



## Department Application Silver Award



## ATHENA SWAN BRONZE DEPARTMENT AWARDS

Recognise that in addition to institution-wide policies, the department is working to promote gender equality and to identify and address challenges particular to the department and discipline.

## ATHENA SWAN SILVER DEPARTMENT AWARDS

In addition to the future planning required for Bronze department recognition, Silver department awards recognise that the department has taken action in response to previously identified challenges and can demonstrate the impact of the actions implemented.

Note: Not all institutions use the term 'department'. There are many equivalent academic groupings with different names, sizes and compositions. The definition of a 'department' can be found in the Athena SWAN awards handbook.

## COMPLETING THE FORM

**DO NOT ATTEMPT TO COMPLETE THIS APPLICATION FORM WITHOUT READING THE ATHENA SWAN AWARDS HANDBOOK.**

This form should be used for applications for Bronze and Silver department awards.

You should complete each section of the application applicable to the award level you are applying for.

Additional areas for Silver applications are highlighted throughout the form: 5.2, 5.4, 5.5(iv)

If you need to insert a landscape page in your application, please copy and paste the template page at the end of the document, as per the instructions on that page. Please do not insert any section breaks as to do so will disrupt the page numbers.

## 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		
<b>Word limit</b>	<b>11,954</b>	<b>12,000</b>
<i>Recommended word count</i>		
1. Letter of endorsement	475	500
2. Description of the department	498	500
3. Self-assessment process	1,000	1,000
4. Picture of the department	2,098	2,000
5. Supporting and advancing women's careers	6,498	6,500
6. Case studies	1,016	1,000
7. Further information	369	500

### Glossary of terms

<b>AMSP</b>	Advanced Maths Support Programme	<b>MMath</b>	Master of Mathematics
<b>CDT</b>	Centre for Doctoral Training	<b>OEWP</b>	Outreach, Engagement, Widening Participations
<b>DEDC</b>	Department Equality and Diversity Committee	<b>OfS</b>	Office for Students
<b>DHoD</b>	Deputy Head of Department	<b>PDRA</b>	Postdoctoral Research Associate
<b>DPC</b>	Department Promotions Committee	<b>PGR</b>	Postgraduate Research (Student)
<b>DSAT</b>	Department Self-Assessment Team	<b>PGT</b>	Postgraduate Taught (Student)
<b>ED&amp;I</b>	Equality, Diversity and Inclusion	<b>PSS</b>	Profession and Support Staff
<b>EGMO</b>	European Girls Mathematics Olympiad	<b>REA</b>	Recognising Excellence Awards
<b>EPSRC</b>	Engineering and Physical Sciences Research Council	<b>SAMBa</b>	Statistical Applied Mathematics at Bath
<b>Exec</b>	Executive Committee (Department of Mathematical Sciences)	<b>SDPR</b>	Staff Development and Performance Review
<b>HESA</b>	Higher Education Statistics Agency	<b>SSLC</b>	Staff Student Liaison Committee
<b>HoG</b>	Head of Group	<b>STEM</b>	Science, Technology, Engineering and Mathematics
<b>HoD</b>	Head of Department	<b>UKRI</b>	UK Research and Innovation
<b>LMS</b>	London Mathematical Society	<b>UG</b>	Undergraduate (Student)
<b>MAM</b>	Modern Applications of Mathematics	<b>WiM</b>	Women in Mathematics

<b>Name of institution</b>	University of Bath	
<b>Department</b>	Department of Mathematical Sciences	
<b>Focus of department</b>	<b>STEMM</b>	
<b>Date of application</b>	April 2019	
<b>Award Level</b>	Current: <b>Bronze</b>	Applied: <b>Silver</b>
<b>Institution Athena SWAN award</b>	Date: <b>April 2017</b>	Level: <b>Bronze</b>
<b>Contact for application</b> <small>Must be based in the department</small>	Dr Tim Rogers	
<b>Email</b>	t.c.rogers@bath.ac.uk	
<b>Telephone</b>	01225 38 6457	
<b>Departmental website</b>	<a href="http://www.bath.ac.uk/departments/department-of-mathematical-sciences/">http://www.bath.ac.uk/departments/department-of-mathematical-sciences/</a>	

## 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.

Professor Paul Milewski  
Head of Department  
Department of Mathematical Sciences  
University of Bath  
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+44(0)1225 386224  
P.A.Milewski@bath.ac.uk

Equality Charters Manager  
Equality Challenge Unit  
7th Floor, Queens House  
55/56 Lincoln's Inn Fields  
London WC2A 3LJ

### **Endorsement of Application for Departmental Athena SWAN Silver Award**

I am writing to express the strongest possible support for my department's application for a silver Athena SWAN award.

Gender equality has been high on my list of priorities for a long time, at least since we made it central to the department's bid for SAMBa, our Centre for Doctoral Training, six years ago. Writing the initial proposal for SAMBa was one of my first big contributions to the department, and it has been an immense pleasure to see the positive impact of some of the changes that we have made — in particular to postgraduate recruitment — over the last few years. This has been a beacon for the department's wider commitment to gender equality, and central to our efforts to spread good practice to other institutions; for example, we were the founding member of the LMS Good Practice Scheme CDT membership.

I am also proud of the improvement in the gender balance of the academic staff within the department since our bronze Athena SWAN award three years ago, in particular gaining our first female professors. This has come about because of a concerted effort, based on our 2016 action plan, to attract the best possible applicants and persuade them that this is an attractive place to work. Our attempts to further improve and lead the wider STEM community in this area, and again to build on our successes, led us last year to bid for an EPSRC Inclusion Matters grant. I am delighted to say that this bid was successful and several members of the department are leading a nationwide programme to develop and implement improved recruitment practices over the next two years.

The department as a whole has bought into the Athena SWAN process. Gender equality is at the centre of our quest for improvement, and our motivation is two-fold. Firstly, by improving our culture we help to make the department a better place to work for everyone; and secondly, by becoming a more attractive place for women to study and work, our intake improves and the department grows stronger academically.

I have taken an active role in the self-assessment process for this silver application, and believe that the department is heading very much in the right direction, although I

accept that we have further to travel and there is much still to do. I will personally ensure that the action plan that forms part of our application is carried out, and that the whole department continues to make every effort to improve. I have allocated the resources necessary – both budget and staff time – to achieve our ambitious goals.

The information presented in the application (including qualitative and quantitative data) is an honest, accurate and true representation of the department. I have a personal commitment to this application and believe that it demonstrates our vigorous commitment to gender equality. I hope that you agree.

Paul A. Milewski

## 2. DESCRIPTION OF THE DEPARTMENT

Recommended word count: Silver: 500 words 498

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.

The Department of Mathematical Sciences at the University of Bath is a large and vibrant community of staff and students housed in two adjacent buildings on campus. Consistently strong performance in research and teaching, combined with a friendly and collaborative atmosphere, has allowed us to grow student numbers by 20% and staff by 27% since 2013. We are now home to nearly 1200 students and 100 staff.

Table 2.1 Total Number of academic staff, professional and support staff, and students, by gender

		2017/18			
		Numbers			% Female
		Female	Male	Non-Binary	
Staff	Research	<5	11	<5	31%
	Teaching	<5	5	<5	0%
	Lecturer	<5	13	<5	19%
	Senior Lecturer	7	8	<5	47%
	Reader	<5	11	<5	8%
	Professor	<5	20	<5	9%
	Total Academic and Research	18	68	<5	21%
	Professional and Support Staff	9	<5	<5	82%
Total Staff		27	70	-	28%
Students	Undergraduate	333	757	<5	31%
	Postgraduate Taught	<5	6	<5	40%
	Postgraduate Research	23	50	<5	32%
	Total Students	360	813	<5	31%

Ours is a research-intensive department: in the last REF exercise 88% of the research in the department was rated as world-leading or internationally excellent, and our staff collectively hold a grant portfolio totalling over £11m. We currently host nine externally-funded research fellowship holders, and two University of Bath “Prize Fellows” (tenure-track postdoctoral positions).

We are committed to high-quality teaching. Our students are amongst the best-qualified in the country, typically achieving A\*AA at A-level, including Further Mathematics as a requirement. The cohort of nearly 300 undergraduates starting in 2018 were welcomed with induction activities including an introduction to the historical context of their studies, highlighting important contributions of female mathematicians. Whilst studying with us, students benefit from extra-curricular social and academic events organised by the Bath University Maths Society (BUMS), and the newly formed Women in Mathematics group.

