in 2023.
E.5. (M&ISG) Ensure new non-professorial staff do no administration during their first year and give all staff a reduced administrative load throughout the three year probation period. *(See pages **37** and 19, 43)*	This is already department policy but qualitative interviews revealed some female staff were still given heavy administrative roles on joining the College. Some administrative work is desirable: it is needed for the promotion case (indeed two staff have been promoted while on probation, see page 38, there is another instance in Mathematics) and the alternative (experience in Mathematics has shown) is an excessive teaching load.	Sept 2020	Ongoing	***HoDs*** (*Profs. Ruediger Schack* and *Peter Komisarczuk*)	Target increase from 71.4% to 100% in Staff Survey responses to *'I was well-supported at the start of my time in the Mathematics Department or Information Security Group'*

Action	Rationale	Timeframe		Owner and *reporter*	Success measure
		Start	**End**		
F. Academic and research staff retention and promotion					**Sections 4.2(i), 3**
F.1. (M&ISG) Ensure School promotion panel members have unconscious bias training and access to relevant contextual data. Ensure that disciplinary norms (such as expected publication frequency and top journals/conference venues) are up-to-date, correctly reflect the cultures within different subjects within M&ISG, and are not implicitly biased against women. *(See page **30**)*	• Staff data in Table 4.24 and 4.26 shows a bottleneck at Senior Lecturer level. Applications for promotion from this level are reviewed by a School Panel, which gives feedback to the decision making College committee. It is important this feedback is fair and gives the College committee a clear indication of the discipline-specific strength of promotion case, for example, whether the candidate has publications in top journals. • Only 14.4% of women (but 66.7% of men) agree *'The promotion proces was conducted fairly'* (see Survey 5.7).	Sept 2020	Ongoing	**HoDs** (Profs. Ruediger Schack and Peter Komisarczuk) and ***E&D Champion*** (*Prof. Mark Wildon*)	• Discipline norms reviewed and made available to School Panel and College committees. • HoDs ask panel chairperson to check that all panellists have unconscious bias training. • Target improvement from 14.4% to 50% of women agreeing *'The promotion proces was conducted fairly'* (see Survey 5.7) in Staff Survey 2022.
F.2. (M&ISG) Support progression within professorial banding to contribute towards reducing the College gender pay gap. (a) Ensure staff know that they should make the case for appointment at higher bands when applying for promotion to professor and are familiar with new professorial banding criteria. (b) Ensure appraisers encourage applications for professorial rebanding where appropriate. *(See pages **39** and 32, 35)*	Mathematics are well above the benchmark for female professors and ISG slightly below (see Graph 2.4). In recent years, in both departments, appointments have been made to Band 1 and promotion from this band has been slow. This disproportionately affects women and younger professors. This action will also address the College's gender pay gap of 24.9%, far worse than the sector average of 15.3%.	Sept 2020	Ongoing, evaluation in 2024.	***HoDs*** (*Profs. Ruediger Schack* and *Peter Komisarczuk*) and **All appraisers**	New professorial banding criteria disseminated to staff. Staff apply successfully for rebanding. Target increase in percentage of female professors at Band 2/3/4/5 from 8.5% to 15% (see Table 4.27) by 2024. Reduction in College gender pay gap.

Action	Rationale	Timeframe		Owner and *reporter*	Success measure
		Start	**End**		
F.3. (M&ISG) Promote mentoring opportunities to staff and explore potential for expanding existing schemes. (a) Promote existing College-wide mentoring and coaching scheme to staff. (b) Explore feasibility of supporting external mentoring relationships. (c) Provide testimonials and evaluations from research cohorts on targeted development schemes such as Project Aurora (for women), the Mandala Programme (for BAME staff), and Enabling Women through the Promotions process, stressing that these programmes focus on institutional and procedural barriers, rather than individual deficit, or trying to turn women into men (the Henry Higgins effect [6, Ch. 5]). Make it clear staff may have two mentors, focusing on different aspects of career development. *(See pages **16** and 32, 41, 42, 45)*	• Tables 4.24 and 4.26 have a higher proportion of women than men at Senior Lecturer level, no female Readers in either department, and no female research staff at the highest grade. We believe mentoring is one important way to change this. However, only 14.2% of female and 58.3% of male Staff Survey respondents agreed they were aware of the mentoring opportunities available to them. • Some schemes, such as the Mandala Programme and Enabling Women in the Promotions Process are perceived as controversial due to associations with deficit approaches (quote page 42). Recent testimonials ('*The promotions workshop was eye-opening. It was a good workshop delivered by competent people*') and positive evaluations will address this.	Sept 2020	2024	***E&D Co-ordinator*** (*Dr Katerina Finnis*), **E&D Champion** (Prof. Mark Wildon) and **HoDs** (Profs. Ruediger Schack and Peter Komisarczuk)	Target 75% for this question in Staff Survey 2022 for female and male staff. In longer term: more female staff promoted to Reader and Professor. (Staff numbers are too small for a target to be sensible.)