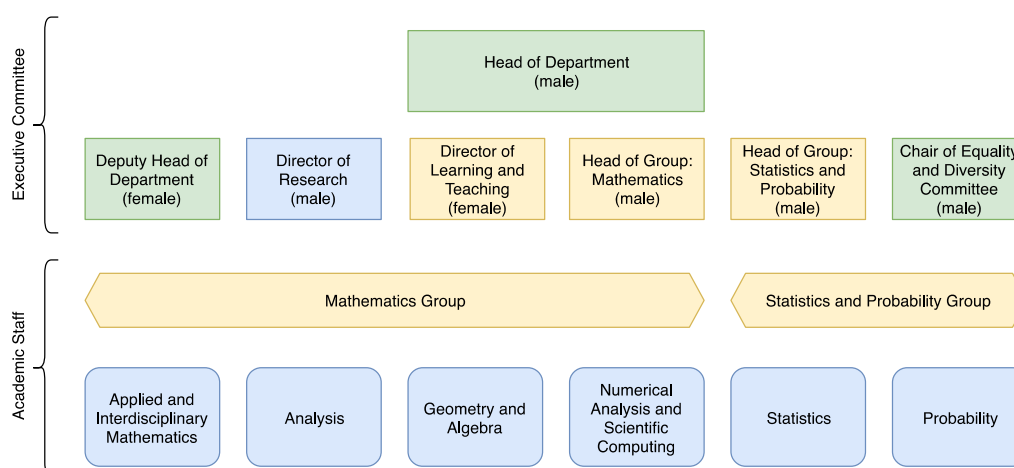
The centrepiece of our postgraduate study offering is the EPSRC Centre for Doctoral Training in Statistical Applied Mathematics at Bath (SAMBa). Offering 10 fully-funded studentships per year, this cohort-based PhD training centre is a national exemplar, achieving full marks in its mid-term review and recently securing an £8m+ continuation of funding to 2027. From its inception, SAMBa has placed heavy emphasis on the value of diversity, which has positively influenced departmental culture. In 2018 we were awarded £527k funding from the EPSRC to build on SAMBa activities and drive diversity in early career recruitment across the sector.

*Figure 2.1 SAMBa students in October 2018*



Academic staff in the department are line-managed by the Head of Department (HoD) and organised into two teaching and six research groups (all gender mixed) linked to different mathematical disciplines. Leadership of the department is through the Executive Committee (Exec), chaired by the HoD, and including the Chair of the Department Equality and Diversity Committee (DEDC). Exec roles have a three-year term and rotate amongst senior staff, with open calls for expressions of interest. All department activities are supported by a team of professional services staff performing various functions related to administration, widening participation and outreach.

*Figure 2.2 Academic organisational structure of the department. Colours represent: yellow – teaching, blue – research, green – organisation/culture*



In the most recent anonymous survey, 98% of responding staff reported supporting the Athena SWAN charter. Since our Bronze Award in 2016, we have committed a significant effort to implementing our Action Plan and embedding good practice and an



inclusive ethos across all our activities. This effort has had a profound positive impact on the department, key achievements include:

- the total number of female academic staff has doubled over five years
- we have recruited two internationally-recognised female mathematicians to professorships
- the proportion of PhD students who are female has increased from 20% to 32%

We are committed to continuing this progress.

### 3. THE SELF-ASSESSMENT PROCESS

Recommended word count: Silver: 1000 words 1000

Describe the self-assessment process. This should include:

- (i) a description of the self-assessment team

Following the 2016 Athena SWAN Bronze Award, a new departmental committee was set up and charged with successful delivery of the 2016 Action Plan. The Department Equality and Diversity Committee (DEDC) comprises eight members of staff (currently 38% female), each responsible for overseeing a key area of activity. The committee is a focal point for ED&I within the department and meets monthly. The chair holds an *ex officio* place on Exec, with a standing item of business, ensuring that equality is central to the department's decision-making process.

A Department Self-Assessment Team (DSAT) was formed in early 2018 to prepare for this submission. DSAT is an expansion of DEDC comprising all members of that committee, plus additional volunteers from across the department. DSAT membership includes representatives of the full range of job families (including PSS) and contract types (part-time, full-time, fixed-term, open-ended) and career stages, as well as undergraduate and postgraduate students. Many of us are part of dual-career families, and/or have significant caring responsibilities. The gender balance of the committee is 50/50. Continuity with the successful 2016 Bronze application is strong, with eight members of the previous DSAT returning. There is also significant buy-in from senior staff, with four professors (1 female, 3 male) and five members of Exec.

Table 3.1: Members of the Departmental Self-Assessment Team

#### Tim Rogers

Royal Society University  
Research Fellow and  
Reader in Mathematics

DSAT Chair, DEDC Chair

#### Chris Budd OBE

Professor, DEDC member  
with oversight of flexible  
working

#### Susie Douglas

SAMBa Manager

DEDC member with  
oversight of PGR student  
experience

**Evangelos Evangelou**

Lecturer

DEDC member  
responsible for student  
data gathering and  
analysis; SSLC member

**Natasha Javed**

Undergraduate student  
representative

Chair of Women in  
Mathematics group

**Paul Milewski**

Professor

Head of Department

**Matt Roberts**

Royal Society University  
Research Fellow and  
Reader in Mathematics

DEDC member with  
oversight of career  
progression

**Hayley Wragg**

Postgraduate student  
representative, convener  
of student focus group

**Carlos Galeano Rios**

Postdoctoral Research  
Associate

DEDC fixed-term staff  
representative

**Cécile Mailler**

EPSRC Postdoctoral  
Research Fellow

DEDC member with  
oversight of recruitment

**Ilaria Prosdocimi**

Lecturer

DSAT probationary staff  
representative, convener  
of focus group

**Myla Watts**

Department Co-ordinator

DSAT Professional and  
Support Staff  
representative, convener  
of focus group

**Johannes Zimmer**

Professor, Director of  
Research,

Professional and support staff working in the department are almost all line-managed externally to the department (either by the Faculty of Science, or the Doctoral College). However, they are based in the department and form an integral part of our activities and therefore have been included in our self-assessment process leading to this submission.

The department benefits from close links to the Institute for Mathematical Innovation (IMI), a University-wide interdisciplinary institute for applied research and consultation. The IMI is managed entirely separately from the department and therefore has not formed part of our self-assessment process.

## (ii) an account of the self-assessment process

In preparation for the self-assessment process, the DSAT chair Tim Rogers attended training run by the University's Equality and Diversity Team, and an ECU Athena SWAN briefing. Support for Athena SWAN DSAT chairs is co-ordinated through the University Athena SWAN Network, and regular meetings take place between Faculty of Science DSAT chairs to share best practice and stay connected with the wider institutional picture.

The self-assessment process was launched at an all-staff meeting in early 2018, in which colleagues were invited to volunteer to join DSAT. Staff not on the committee were able to keep informed of the process by reading the minutes of DSAT meetings, which are posted on the **Staff Moodle Zone** (internal webpages for admin and teaching; logs show minutes have been viewed over 100 times). Engagement with senior leadership was ensured through a standing item at the department executive meetings and through inclusion of the HoD and Deputy HoD in DSAT.

During the past year DSAT has undertaken a wide variety of self-assessment exercises, to conduct a **department-wide consultation** on the submission. Activities included:

- **Collecting application, enrolment and employment data on staff and students.**  
The data presented in this submission were collated by the University's Equality and Diversity Team, drawn from the Office of Policy and Planning, and Human Resources. Unless otherwise stated these are HESA cost centre data for academic year to July 31<sup>st</sup>.
- **Analysing data** to assess the impact of past actions and identify gender equality issues to be addressed in the Silver Action Plan.
- Conducting an anonymous **Staff Culture Survey** (61 responders; 63% response rate) and a **Postgraduate and Postdoctoral Survey** (54 responders; 60% response rate) to gather candid views of members of the department and assess the cultural impact of the Bronze Action Plan.
- Consultation with Undergraduate (UG) and Postgraduate (PG) **Staff Student Liaison Committees** (SSLC).
- Running **focus groups** to gather views and explore ED&I issues with three key groups within the department: probationary lecturers, professional and support staff, postgraduate students.

The planning, delivery and analysis of these activities were discussed in DSAT meetings, which ran monthly until September 2018 and then fortnightly to December 2018. Writing of the submission was a collaborative effort led by the DSAT chair, facilitated by making use of shared file storage provided by the University. A provisional Action Plan was circulated to all staff in February 2019 and feedback has been incorporated; the final submission was circulated in March 2019 and signed-off by Exec.

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

From May 2019, DSAT will hand over to DEDC to oversee the implementation of the Silver Action Plan. This approach mirrors that taken after the Bronze Award submission in 2016, which has been very successful in delivering on that Action Plan. DEDC will continue to be chaired by Tim Rogers (DSAT chair) until at least 2020, to ensure

continuity. An **operating budget of £2000 annually** will allow the committee to deliver bespoke training, social events, and to support the Women in Mathematics group.

DEDC will meet monthly and function as the main focus of department ED&I activities, including ensuring progress against the Silver Action Plan. The successful delivery of the 2016 Action Plan has had a hugely positive impact on the department and there is a need to secure the positive legacy of that work. This will be achieved via an annual departmental equality review to monitor the progress of 2019 Action Plan and continued effectiveness of embedded 2016 actions (**Silver Action 7.3**).

DEDC includes representation from professional and support staff, postdoctoral and early career researchers, and members of the UG and PG SSLC. Following completed **Bronze Action 6.4c**, members of DEDC are properly recognised in the workload allocation model, and their work on the committee can form part of promotion cases. DEDC membership will be refreshed periodically (with a term of 3 years), to ensure a broad representation of the department is maintained.

The chair of DEDC represents the department externally on the University's Equality and Diversity Network and Athena SWAN Network, and is responsible for feeding in to the Athena SWAN University Self-Assessment Team. The chair of DEDC will continue to sit on the department executive committee, emphasising the central role that ED&I considerations now play in the management of the department.