Action	Rationale	Timeframe		Owner and *reporter*	Success measure
		Start	**End**		
F.4. (M&ISG) Ensure appraisals are effective and carried out appropriately by senior staff rather than HoDs. (a) Ensure appraisers complete unconscious bias training (mandatory for all line managers) (b) Ensure appraisers discuss promotion criteria including those dealing with administration, knowledge transfer and external engagement and the new professorial banding criteria. (c) Ensure appraisers are aware of targetted mentoring opportunities such as our workshop Enabling Women in the Promotion Process, project Aurora (for women), and the Mandala Programme (for BAME staff) and grant awarding bodies relevant to each career stage. *(See pages **31** and 38, 39, 41, 45, 57)*	• Female staff are significantly less likely than male staff to feel comfortable discussing career development and training with their line-manager / supervisor (28.4% versus 60.0%). We will therefore continue with the system introduced in 2019/20 that appraisals are conducted by senior staff rather than HoDs. • Interview data suggests gender-stereotyping and a lack of awareness by appraisers. • Informal discussions show that some junior staff are not aware that promotion criteria stress administration and knowledge transfer as well as teaching and research.	Sept 2020	Ongoing	***E&D Champion*** (*Prof. Mark Wildon*), **E&D Co-ordinator** (Dr Katerina Finnis) and **HoDs** (Profs. Ruediger Schack and Peter Komisarczuk) and **Director of Research** (Prof. Simon Blackburn) to ensure appraisers have suitable resources.	100% of appraisers have completed unconscious bias training by January 2021. Target increase in responses to Staff Survey question *'I have had useful and constructive feedback on my performance in the last 12 months'* to mean 'agree' for women and men (see Survey 5.10).
F.5. (M&ISG) Support for grant applications. Create a bank of successful and unsuccessful grant applications. Ask colleagues who put applications in the bank to agree to discuss them with new grant applicants. Run drop-in session with Early Career Advisor (new role in M&ISG in 2020/21, Dr Liz Quaglia) targetting PhD students and junior staff. *(See pages **16** and 45)*	• Qualitative interviews showed staff needed support for grant writing, but did not want an onerous formal approval process. Informal peer support and examples are more useful. • The new role in M&ISG, created as part of the Athena SWAN process, will provide a formal point of contact for PhD students and junior staff, in addition to the Director of Research (Prof. Simon Blackburn).	January 2021	Ongoing	***E&D Champion*** (*Prof. Mark Wildon*) and **Director of Research** (Prof. Simon Blackburn) and **Early Career Advisor** (new role in M&ISG, Dr Liz Quaglia)	More successful grant applications from ISG and Mathematics. (The funding environment is too unpredictable and competitive for a numerical target to be sensible.)

Action	Rationale	Timeframe		Owner and *reporter*	Success measure
		Start	**End**		
G. Culture					**Sections 5.6(i), 3, 5.6(ii), 5.6(vii)**
G.1. (M&ISG) Build the digital leadership capacity of the ISG by adapting the internal ISG mentoring scheme to meet this need and, where possible, through the ring-fencing of time to work on existing interdisciplinary digital projects. Digital leadership takes several forms including: thought leadership in security related areas of digital research, leadership of digital research projects and grant proposals and facilitation of interdisciplinary working in security related areas of digital research and teaching. As part of this capacity building, the ISG will work with the wider Maths and ISG E&D initiative to champion changes to the promotions process to achieve better recognition for interdisciplinary scholarship in cyber security. *(See pages **52** and 25)*	Recognising and nurturing the ISG's diverse scholarship is an important means of maintaining RHUL's competitive edge when responding to funding calls that focus on interdisciplinary digital research.	Sept 2020	Sept 2022	***HoD ISG*** (*Prof. Peter Komisarczuk*) and **ISG Executive**	College led and/or ISG supported interdisciplinary digital research proposals.

Action	Rationale	Timeframe		Owner and *reporter*	Success measure
		Start	**End**		
G.2. (M&ISG) Educate staff around gender equality and increase engagement with E&D. (a) Educate staff on the gender pay gap by yearly statistical emails and informal discussion. (b) Encourage male students and staff to support the WISDOM committee and engage with activities. In Mathematics, we will introduce workload points for WISDOM committee membership. (For ISG see Action J.4.) Hold free lunch with WISDOM members inviting all staff and PhD students, followed by a Q&A session with two staff sharing experience of the main steps in their career progression and obstacles and challenges they face: trial in November 2021 and repeat yearly if successful. (c) Regular emails on E&D events, for example, Women in Mathematics Day, International Women's Day and Black History Month sent to all staff along with E&D news *(See pages **51** and 13)*	(a) One female Mathematics staff member commented *'The gender pay gap bothers me. I sent out an email about it, and some responses I got showed that people didn't know what I was talking about.'* (b) Only 25.0% of female staff (but 80.0% of male staff) respondents to the Staff Survey agreed *'The gender balance in the department is fair'*. Qualitative interviews suggest this reflects a perception that women do a disproportionate share of E&D work. See quote on page 50. (c) Interviews suggest that women do not feel that men understand the barriers women face: see for instance quote on page 53.	(a), (b) April 2021 (delayed because of **Covid-19**); (c) Ongoing	2024	(a) ***E&D Champion*** (*Prof. Mark Wildon*), (b) **WISDOM Committee** and **E&D Champion** (Prof. Mark Wildon), (c) **E&D Champion** (Prof. Mark Wildon)	Target 50% of women agree that the gender balance is fair in Staff Survey 2022 and 80% in 2024. WISDOM lunch attended by at least 25% of M&ISG male staff.

Action	Rationale	Timeframe		Owner and *reporter*	Success measure
		Start	**End**		
G.3. (M&ISG) Support WISDOM (a) Continue with yearly budget of £1000 for WISDOM group split evenly between Mathematics and ISG. Make it clear that top-up funding is available if required for special events. (b) Ensure administrative staff know that M&ISG supports the WISDOM group with a £1000 annual budget. Continue to invite President of WISDOM to administrative team meeting. Ensure administrative support, for instance access to mailing lists and timetables is in place. Support the Tampon Collective (free sanitary products in unisex and women's lavatories). *(See pages **13** and 43, 50, 58)*	• Scheduling events for PGT students requires timetable information. • WISDOM events encourage women into Information Security careers (see for instance quote on page 44)) and are vital to driving cultural improvement in M&ISG .	Ongoing, first meeting with admin-istrative team held in February 2020	Ongoing	***School Manager*** (*Mrs Vanessa Law*) and **WISDOM Committee**	WISDOM budget allocated each year. WISDOM committee clear they can ask for more.
G.4. (M&ISG) Build a lending library of E&D literature. We will create a collection of rigorous and well-researched books and papers on E&D issues. Lend out titles to staff and PhD students and put links on intranet. Trial reading group (maybe online) focused on chosen E&D reading. *(See page **53**)*	Informal comments suggest staff welcome reading, e.g. on unconscious bias and the Implicit Association Test. Cordelia Fine's books are widely appreciated and her work has informed this application.	Ongoing (books acquired from Jan 2020), book-club meeting by Sept 2021.	Ongoing	***E&D Champion*** (*Prof. Mark Wildon*)	Book collection expanded and intranet updated termly; staff informed by email of new titles. Records kept of how often books are borrowed. Trial reading group held.

Action	Rationale	Timeframe		Owner and *reporter*	Success measure
		Start	**End**		
G.5. (M&ISG) New clear and anonymous (if desired) reporting line for instances of discrimination to HoDs or E&D Champion. *(See pages **56** and 55)*	• Only 28.4% of female staff (but 58.3% of male staff) agreed their line-manager would deal effectively with harassment. • No female staff and only 33.3% of male staff agreed when asked *'I know what to do if I am not getting appropriate support from my line-manager/supervisor'*. • College level reporting lines are already in place, but it is clear they are not widely known. • An anonymous reporting mechanism was suggested in responses to the Training Survey, see page 14.	Jan 2021	2024	***E&D Champion*** (*Prof. Mark Wildon*)	New reporting mechanisms set up including physical box in prominent place. Target 75% for both survey questions for both women and men when repeated in Staff Survey 2022 and 80% in 2024.
G.6. (Mathematics) Detect possible gender bias in external seminar speakers. Yearly statistics on gender balance of seminar speakers in Mathematics Seminar will be collected, analysed with comparison to sector norms, and presented to School Board. Staff will be reminded to consider women and early career researchers when suggesting speakers. At option of Seminar Convener, gender statistics collected by anonymous web form. *(See page **52**)*	Preliminary analysis of Mathematics Seminar speakers (2017–2019) suggests a gender balance of 30%/70% F/M) slightly ahead of the sector norms for mathematics staff (20.4%/79.6% F/M) and ahead of the sector norm in many areas of pure mathematics (the main area of the department). Despite this, only 58.3% of Mathematics staff agreed when asked *'The gender balance among invited speakers is fair'* in the Staff Survey, with analysis suggesting females are more likely to detect unfairness (see Survey 5.19).	Sept 2020	2024	**Seminar Convener** (Dr Martin Widmer), reporter *Dr Aditi Kar*	Gender balance reported and trends analysed each year. A formal target is too blunt a mechanism and may lead to inappropriate invitations or overloading of particular speakers, but we hope to continue to beat the sector norm.

Action	Rationale	Timeframe		Owner and *reporter*	Success measure
		Start	**End**		
G.7. (M&ISG) Giant posters of role models in M&ISG locations. New poster with female staff member(s) or, following a suggestion from two department members, the Finnish female mathematician Kaisa Matomäki. E&D content on noticeboards and plasma screens will be updated termly. *(See pages **59** and 26)*	Informal feedback suggests giant posters installed in 2019 of alumni Sophie Christiansen (paralympian) and Bobby Seagull (polymath from a disadvantaged background) and publicity on screens for LGBT+ Staff Network are welcomed by staff and students.	Jan 2021 for posters, termly updates	Ongoing	***E&D Champion*** (*Prof. Mark Wildon*) and chosen staff member(s)	New poster with design input from Communications and External Relations. E&D Content on screens updated termly. Target of mean response of 'agree' to Staff Survey question *'Culture and practices within the department that promote equality and inclusion have improved the last three years'* in 2023.
G.8. (M&ISG) Print LGBT+ Ally Cards (see Figure 5.29) and make them available to members of department. If **Covid-19** quarantine measures continue into 2021/22, instead issue 'virtual' cards instead for staff webpages and emails. Promote College workshops *'How to be an LGBT ally'* and *'How to be a trans ally'* and the online *'Introduction to Trans Awareness'*, and the excellent external SafeZone training [15]. *(See page **59**)*	This is a simple way staff can show their support for LGBT+ students and staff and contribute to culture of diversity and inclusion. Other departments at Royal Holloway already do something similar. Uptake of these training courses is currently low (see Table 5.9). Displaying a card is of course voluntary: we respect the individual views and autonomy of all staff.	Jan 2022	Ongoing	***E&D Champion*** (*Prof. Mark Wildon*)	Cards professionally printed and made available to staff, or 'virtual' replacement made available. More staff attend College training. (Numbers are too small for a target to be sensible.)