#### 4. A PICTURE OF THE DEPARTMENT

Recommended word count: Silver: 2000 words **2098**

##### 4.1. Student data

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

(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.

There are currently around 1200 undergraduate (UG) students in the department studying on our BSc and MMath (a four-year undergraduate Masters) programmes. All our UG programmes are full-time. Students can switch between programmes while studying with us, and may undertake a study year abroad or a year-long work placement. Work placements are particularly popular, with 52% of students having undertaken one since 2014/15.

All our programmes require A-level further mathematics, however, only around a quarter of further mathematics students nationally are female. To begin to address this issue in the South West, we now employ an outreach co-ordinator and an area co-ordinator for the Advanced Mathematics Support Programme, who have boosted our interactions with schools, detailed in Section 5.6(viii).

All our promotional materials are carefully designed with ED&I principles in mind. We have maintained an application rate that is about 31% female – in line with the sector average and well above that of A-level further mathematics.

Table 4.1.1 gives details of the gender split of applications since 2014/15. There is no bias evident in the way offers are made. Female applicants are usually slightly more likely to accept their offer than males, leading to an intake that is typically around 35% female. Recruitment in 2015/16 (highlighted in the table) was anomalously poor for female acceptance, 5% lower than typical. We have not been able to identify the cause of this isolated dip, which was reversed the following year. However, there is a clear need to ensure a consistency in order to avoid a repeat. We have recently refreshed our open days, introducing short talks given by staff and more time for interaction with student volunteers. We aim to improve female recruitment rates by increasing female representation in these events (**Silver Action 1.1**).

*Table 4.1.1: Number of applications received, offers made, and offers accepted by gender across all programmes since 2014/15; offers made as a fraction of application, and offers accepted as a fraction of offers made by gender*

		Apps	Offers	Accepts	Offers/ Apps	Accepts/ Offers
2014/15	Female	536	478	106	89%	22%
	Male	1,126	1,062	192	94%	18%
	% F	32%	31%	36%		
2015/16	Female	584	539	89	92%	17%
	Male	1,370	1,237	233	90%	19%
	% F	30%	30%	28%		
2016/17	Female	612	555	110	91%	20%
	Male	1,367	1,234	211	90%	17%
	% F	31%	31%	34%		
2017/18	Female	562	501	104	89%	21%
	Male	1,266	1,152	197	91%	17%
	% F	31%	30%	35%		

Figure 4.1.1 shows the total number of male and female UG students over five academic years. Figure 4.1.2 compares the percentage of female UG students to HESA cost-centre data for the sector. We observe that the proportion of students who are female has dropped from 36% to 31%. However, analysis of the admissions data indicates that this trend will reverse in future years – Table 4.1.1 shows that since 2016/17 we have a recruitment rate of 35% female, and hence the total cohort can be expected to return to this state in years to come.

Figure 4.1.1: Total number of female and male students since 2013/14 (bars) and percentage female (line)

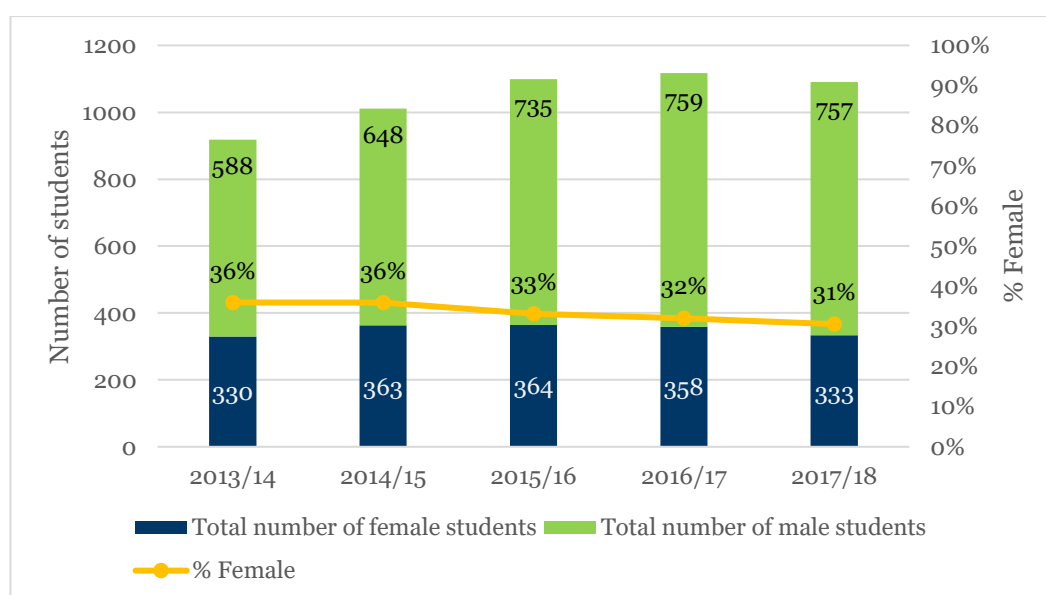


Figure 4.1.2: Percentage of female UG students in Mathematical Sciences at the University of Bath, compared to the sector average (HESA data)

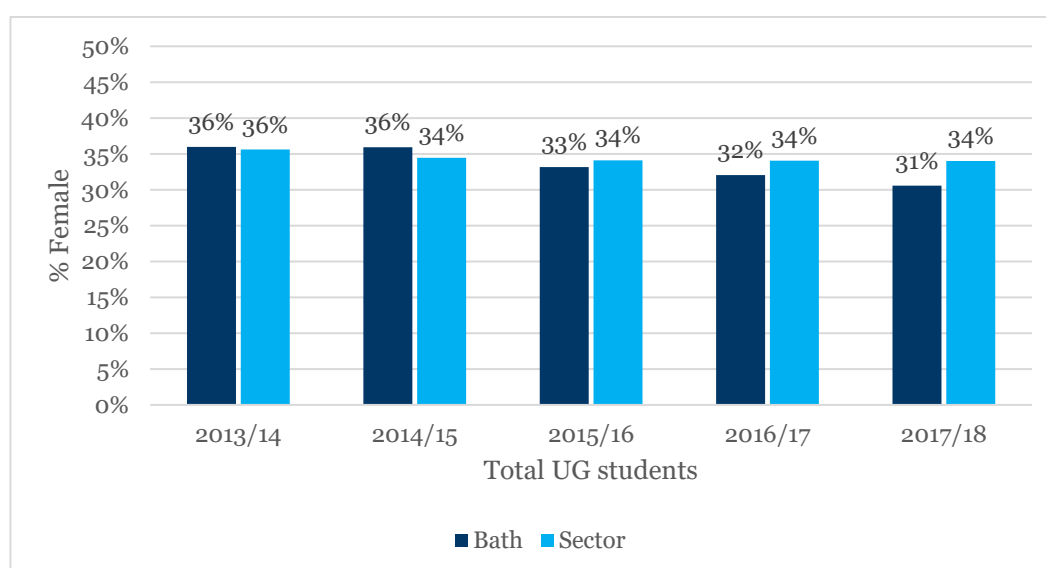
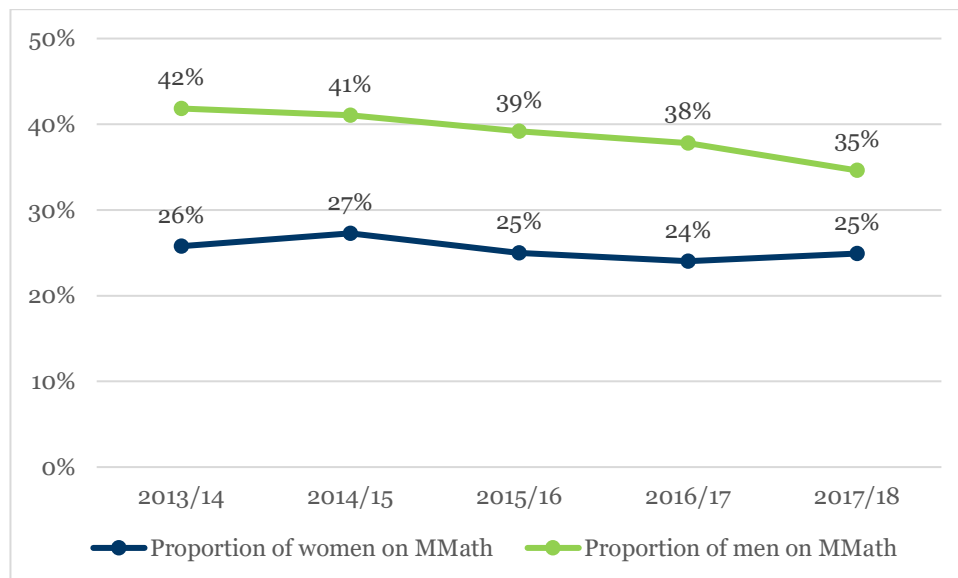


Table 4.1.2 and Figure 4.1.3 show gender differences between our BSc and MMath programmes. As the department has grown, there has at the same time been a shift amongst male students towards the BSc degree; the proportion of men taking the MMath has dropped from 42% to 35%. Despite this, the proportion of our female students taking the MMath remains consistently lower at around 25%. To address this gender imbalance, we will focus on encouraging high-performing BSc students to transfer to the MMath programme. We will increase the visibility of female role models, organise a Women in Maths event promoting Masters' level study, and send automated email invitations to encourage high-performing BSc students to consider changing programmes (**Silver Actions 2.1 – 2.3**).