Action	Rationale	Timeframe		Owner and *reporter*	Success measure
		Start	**End**		
H. E&D in the Curriculum					**Sections 3, 5.6(i)**
H.1. (Mathematics) Introduce E&D training into Mathematics curriculum. (a) 15 minute session on Equality and Diversity issues in a core 1st year course. Content will include Moodle (Virtual Learning Environment) quiz on protected characteristics and video from Royal Society on unconscious bias. Content is already agreed between lecturer, E&D Champion and College E&D Coordinator. We planned a trial in March 2020, but this was impossible because of **Covid-19**. (b) Introduce assessed work on E&D issues in compulsory 2nd year course Mathematical Programming. Reflection on working with someone from a possibly different background. (c) Encourage lecturers to show a slide on unconscious bias before publicising course feedback questionnaires. *(See pages **18** and 43, 53)*	Increase awareness of unconscious bias, bullying and harassment, and inappropriate language evidenced in surveys, interviews and course evaluations. • In Student Survey 12.0% answered 'yes' to *'Do you believe gender bias hinders students on your degree programme from reaching their academic potential?'* • One female ISG staff member commented *'Students hold biases. You can sense this by their tone of email, and how they challenge you. … I do know that other women in the department have similar experiences.'*; see also quote on page 53. Assessed work will be marked for its critical engagement with E&D issues. Upholding our tradition of upholding academic freedom, support for particular policies or attitudes will most certainly *not* be required.	(a) Trial in first term 2020–21; (b) Trial in second term 2020–21; (c) Dec 2021; further qualitative interviews in late 2022.	2024	**E&D Champion** (Prof. Mark Wildon) and **E&D Co-ordinator** (Dr Katerina Finnis). In 2020–21, (a) *Dr Aditi Kar*, (b) Dr Alastair Kay, then future first and second year lecturers, (c) **E&D Champion** (Prof. Mark Wildon)	• More students do online E&D training. (We do not have a baseline to set a target.) • Target reduction to 5% in number answering 'yes' to gender bias question in Student Survey 2022. • Slide on unconscious bias made available to staff. • Qualitative interviews report improvement in student attitudes to staff.
H.2. (Mathematics) Discuss Equality and Diversity issues in 1st year mathematics tutorials. Staff provided with resources on unconscious bias, bullying and harassment and appropriate language. *(See page **53**)*	26.1% of Student Survey respondents had encountered gender stereotyping and gender biased language used by students; 12.0% answered 'yes' to *'Do you believe gender bias hinders students on your degree programme from reaching their academic potential'*.	Sept 2020	2024	**All Mathematics Staff** with ***E&D Champion*** (*Prof. Mark Wildon*) and **E&D Co-ordinator** (Dr Katerina Finnis) for content	Discussion of E&D issues in tutorials becomes departmental policy. Resources created and modified in the light of feedback from staff. Target reduction to 15% and 5% in responses to these questions in Student Survey 2022.

Action	Rationale	Timeframe		Owner and *reporter*	Success measure
		Start	**End**		
H.3. (M&ISG) Encourage supervisors to discuss E&D issues with PhD students in M&ISG and to recommend training and the WISDOM group. Provide staff with resources. Ask College to make discussion with supervisor of E&D issues and completion of basic training a mandatory part of the Annual Review. *(See page **53**)*	• Review form is a convenient place to formalize this requirement but required a change across the College. • One female PhD student commented in a qualitative interview: *'One thing that might help is using male academics to educate male PhD students. They have a lot of respect for their male supervisors and lecturers. They are important role models for them.'*	Sept 2020	2024	**All PhD Supervisors** with ***E&D Champion*** (*Prof. Mark Wildon*) and **E&D Co-ordinator** (Dr Katerina Finnis) for content	• Resources created and modified in the light of feedback from staff. • New College policy introduced. Reduction in number of PGR students agreeing to Student Survey question *'I have come across gender stereotyping and gender-biased language used by students'* from 0.15 to -0.5 by 2024 (see Survey 5.21).

Action	Rationale	Timeframe		Owner and *reporter*	Success measure
		Start	**End**		
I. Training (see also H. E&D in the Curriculum)					**Sections 3, 5.3(i), 5.6**
I.1. (M&ISG) New challenging workshop on unconscious bias and other E&D issues led by an external speaker, for staff and PhD students. Staff will be shown evidence for effectiveness of such training from Equality and Human Rights Commission [3] and strongly encouraged to attend. Attendance mandatory for staff involved in recruitment or senior roles. We have approached a leading Management Consultancy who may be willing to run such a session: it is with their pro-bono committee; decision delayed by **Covid-19**. *(See pages **18** and 40, 53, 55)*	• Need for unconscious bias training frequently mentioned in qualitative interviews with both staff and students. Unconscious bias training was the most frequently requested form of training in the Training Survey. ⋆ Strong support (75%) for mandatory training. ⋆ Only 15% of academic staff in M&ISG have completed the College run face-to-face training; results from Training Survey, see page 14, suggest some staff feel it lacks rigour. ⋆ Training Survey show 22% of staff are neutral or disagree when asked *'Unconscious bias exists and can prevent women from achieving their potential'*. • A session specific to M&ISG will allow for challenging discussion and detailed examination of the evidence for unconscious bias and the effectiveness of training, and ensure there are sufficient seats for all staff (particularly the most senior) to attend.	May 2021 (provisional)	Possible repeat in 2023	*Dr Aditi Kar* and **E&D Champion** (Prof. Mark Wildon)	• Workshop evaluated using the expertise of the external provider. • Increase from 78% to 85% in those agreeing that *'Unconscious bias exists and can prevent women from achieving their potential'*. • Target of mean response of 'agree' to Staff Survey question *'Culture and practices within the department that promote equality and inclusion have improved the last three years'* in 2023. • All senior staff in EPMS have *high quality* unconscious bias training.

Action	Rationale	Timeframe		Owner and *reporter*	Success measure
		Start	**End**		
I.2. (M&ISG) Run active bystander training tailored to M&ISG staff by a leading external provider `activebystander.co.uk`**.** Financial support of £800 for a half-day session for up to 50 people to come from M&ISG budget. *(See pages **41** and 53)*	No staff in Staff Survey reported that there was useful E&D training in their induction. It is common for staff to hear students in workshops use discriminatory and offensive language; not all feel able to challenge this. A rigorous external workshop will give us the tools to challenge such language in an effective and safe way.	February 2021 (provisional)	Possible repeat in 2023	***School Manager*** (Mrs Vanessa Law)	Reduction from 26.1% to 15% in number of Student Survey respondents reporting gender stereotyping and gender biased language used by students.
I.3. (Mathematics) Introduce E&D training into induction for new Mathematics students. Provisionally we will trial a 15 minute session concentrating on the nine protected characteristics and unconscious bias. The **Covid-19** crisis will require some students to be inducted online: this is a chance for us to update our provision and foster a sense of community. *(See page **53**)*	26.1% of Student Survey respondents had encountered gender stereotyping and gender biased language used by students; 12.0% answered 'yes' to *'Do you believe gender bias hinders students on your degree programme from reaching their academic potential'*. We must tread carefully: there is evidence that excessive focus on gender and stereotype threat can impair women's mathematics performance [8, pages 159, 189].	September 2020	Repeated yearly	*E&D Champion* (Prof. Mark Wildon)	E&D session introduced into induction for new Mathematics students. Resources created, based on those in Action H.1, and modified in the light of feedback from staff. Target reduction to 15% and 5% in responses to these questions in Student Survey 2022.
I.4. (M&ISG) Remind staff to do compulsory e-course Equality Essentials. Uptake reported to HoDs and, if IT issues permit, staff informed what courses they have done each year. *(See pages **41** and 53)*	Basic course on Moodle (online Virtual Learning Environment) is compulsory but data on uptake is not gathered. Organisational Development are working on a reporting link from Moodle that will allow data to be reported to HoDs (stalled because of IT issues): if this is not available then we will rely on self-reporting by staff.	Reminder in Sept 2020, first reports in Jan 2021	2024	***HoDs*** (*Profs. Ruediger Schack* and *Peter Komisarczuk*), **E&D Co-ordinator** (Dr Katerina Finnis), **Head of Education Development** (Dr Mark Crompton)	Staff reminded. Uptake of E&D Training reported annually to HoDs either automatically (if IT issues resolved) or by self-reporting. Target 100% of staff to have done the basic course within the last three years.

Action	Rationale	Timeframe		Owner and *reporter*	Success measure
		Start	**End**		
I.5. (M&ISG) Highlight Equality and Diversity training in Researcher Development Programme (RDP) for PhD students. Encourage students to do E&D training as part of their required 5 days of generic skills training per year. *(See pages **41** and 53)*	• RDP page did not make explicit that E&D Training was valued as part of the College's generic skills programme. (Already fixed as a result of this Action Plan.) • Proposed externally run workshop (see Action I.1) will count as 1/2 day training; this will encourage attendance.	Feb 2020	2024	**All PhD Supervisors**, **Head of Education Development** (Dr Mark Crompton) and ***School Manager*** (Mrs Vanessa Law)	• Basic E&D Training and Transgender Awareness added to RDP site (February 2020). Supervisors and/or training logs report increased uptake of training. • Feasibility of gathering data on uptake of training by aggregating reports from Annual Reviews of PhD students investigated.
J. Outreach and Workload Allocation Models					**Sections 5.6(viii), 5.6(v), 3**
J.1. (Mathematics) Detect possible gender bias in Mathematics outreach events. Collect yearly statistics on gender balance of student volunteers and Mathematics staff and external speakers at outreach events, analyse them and present conclusions to Mathematics Department Meeting and School Board. From Summer 2022: analyse gender breakdown in A-level students attending Exploring Maths. Use to inform policy and encourage schools to send female students if this is indicated. *(See page **61**)*	• Only 25.0% of females (but 69.2% of male) respondents to Staff Survey agreed that *'Staff are recognised for their contributions to extra-role activities'*. • E&D Champion (Prof. Mark Wildon, a previous Outreach Officer) concerned that schools (unconsciously) prefer to send male rather than female students when asked to choose keen students to attend our 6th form conference Exploring Maths.	2021 and Summer 2022 (when administra-tive support expected to be available)	2024	**Outreach Officer Mathematics** (Prof. Stefanie Gerke) and *School Manager* (Mrs Vanessa Law)	• Statistics reported and analysed each year. • Target 75% of male and female in both departments agree *'Staff are recognised for their contributions to extra-role activities'* in Staff Survey 2022.

Action	Rationale	Timeframe		Owner and *reporter*	Success measure
		Start	**End**		
J.2. (ISG) Detect possible gender bias in ISG outreach events. Include outreach activities in ISG Workload Allocation Model for first time and inform staff of change. Collect yearly statistics on gender balance of student volunteers and ISG staff and external speakers at outreach events, analyse them and present conclusions to ISG Meeting and School Board, informing policy. *(See pages **62** and 16)*	Only 33.3% of ISG staff (but 76.9% of Mathematics staff) agreed that *'Staff are recognised for their contributions to extra-role activities.'* (For gender split see Action J.1.) Across the sector outreach activities are disproportionately carried out by women (see [6, page 98] and [10]): we will ensure this is not the case at ISG.	Sept 2020	2024	**Outreach Officer ISG** (Dr Darren Hurley-Smith) and *E&D Champion* (Prof. Mark Wildon)	Target 75% of male and female in both departments agree *'Staff are recognised for their contributions to extra-role activities'* in Staff Survey 2022.
J.3. (M&ISG) Recognise service on recruitment and promotion panels in Workload Allocation Model (WAM). *(See pages **58** and 16)*	New College policy requires all panels have at least one female member of staff. This risks overloading female staff unless their service is formally recognised. Only 37.5% of women and 53.3% of men agree workload is allocated fairly (see Survey 3.4).	Sept 2020	2024	***HoDs*** (*Profs. Ruediger Schack* and *Peter Komisarczuk*)	Workload Allocation Models for Mathematics and ISG updated. Staff informed of the change. Professorial staff encouraged to volunteer for promotions panel. Target improvement to 66.7% of all staff agreeing workload is allocated fairly.
J.4. (ISG) Review of ISG Workload Allocation Model (WAM) possibly introducing 'memory' (so points are carried forward across years) and considering direct and indirect gender bias, drawing on best practice from [19]**.** Reward membership of E&D Committee, WISDOM Committee and outreach work. Introduce points for Early Career Advisor (new role in M&ISG). Consider introducing points for small grant applications and external engagement, membership of ad-hoc working groups and influential external committees. *(See pages **15** and 13, 57, 58)*	Action is staged as the School model is still bedding down, and workload already allocated for 2020–21. Only 37.5% of ISG staff (but 80.0%) of Mathematics staff agreed that *'Workload is allocated transparently'*. Qualitative interviews were highly critical of ISG: *'The workload allocation process is opaque. Admin tasks are not assigned to reflect development or interests. They are just a list of tasks distributed on an ad hoc basis.'* (See page 58.) Actions J.2 and J.3 have already improved the ISG WAM, but we must go further.	Sept 2020 for Early Career Advisor, rest Sept 2021	2024	***HoD ISG*** (*Prof. Peter Komisarczuk*) with **HoD Mathematics** (Prof. Ruediger Schack) and **E&D Champion** (Prof. Mark Wildon)	Workload Allocation Model reviewed. Target 80% of staff in both schools agreeing when survey question is repeated in Staff Survey 2022.