Table 4.1.2: Student numbers by gender for BSc and MMath programmes

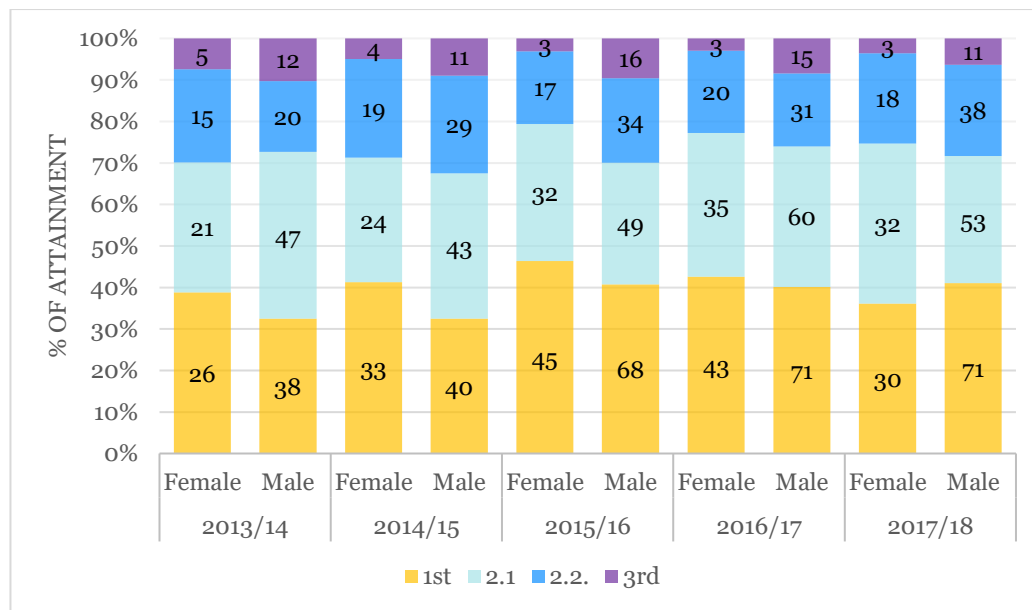
		2013/14	2014/15	2015/16	2016/17	2017/18
Male	Total	588	648	735	759	757
	MMath	246	266	288	287	262
	BSc	342	382	447	472	495
Female	Total	330	363	364	358	333
	MMath	85	99	91	86	83
	BSc	245	264	273	272	250

Figure 4.1.3: Proportion of female and male students on the MMath degree (as a fraction of the whole female or male cohort).



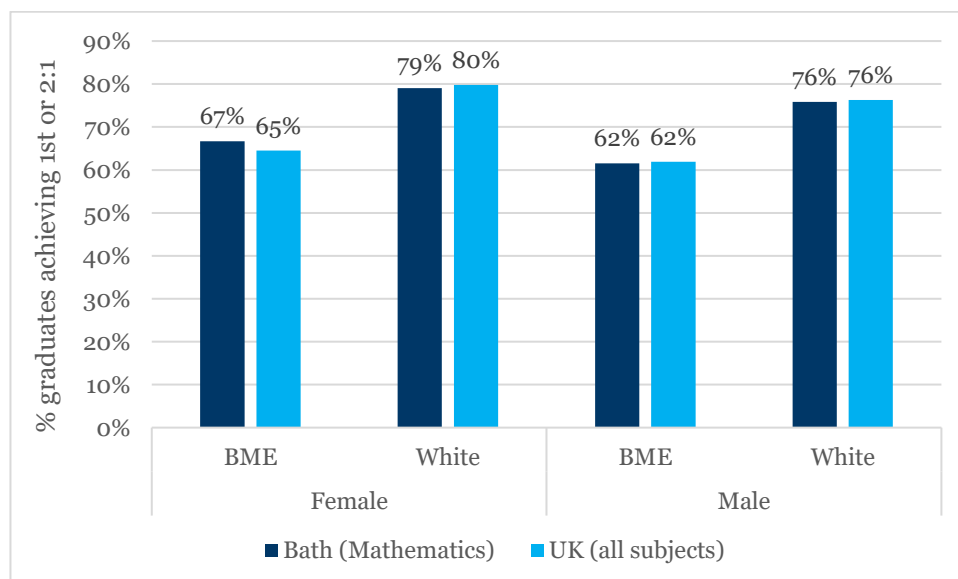
Great care is taken to ensure our assessment processes are as fair and free from bias as possible. All exams are marked anonymously, and since our Bronze Award we have introduced anonymous marking of coursework. Project units are marked by at least two assessors and moderated by a unit convenor. Figure 4.1.4 shows the number and percentage of awards of different degree classes over five academic years, broken down by gender. In most years female students are slightly more likely than males to achieve a 1<sup>st</sup> or 2:1 degree classification, though the difference is small.

Figure 4.1.4: Degree attainment by gender



We have also examined race/gender intersectionality in student attainment. As shown in Figure 4.1.5 our student results are very close to the UK average for both men and women. Significant effort is necessary to tackle this problem across the sector. An opportunity to begin to address this issue locally is presented by an upcoming renewal of the curriculum for our undergraduate programmes. Supported by the Centre for Learning and Teaching, ED&I principles will be a core consideration of this process, with the goal of improving the experience and outcomes for underrepresented groups (**Silver Action 2.4**).

Figure 4.1.5: Proportion of students graduating in 2017 achieving 1st or 2:1 degree classification by gender and racial categorisation; comparison to ECU data from Students Statistical Report 2017





(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.

We offer a one-year postgraduate taught (PGT) MSc in Modern Applications of Mathematics (MAM). Running since 2001, this programme has a strong history helping launch the careers of successful female mathematicians, including two alumna who are now Senior Lecturers. Data for the recruitment pipeline for MAM are presented in Table 4.1.2. We note that the offer acceptance rate amongst female applicants has decreased from 38% in 2013/14 to 21% in 2017/18. This is a priority for improvement; we will overhaul MAM recruitment, applying the successful processes developed in SAMBa – see Section 4.1.(iv) (**Silver Action 3.1**).

*Table 4.1.3: Numbers of applications, offers and acceptances for female and male applicants to the Modern Applications of Mathematics MSc programme*

		Apps	Offers	Accepts	Offers/Apps	Accepts/Offers
2013/14	Female	51	24	9	47%	38%
	Male	89	35	12	39%	34%
	% F	36%	41%	43%		
2014/15	Female	75	20	6	27%	30%
	Male	90	30	11	33%	37%
	% F	45%	40%	35%		
2015/16	Female	64	12	3	19%	25%
	Male	125	22	9	18%	41%
	% F	34%	35%	25%		
2016/17	Female	50	23	6	46%	26%
	Male	101	26	11	26%	42%
	% F	33%	47%	35%		
2017/18	Female	46	24	5	52%	21%
	Male	62	33	6	53%	18%
	% F	43%	42%	45%		

Despite the decrease in the female offer acceptance rate, data for total student numbers presented in Figure 4.1.6 show that MAM has maintained approximately 40% female participation, in line with the sector benchmark shown in Figure 4.1.7.

Figure 4.1.6: Total student numbers for the Modern Applications of Mathematics MSc