Action	Rationale	Timeframe		Owner and *reporter*	Success measure
		Start	**End**		
K. Flexible working and managing career breaks					**Sections 5.5(i), 5.5(iii), 5.5(vi)**
K.1. (M&ISG) Formalize processes for maternity/paternity/adoption/family leave. (a) Establish official handover process prior to the start of leave. (b) Ensure staff are aware of Keeping-in-Touch days. (c) Yearly reminder of M&ISG policy that staff returners from maternity/paternity leave get a workload reduction equivalent to a term of sabbatical leave, either when they return, or at a later time of their choice. (d) Gather data on uptake of sabbatical leave by staff returners. (e) Allow staff to express a preference to receive only essential announcements by email while on leave. (f) Publicise College policy on shared parental leave to all staff by regular email. *(See pages **47** and 13, 46)*	100% ISG but only 75% of Mathematics respondents to Staff Survey agreed that *'I know that returners from parental leave get a free sabbatical term'*. This is an important policy for M&ISG and should be universally known. Weaknesses revealed in qualitative interviews: *'…I prepared a sheet of paper, a strategic plan, outlining what will happen to my supervisees etc. As far as I am aware, there is no other official handover process in place.'* (see page 46).	Sept 2020	Evaluation by qualitative interviews in 2022, end in 2024	***HoDs*** (*Profs. Ruediger Schack* and *Peter Komisarzuk*)	Handover procedures evaluated by qualitative interviews. Uptake of maternity / paternity / family leave formally recorded. Departmental handover process developed. All respondents in Staff Survey 2022 aware that returners from parental leave get a free sabbatical term.
K.2. (M&ISG) Inform staff of grants available for child-care costs when attending meetings and conferences. *(See pages **47** and 33)*	Qualitative interviews highlighted need for funding to support parents / carers with extra costs. Such funding is available from the London Mathematical Society and other funders. Caring responsibilities fall disproportionately on women and adversely effect academic careers [6, Chapter 3], [18].	Sept 2020	2024	***HoDs*** (*Profs. Ruediger Schack* and *Peter Komisarzuk*)	Staff informed and qualitative interviews report greater awareness of these grants.

Action	Rationale	Timeframe		Owner and *reporter*	Success measure
		Start	**End**		
K.3. (Mathematics) Introduce revision week in 2020–21, where possible to coincide with half-term. *(See pages **49** and 33)*	Clear student demand (NSS comments) and from qualitative interviews: *'Maths don't have a reading week. This would be really helpful and give us time to catch up on content. Having to attend lectures continuously for 11/12 weeks can get pressurising and draining.'* (see page 48 and Survey 5.16). The change was discussed at length at the September 2019 Mathematics Department meeting and felt overall to be positive at Mathematics Department Meeting. It will particularly benefit staff and students with caring responsibilities.	Sept 2020	2024	***HoDs*** (*Profs. Ruediger Schack* and *Peter Komisarzuk*)	Revision Week introduced and effect evaluated by analysis of NSS and Student Survey 2022. Rise by 2024 in female responses to survey question *'I feel supported to work flexibly'* to at least neutral 0 from -0.8 on -2 to 2 scale.
K.4. (M&ISG) Make it clear that staff may take children into departments and personal offices without close supervision (when age appropriate). *(See pages **47** and 33)*	Until recently the College policy on children on campus was unnecessarily restrictive and did not reflect that many staff and students have caring responsibilities. Such responsibilities fall unfairly and disproportionately on women; studies have shown adverse effects on academic careers [6, Chapter 3]	Sept 2020	Ongoing	***E&D Champion*** (*Prof. Mark Wildon*, acting as joint **School EDI Director**)	Staff informed of new College policy and children welcomed into M&ISG .