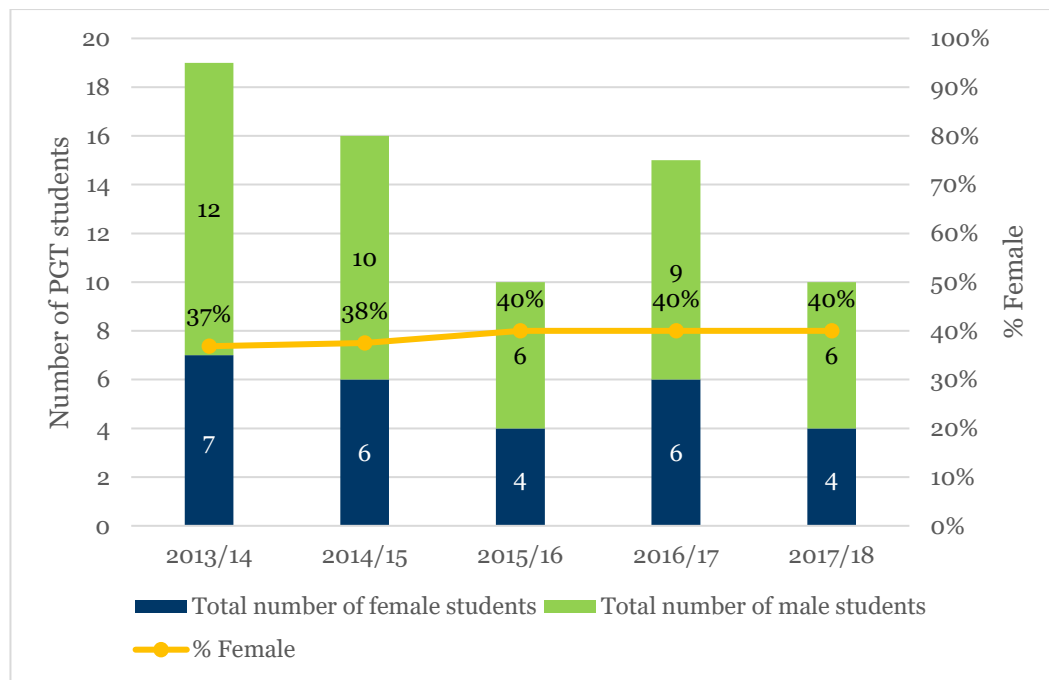
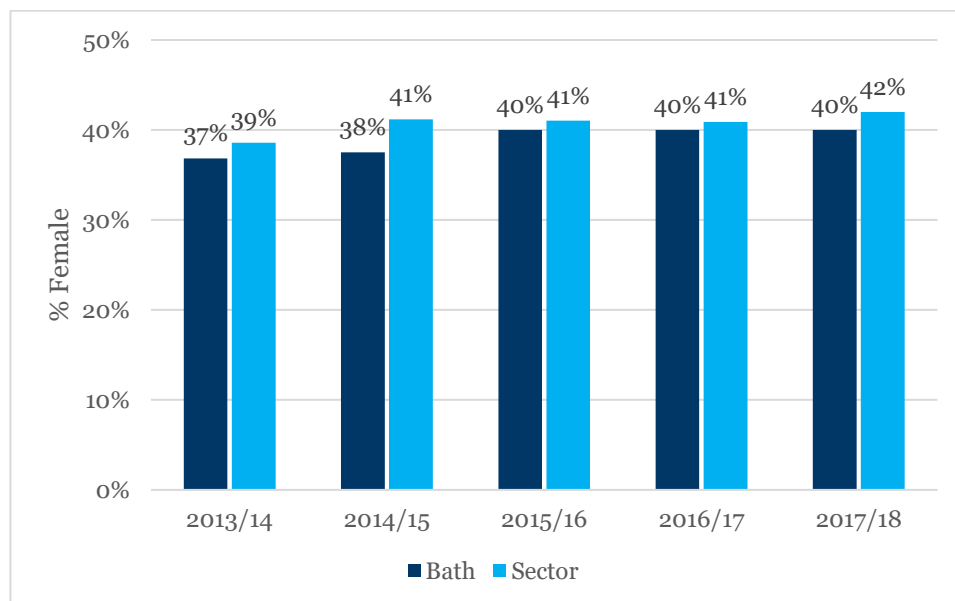


Figure 4.1.7: Percentage of female PGT students, compared with sector average (HESA data)



The same rigorous assessment standards apply to both the exam and project components in PGT as in our UG programmes. Degree classification data show no gender bias in degree classification, presented in Table 4.1.3.

Table 4.1.4: Degree classification for female and male students on the Modern Applications of Mathematics MSc programme

[Redacted – low numbers]

(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.

In 2016, our low percentage female postgraduate research (PGR) students was identified as a major issue facing the department. **Bronze Actions 1.3 – 1.4** were implemented to address this, led by our centre for doctoral training SAMBa:

- Promotional materials are carefully worded, department website featuring case studies of female students
- Annual series of research talks from a mix of staff to undergraduates highlighting postgraduate opportunities
- Interviews batched to avoid female applicants being isolated
- Interviewees introduced to diverse selection of students and staff

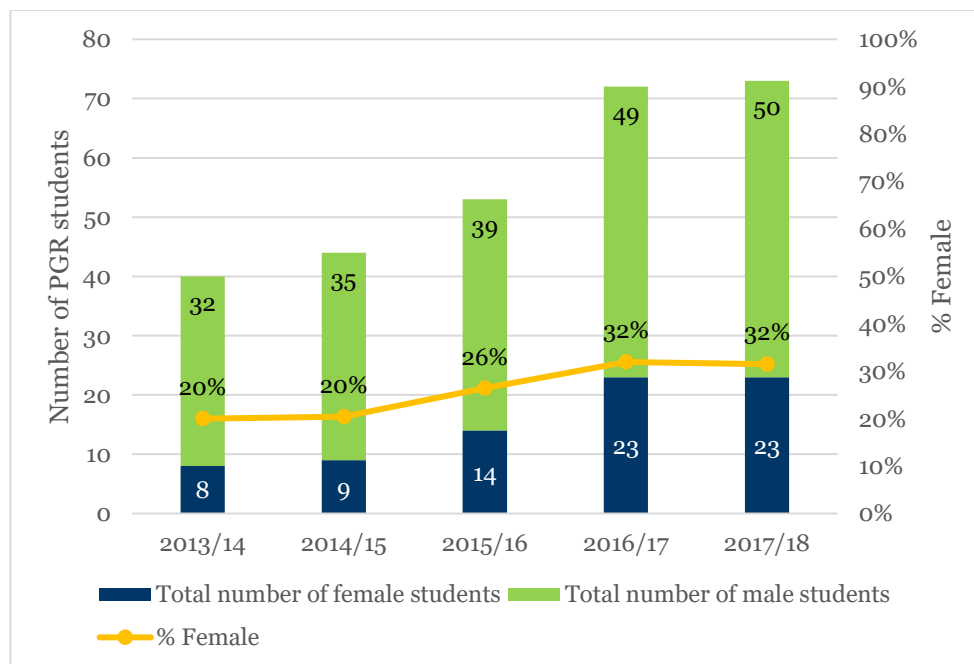
The **impact of these actions** has been an increase in the percentage of female PGR students in the department from 20% in 2014/15 to 32% in 2017/18, whilst the sector as a whole has not improved.

Full data of the recruitment pipeline is presented in Table 4.1.4, and total student numbers are shown in Figure 4.1.6. The total number of PGR students in the department has nearly doubled over five years, primarily due to the creation of SAMBa; in the same time the number of female students has nearly tripled.

Table 4.1.5: Numbers of applications, offers and acceptances for PGR study

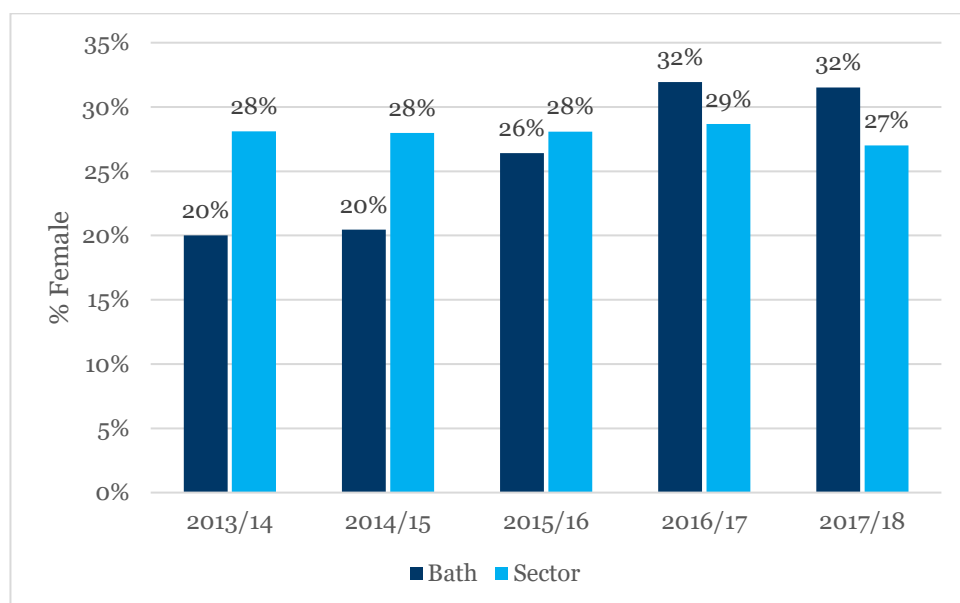
		Apps	Offers	Accepts	Offers/Apps	Accepts/Offers
2013/14	Female	27	5	3	19%	60%
	Male	89	14	10	16%	71%
	% F	23%	26%	23%		
2014/15	Female	45	7	4	16%	57%
	Male	96	24	18	25%	75%
	% F	32%	23%	18%		
2015/16	Female	44	15	8	34%	53%
	Male	106	27	15	25%	56%
	% F	29%	36%	35%		
2016/17	Female	37	16	10	43%	63%
	Male	92	35	17	38%	49%
	% F	29%	31%	37%		
2017/18	Female	37	11	6	30%	55%
	Male	94	29	20	31%	69%
	% F	28%	28%	23%		

Figure 4.1.8: Number of PGR students by gender



The increase in female PGR numbers in Bath is not a reflection of a wider national trend. As can be seen in Figure 4.1.9, we have come from below the sector benchmark to now outstrip it. Importantly, 37% of students in SAMBa are female, compared to 26% of those funded by other means. We will roll out successful practices to all PGT and PGR recruitment in the department (**Silver Action 3.1**).

Figure 4.1.9: Percentage of female PGR students in mathematics at Bath, compared with the sector average (HESA data)



PhD completion rates in our department are consistently high, as shown in Table 4.1.5 and there are no gendered patterns.