Summary Action Plan by theme showing owners and *reporters*

Action	Owner and *reporter*	Section	Page
A. Covid-19			
A.1. Evaluate all responses to **Covid-19** crisis for impact on Equality and Diversity.	***HoDs*** (*Profs. Ruediger Schack* and *Peter Komisarczuk*) with **E&D Champion** (Prof. Mark Wildon)	7	62
B. E&D Committee membership, Athena SWAN process and data collection			
B.1. Expand E&D Committee	***HoDs*** (*Profs. Ruediger Schack* and *Peter Komisarczuk*)	3	11
B.2. Share good practice	**EDI Directors** (Profs. Lizzie Coles-Kemp and *Mark Wildon*) and successor and Dr Liz Quaglia	3	19
B.3. Survey	***E&D Co-ordinator*** (*Dr Katerina Finnis*) and **survey working group** from E&D Committee including **E&D Champion** (Prof. Mark Wildon)	3	19
B.4. Share data	**All staff with administrative responsibilities**. Initial set-up and termly summaries by ***E&D Champion*** (*Prof. Mark Wildon*)	5.6(i)	63
B.5. Track progress on Action Plan	**All owners of Athena SWAN actions** and ***E&D Champion*** (*Prof. Mark Wildon*)	3	19
C. Student recruitment			
C.1. Analyse admissions	***Joint Admissions tutor in Mathematics*** (*Dr Yiftach Barnea*) and ***HoD ISG*** (*Prof. Peter Komisarczuk*)	4.1(ii)	21
C.2. Mathematics open days	**Joint Admissions Tutor Mathematics** (Prof. Iain Moffatt), reporter ***E&D Champion*** (*Prof. Mark Wildon*)	5.6(vii)	59
D. Student progression and attainment			
D.1. Analyse progression and attainment in Mathematics and ISG	**Academic Coordinator Mathematics** (Prof. Jens Bolte), **Programme Director ISG** (Jorge Blasko) and ***HoD ISG*** (*Prof. Peter Komisarczuk*), Mathematics reporter ***E&D Champion*** (*Prof. Mark Wildon*)	4.1(ii)	22
D.2. Improve attainment in Mathematics	**Academic Coordinator** (Prof. Jens Bolte), ***HoD Mathematics*** (*Prof. Ruediger Schack*), **E&D Champion** (Prof. Mark Wildon), **E&D Co-ordinator** (Dr Katerina Finnis)	3	17
D.3. Refresh ISG Curriculum	***HoD ISG*** (*Prof. Peter Komisarczuk*) and **ISG Executive**	4.1(iii)	25
D.4. Refresh ISG Practioner Panel	***HoD ISG*** (*Prof. Peter Komisarczuk*) and **ISG Executive**	5.6(i)	55
D.5. Hold teaching workshop sponsored by LMS	***E&D Champion*** (*Prof. Mark Wildon*) and Prof. Stefanie Gerke	3	18

Action	Owner and *reporter*	Section	Page
D.6. Video capture of lectures	**All staff**, focus groups for evaluation run by **E&D Co-ordinator** (Dr Katerina Finnis), analysis by reporter ***E&D Champion*** (*Prof. Mark Wildon*)	5.6(i)	54
D.7. New Mathematics timetable	***HoD Mathematics*** (*Prof. Ruediger Schack*)	5.6(i)	54
D.8. Detect possible gender bias in ISG external examiners	***HoD ISG*** (*Prof. Peter Komisarczuk*)	5.6(iii)	55
D.9. Analyse allocation of funded PhD studentships in M&ISG by gender	**PGR Tutor in Mathematics** (Prof. Pat O'Mahony) and **Head of CDT** (Prof. Keith Martin), *reporter Prof. Stephen Wolthusen*	4.1(iv)	27
D.10. School colloquium on academic and industry careers	**E&D Champion** (Prof. Mark Wildon), *Dr Liz Quaglia* and **Deputy Director of Careers** (Simon Mantell)	4.1(v)	30
D.11. Strengthen links with Careers Service and analyse destination data.	**Careers Tutor Mathematics** (Dr Yiftach Barnea) and **Deputy Director of Careers** (Simon Mantell), reporter ***E&D Champion*** (*Prof. Mark Wildon*)	5.3(iv)	44
D.12. Support students in career choices (academic and industry)	(a) **E&D Champion** (Prof. Mark Wildon), (b) ***Early Career Advisor*** (new role in M&ISG, *Dr Liz Quaglia*)	5.3(iv)	45
E. Academic and research staff recruitment and induction			
E.1. Increase number of women applicants	(a), (b), (c) **E&D Co-ordinator** (Dr Katerina Finnis) and *Dr Aditi Kar*, (d) **E&D Champion** (Prof. Mark Wildon) and ***Web Champion*** (*Dr Aditi Kar*), (e) **All staff** and ***E&D Champion*** (*Prof. Mark Wildon*)	5.1(i)	17
E.2. Recruit new professors at appropriate bands	***HoDs*** (*Profs. Ruediger Schack* and *Peter Komisarczuk*), **E&D Co-ordinator** (Dr Katerina Finnis)	5.1(i)	35
E.3. Increase number of offers made to women	(a), (b) ***HoDs*** (*Profs. Ruediger Schack* and *Peter Komisarczuk*) and, for (a), **E&D Champion** (Prof. Mark Wildon)	5.1(i)	36
E.4. Improve induction training for new staff	***E&D Co-ordinator*** (*Dr Katerina Finnis*), **E&D Champion** (Prof. Mark Wildon), **HoDs** (Profs. Ruediger Schack and Peter Komisarczuk)	5.6(i)	37
E.5. Ensure new-starters do no administration in their first year.	***HoDs*** (*Profs. Ruediger Schack* and *Peter Komisarczuk*)	5.2(ii)	37
F. Academic and research staff retention and promotion			
F.1. Ensure EPMS Promotion Panel members have unconscious bias training	**HoDs** (Profs. Ruediger Schack and Peter Komisarczuk) and ***E&D Champion*** (*Prof. Mark Wildon*)	4.2(i)	30
F.2. Support progression within professorial bands	***HoDs*** (*Profs. Ruediger Schack* and *Peter Komisarczuk*) and **All appraisers**	4.2(i)	39
F.3. Promote mentoring including targeted schemes	***E&D Co-ordinator*** (*Dr Katerina Finnis*), **E&D Champion** (Prof. Mark Wildon) and **HoDs** (Profs. Ruediger Schack and Peter Komisarczuk)	3	16