Table 4.1.6: Thesis completion data for full-time PGR students by gender and year. \*This cohort analysis is organised by year of entry, not year of graduation.

[Redacted – low numbers]

(v) Progression pipeline between undergraduate and postgraduate student levels

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

We run an annual event where staff deliver short talks highlighting opportunities for postgraduate study, advertised to all final-year undergraduates (**Bronze Action 1.3b**). Care is taken to promote gender equality, e.g. in the most recent session 3 of 7 speakers were female. Personal tutors provide advice on academic career options; in a recent anonymous survey, 75% of students who reported discussing future study options said they found the conversation helpful.

Since 2016, IMI has co-ordinated an Undergraduate Research Internship programme for students to undertake a paid summer placement working with academics on research projects with a mathematical element (**Bronze Action 1.3c**). It is open to staff and students across the university; in 2018 this scheme supported 29 students (9 female, 28% of total). Students on the scheme receive additional training in research project skills and gain a valuable insight into life as a researcher.

*Figure 4.1.10: Mathematics student Alice Paddock winning a prize for her poster summarising her Undergraduate Research Internship project*



Bath UG students also benefit from activities in the wider region. Bristol University runs an annual “Women in Mathematics: Opportunities for the Future” event, to which Bath UG students are invited. In 2018 Bath PhD student Hayley Wragg took part in a panel discussion at this event.

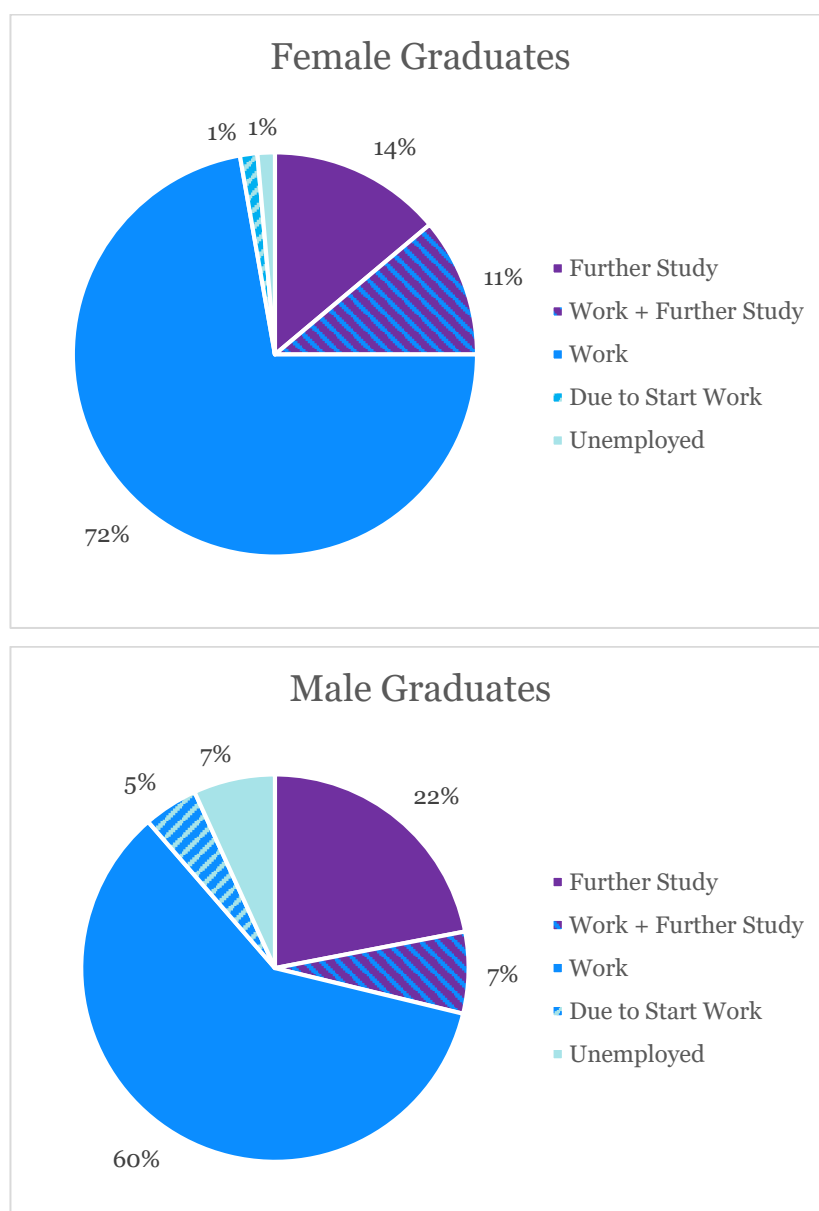
Data on the destinations of graduating students are presented in Table 4.1.7 and Figure 4.1.11, taken from our graduate survey (over 80% response rate). Over a quarter of our graduates go on to further study of some kind, though women are more likely to combine this with work. We will increase our promotion of further study to female undergraduates through supporting the WiM annual careers event (**Silver Action 2.5**).

Other common destinations include employment in STEM fields and finance/analytics. The data show male graduates are more likely to be unemployed six months after graduating. We will increase our targeted efforts to promote careers guidance opportunities (see Section 5.3), with the goal of bringing male graduate employment closer in line with female (**Silver Action 2.6**).

Table 4.1.7: Graduate destinations 2017 by HESA activity category (excluding "other")

	Male	Female	% Female
<b>Further Study</b>	29	10	26%
<b>Work + Further Study</b>	9	8	47%
<b>Work</b>	79	52	40%
<b>Due to Start Work</b>	*	*	14%
<b>Unemployed</b>	*	*	11%
<b>Total</b>	132	72	35%

Figure 4.1.11: Destinations of graduating students by gender

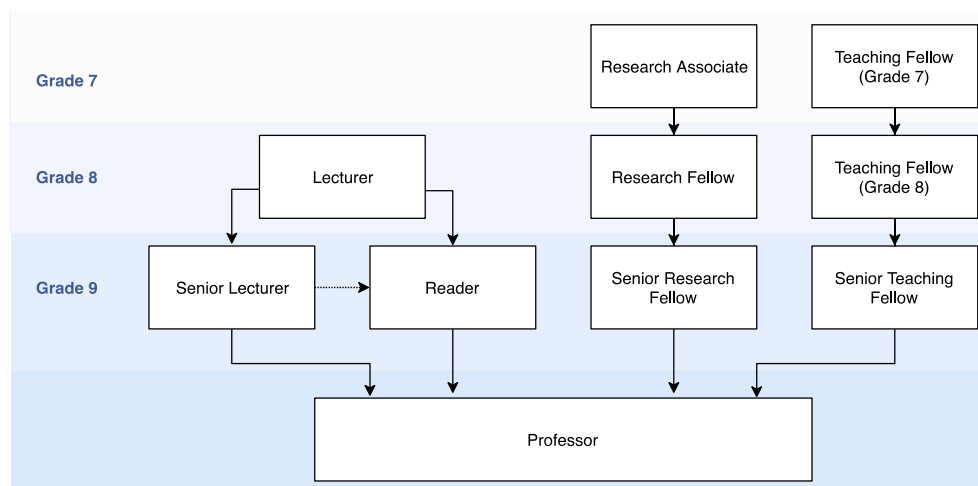


## 4.2. Academic and research staff data

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

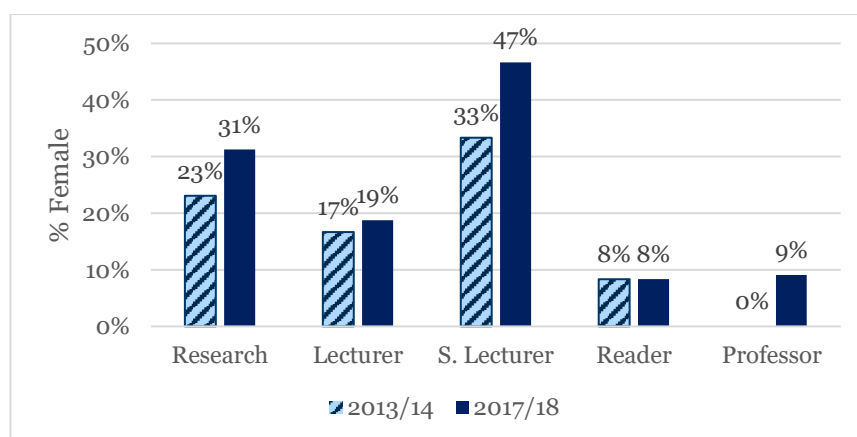
Look at the career pipeline and comment on and explain any differences between men and women. Identify any gender issues in the pipeline at particular grades/job type/academic contract type.

Figure 4.2.1: Career pathways in the Education and Research job family. The dotted arrow to Reader from Senior Lecturer denotes 'translation' as these roles are at the same grade.



Since engaging with Athena SWAN, the department has made significant progress in gender equality in academic staff at all career stages. Figure 4.2.2 shows a comparison between the percentage of female mathematicians in different job roles in 2013/14 to the most recent census at the end of 2017/18.