Action	Owner and *reporter*	Section	Page
F.4. Ensure appraisals are effective	***E&D Champion*** (*Prof. Mark Wildon*), **E&D Co-ordinator** (Dr Katerina Finnis) and **HoDs** (Profs. Ruediger Schack and Peter Komisarczuk) and **Director of Research** (Prof. Simon Blackburn) to ensure appraisers have suitable resources.	4.2(i)	31
F.5. Improve support for staff looking for funders and writing grant applications	***E&D Champion*** (*Prof. Mark Wildon*) and **Director of Research** (Prof. Simon Blackburn) and **Early Career Advisor** (new role in M&ISG, Dr Liz Quaglia)	3	16
G. Culture			
G.1. Build the digital leadership capacity of ISG	***HoD ISG*** (*Prof. Peter Komisarczuk*) and **ISG Executive**	5.6(i)	52
G.2. Raise staff awareness of gender equality and increase engagement with E&D	(a) ***E&D Champion*** (*Prof. Mark Wildon*), (b) **WISDOM Committee** and **E&D Champion** (Prof. Mark Wildon), (c) **E&D Champion** (Prof. Mark Wildon)	5.6(i)	51
G.3. Support WISDOM	***School Manager*** (*Mrs Vanessa Law*) and **WISDOM Committee**	3	13
G.4. Build a lending library of E&D literature	***E&D Champion*** (*Prof. Mark Wildon*)	5.6(i)	53
G.5. New clear and anonymous (if desired) reporting line for instances of discrimination to HoDs or E&D Champion	***E&D Champion*** (*Prof. Mark Wildon*)	5.6(ii)	56
G.6. Detect possible gender bias in external seminar speakers	**Seminar Convener** (Dr Martin Widmer), reporter *Dr Aditi Kar*	5.6(i)	52
G.7. Giant posters of role models in M&ISG locations	***E&D Champion*** (*Prof. Mark Wildon*) and chosen staff member(s)	5.6(vii)	59
G.8. LGBT+ Ally Cards printed and made available to members of departments	***E&D Champion*** (*Prof. Mark Wildon*)	5.6(vii)	59
H. E&D in the Curriculum			
H.1. Introduce E&D training into Mathematics curriculum.	**E&D Champion** (Prof. Mark Wildon) and **E&D Co-ordinator** (Dr Katerina Finnis). In 2020–21, (a) *Dr Aditi Kar*, (b) Dr Alastair Kay, then future first and second year lecturers, (c) **E&D Champion** (Prof. Mark Wildon)	3	18
H.2. Give staff resources to discuss E&D issues in UG tutorials	**All Mathematics Staff** with ***E&D Champion*** (*Prof. Mark Wildon*) and **E&D Co-ordinator** (Dr Katerina Finnis) for content	5.6(i)	53
H.3. Give supervisors resources to discuss E&D issues with research students	**All PhD Supervisors** with ***E&D Champion*** (*Prof. Mark Wildon*) and **E&D Co-ordinator** (Dr Katerina Finnis) for content	5.6(i)	53
I. Training (see also H. E&D in the Curriculum)			

Action	Owner and *reporter*	Section	Page
I.1. New challenging workshop on unconscious bias and other E&D issues	*Dr Aditi Kar* and **E&D Champion** (Prof. Mark Wildon)	3	18
I.2. Run active bystander training tailored to M&ISG by a leading external provider	***School Manager*** (Mrs Vanessa Law)	5.3(i)	41
I.3. Introduce E&D training into induction for new Mathematics students	*E&D Champion* (Prof. Mark Wildon)	5.6	53
I.4. Remind staff to do compulsory online E&D training	***HoDs*** (*Profs. Ruediger Schack* and *Peter Komisarczuk*), **E&D Co-ordinator** (Dr Katerina Finnis), **Head of Education Development** (Dr Mark Crompton)	5.3(i)	41
I.5. Promote E&D training available to PGR students	**All PhD Supervisors**, **Head of Education Development** (Dr Mark Crompton) and ***School Manager*** (Mrs Vanessa Law)	5.3(i)	41
J. Outreach and Workload Allocation Models			
J.1. Detect possible gender bias in Mathematics outreach events	**Outreach Officer Mathematics** (Prof. Stefanie Gerke) and *School Manager* (Mrs Vanessa Law)	5.6(viii)	61
J.2. Detect possible gender bias in ISG outreach events	**Outreach Officer ISG** (Dr Darren Hurley-Smith) and *E&D Champion* (Prof. Mark Wildon)	5.6(viii)	62
J.3. Include work on recruitment and promotion panels in WAM	***HoDs*** (*Profs. Ruediger Schack* and *Peter Komisarczuk*)	5.6(v)	58
J.4. Review ISG Workload Allocation Model	***HoD ISG*** (*Prof. Peter Komisarczuk*) with **HoD Mathematics** (Prof. Ruediger Schack) and **E&D Champion** (Prof. Mark Wildon)	3	15
K. Flexible working and managing career breaks			
K.1. Formalize processes for maternity/paternity leave	***HoDs*** (*Profs. Ruediger Schack* and *Peter Komisarczuk*)	5.5(i)	47
K.2. Inform staff of grants for caring costs.	***HoDs*** (*Profs. Ruediger Schack* and *Peter Komisarczuk*)	5.5(iii)	47
K.3. Introduce Revision Week in Mathematics in 2020–21	***HoDs*** (*Profs. Ruediger Schack* and *Peter Komisarczuk*)	5.5(vi)	49
K.4. Make it clear staff may take children into departments.	***E&D Champion*** (*Prof. Mark Wildon*, acting as joint **School EDI Director**)	5.5(iii)	47