Figure 4.2.2: Percentage of female staff by job role; comparison of 2013/14 to 2017/18

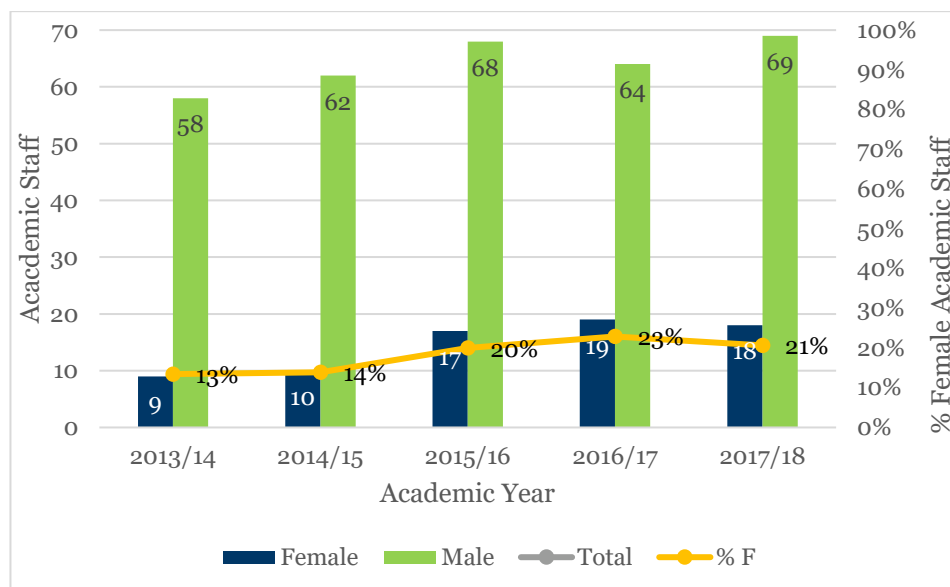


Over this period the department has expanded significantly, as shown in Figure 4.2.3. A strong emphasis is placed on gender equality in staff recruitment, following the strategy laid out in the 2016 Bronze Award. Full details of our recruitment processes are laid out in Section 5.1. The **impact of these actions** has been a doubling of the number of female staff in the department, including the appointment of two female professors.



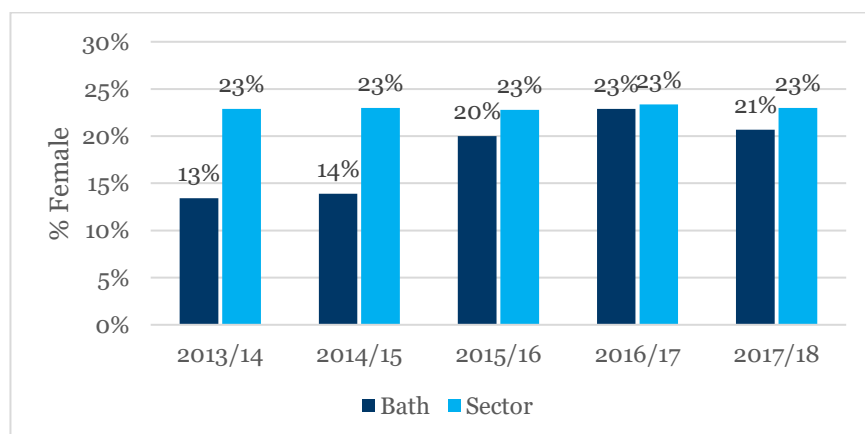
Women are most represented at Senior Lecturer but this drops markedly at Reader and Professor. Despite the overall good increase in female representation, we must work harder to support women moving into the most senior levels. Section 6 of the action plan is dedicated to **improving support for female career development and promotion**, with the goal to increase the rate of promotion of female staff to more senior roles. Further details of specific actions are given in Section 5.1.

Figure 4.2.3: Number and percentage of female academic staff



Our **2016 Bronze Action plan** set a target of 23% female new starters in permanent academic roles, matching the sector average percentage of female staff. We have **greatly exceeded** that target with 35% female new starters since 2014. Consequently, the percentage of female staff in the department has risen significantly, and is now in line with the national average as shown in Figure 4.2.4.

Figure 4.2.4: Percentage female academic staff in the Department of Mathematical Sciences at the University of Bath, compared to the HESA sector benchmarking data



Full staff numbers by job role, contract type, and gender are displayed in Table 4.2.1. These data are gathered annually with a census date of 31 July, meaning that teaching-only staff with fixed-term contracts lasting a single academic year (October – June) are

not included here. Since 2013 we have had four female teaching-only staff with this type of contract.

*Table 4.2.1: Academic staff numbers by grade and function*

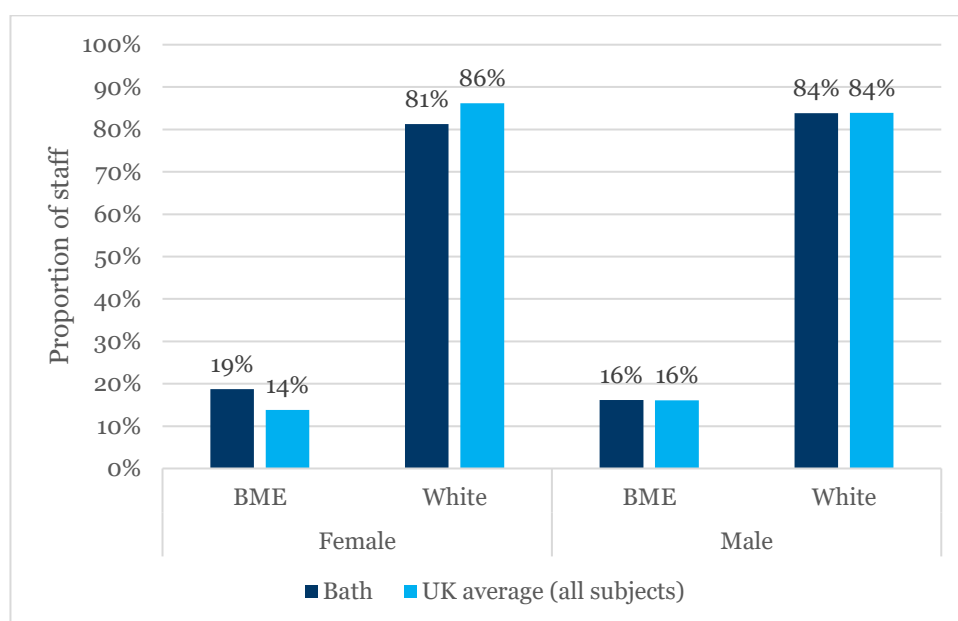
Mathematics Academic Staff		Total	Fixed-term contract		Open-ended contract (teaching and research)			
			Research	Teaching	Lecturer	Senior Lecturer	Reader	Professor
2013/14	Female	9	3	0	2	3	1	0
	Male	58	10	0	10	6	11	21
	%F	13%	23%	-	17%	33%	8%	0%
2014/15	Female	10	2	0	3	4	1	0
	Male	61	10	0	12	8	7	24
	%F	14%	17%	-	20%	33%	13%	0%
2015/16	Female	17	6	0	5	5	1	0
	Male	67	13	2	12	9	8	23
	%F	20%	32%	0%	29%	36%	11%	0%
2016/17	Female	19	7	0	5	5	1	1
	Male	63	9	4	12	10	7	21
	%F	23%	44%	0%	29%	33%	13%	5%
2017/18	Female	18	5	0	3	7	1	2
	Male	68	11	5	13	8	11	20
	%F	21%	31%	0%	19%	47%	8%	9%

Table 4.2.2 provides gender/race intersectional data for staff in the department. Numbers are small, particularly for BME women who are concentrated at the Senior Lecturer and Reader levels. As shown in Figure 4.2.5, the profile of our department is very close to that of the sector as a whole.

*Table 4.2.2: Staff numbers in 2017/18 by job role, gender and race (self reported)*

**[Redacted – low numbers]**

Figure 4.2.5: Proportion of staff by gender and race (excluding staff for whom race data is not held) compared to UK sector-wide data from Advance HE Staff Statistical Report 2018



(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.

Over the past five years, the percentage of staff with open ended contracts who are female has increased steadily from 11% to 20%, a reflection of the overall increase in recruitment of women to permanent academic positions in the department.

We employ staff on fixed-term contracts for two reasons: teaching-only staff who cover a specific gap in teaching provision (due to e.g. illness, sabbatical, secondment); research-only staff taken on as postdoctoral research assistants (PDRAs) working on a specific externally-funded research project.

Table 4.2.3 gives a complete breakdown of staff numbers by contract type and gender since 2013/14; the percentage of female staff with fixed-term contracts is comparable to the sector average of 23% female mathematicians. Not included in this table are student teaching assistants giving undergraduate tutorials, who are engaged via casual agreements as per University policy. These roles are allocated on the basis of expressions of interest from students. We do not employ any zero-hour contract staff.

Table 4.2.3: Numbers of staff by contract type

		Fixed Term	Open Ended	Proportion Fixed Term
<b>2013/14</b>	Female	3	6	33%
	Male	10	48	17%
	%F	23%	11%	
<b>2014/15</b>	Female	2	8	20%
	Male	10	51	16%
	%F	17%	14%	
<b>2015/16</b>	Female	6	11	35%
	Male	15	52	22%
	%F	28%	17%	
<b>2016/17</b>	Female	7	12	37%
	Male	13	50	21%
	%F	35%	19%	
<b>2017/18</b>	Female	5	13	28%
	Male	16	52	24%
	%F	24%	20%	

Employees nearing the end of fixed-term contracts automatically enter the University's Redeployment Register. They receive email alerts of vacancies within the University and are given preferential consideration for any such post they apply to. As detailed in Section 5.3(iii), the department has a strong track-record in developing the career prospects of fixed-term staff; three such staff members have been hired to permanent positions in the department in the past five years.

(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.

The large majority of staff leaving the department are research or teaching-only staff whose fixed-term contracts have ended. From the permanent staff we recently had one or two retirements per year (all male, due to our historically heavily male-dominated academic staff) and a handful of staff leaving to pursue other opportunities, often overseas returning to their country of birth. Table 4.2.4 gives a full breakdown of leavers data from 2013/14 to 2017/18.

*Table 4.2.4: Number of staff leaving by gender, grade and contract type since 2013/14*

**[Redacted – low numbers]**

## 5. SUPPORTING AND ADVANCING WOMEN'S CAREERS

Recommended word count: Silver: 6500 words **6498**

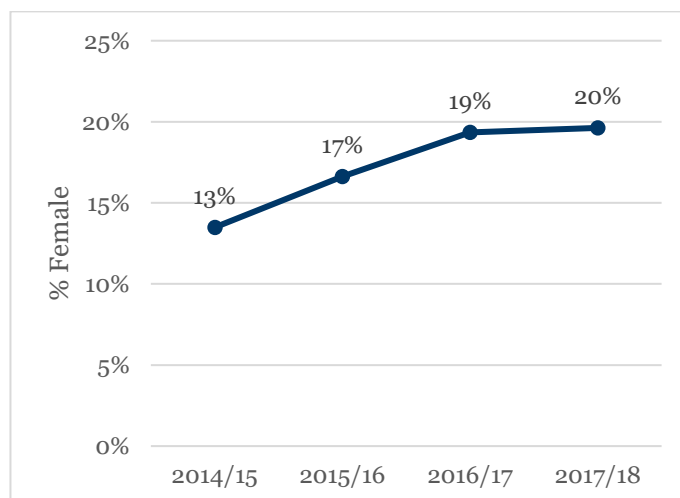
### 5.1. Key career transition points: academic staff

#### (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.

Since 2014/15 we have made 20 new appointments of permanent academic staff. Our previous Athena SWAN submission identified two serious issues in our track record: low female application rates and a historical lack of female recruitment, particularly at senior levels. We have implemented a new recruitment strategy with key changes to our search procedures. The **impact of these actions** has been an increase in the rate of applications from female candidates from 13% to almost 20%, as shown in Figure 5.1.1. HESA data shows that the overall percentage of female mathematicians in the UK has not changed substantially over this time period.

*Figure 5.1.1: Percentage of applications from female candidates, across all job types*



When a new permanent academic position opens, a senior academic is appointed by the HoD to lead the search committee. At the start of the search the DEDC Chair will approach the head of the committee to discuss ED&I issues around recruitment and supply the **Recruitment Checklist** – a crib sheet detailing agreed actions relating to gender equality, including:

- Adverts use an agreed template including a female contact and a statement on department culture and encouraging applicants seeking to work flexibly
- Adverts posted on WISE
- A systematic search for strong female candidates is conducted, asking research leaders worldwide for suggestions.
- Interview candidates invited to meet a cross-section of colleagues

Completed Recruitment Checklists are returned to DEDC for review. This process guides search committees in good practice and provides a transparent record.

A committee of around ten academics (including female colleagues, proportionate to the number of women in the department) will shortlist candidates for interview. Shortlisting panels must provide explicit justification to the Dean of Science in the (very rare) event that they return a single-gender shortlist.

Interviews are conducted by a panel composed of senior members of staff, always including female representation. Panel chairs are required to have undertaken recent training from HR in fair and effective recruitment; this is checked by the HR contact for the role prior to the confirmation of the panel.

Full applications data are given in Table 5.1.1. When making offers, we routinely allow considerable flexibility in start date (e.g. to aid new joiners who may need time to organise moving their family to Bath). Consequently, there is often a long gap between an offer being made and a new colleague arriving, hence the data in the “new starters” columns of Table 5.1.1 do not always align with the other columns.

*Table 5.1.1: Numbers of applications, shortlisted applicants and new starters at different levels*

Academic Recruitment (Permanent)		Applications			Shortlisted			New Starters (may not align with academic year of application/shortlisting)		
		Total	Lecturer, Senior Lecturer, Reader	Professor	Total	Lecturer, Senior Lecturer, Reader	Professor	Total	Lecturer, Senior Lecturer, Reader	Professor
2014/15	Female	44	44	0						
	Male	341	341	0						
	% Female	11%	11%	-	21%	21%	-	50%	50%	-
2015/16	Female	38	38	0						
	Male	192	192	0						
	% Female	17%	17%	-	30%	30%	-	50%	60%	0%
2016/17	Female	40	21	19						
	Male	176	115	61						
	% Female	19%	15%	-	29%	13%	38%	20%	0%	50%
2017/18	Female	55	53	2						
	Male	248	236	12						
	Other	2	2	0						
	% Female	18%	18%	14%	14%	18%	0%	20%	0%	33%

It is evident that our focus on improving our recruitment strategy has had a **very positive impact**, with 35% of new starters in permanent academic posts over the past four years being female – far exceeding the target of 23% set in the 2016 Bronze submission.

The recruitment cycle starting in 2016/17 was particularly successful, with the appointment of two female professors. In both cases, these members of staff joined at the same time as their partner, also appointed to a permanent position in the

department. To increase our chances of repeating this success, we will in future group new appointments into a biannual cycle (**Silver Action 5.1**), ensuring multiple posts are advertised simultaneously.

We succeed in attracting very strong female candidates; over the past four years, the shortlisting rate was 24% for female candidates and 19% for male. The percentage of women shortlisted in 2017/18 was slightly lower than in previous years, however, driven largely by two professorial appointments for which no women were shortlisted. This occurred despite a substantial effort to attract applications from strong female candidates. We will continue to proactively monitor recruitment data to ensure improvements in the coming years, targeting at least 30% of appointments to be women at lecturer level and 20% at more senior levels.

Currently, posts are either advertised as Lecturer / Senior Lecturer / Reader or separately at Professor. This practice may induce a gender-bias in applicants self-selecting a lower grade, or not being sufficiently encouraged to apply as professor. We will combat this by advertising senior posts at Senior Lecturer / Reader / Professor (**Silver Action 5.2**).

Recruitment to research-only and teaching-only posts is handled directly by the line manager for the new position, who is required to have undertaken training in fair recruitment and unconscious bias. The data in Table 5.1.2 show strong performance in attracting female research associates, with 31% female new starters on average. In contrast, our small teaching-only group appears heavily male dominated, with only one female recruit over the same period. This figure is statistically consistent with the low proportion of female applicants to these posts, and no gender difference is evident in the rate of shortlisting (22% for female candidates compared to 24% for male). We will develop improved advertising materials for teaching-only posts, listing a female contact point and emphasising career development opportunities open to all our fixed-term staff (**Silver Action 5.3**).

*Table 5.1.2: Numbers of applications, shortlisted applications, and new starters to research-only and teaching-only posts*

Research and Teaching Recruitment		Applications		Shortlisted		New Starters	
		Research	Teaching	Research	Teaching	Research	Teaching
2014/15	Female	15	16	8	3	█	█
	Male	73	67	19	9	█	█
	% Female	17%	19%	30%	25%	25%	0%
2015/16	Female	16	1	5	0	█	█
	Male	67	17	11	5	█	█
	% Female	19%	6%	31%	0%	27%	0%
2016/17	Female	16	4	6	2	█	█
	Male	43	31	9	6	█	█
	% Female	27%	11%	40%	25%	45%	25%
2017/18	Female	12	6	2	1	█	█
	Male	44	7	12	9	█	█
	% Female	21%	46%	14%	10%	17%	0%



## (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.

Incoming colleagues are assigned a staff member to act as their main contact point. New staff meet the Department Coordinator and receive their Welcome Pack (**Bronze Action 6.1a**), which includes information on flexible working, parental leave, etc.

All new permanent academic staff are invited to meet informally with the HoD to discuss their transition to Bath. At a biannual whole-department staff meeting, new academic staff give short introductions to their research. Feedback about induction is very positive.

*“When I moved to Bath in June 2016, I was quickly introduced to how things work in the department, and given lots of opportunities to meet people and get to know my colleagues... I found the department environment very welcoming, and there was a chance to introduce myself at a department meeting.”*

– Silvia Gazzola, Lecturer

Currently, new fixed-term staff do not take part in these activities by default. DSAT consultation with fixed-term staff revealed that some staff felt they were not well-known by colleagues. We will address this issue by including teaching-only and research-only staff in coffee with key departmental staff and introducing them at the new staff welcome meetings (**Silver Actions 4.1, 4.2**)

## (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.

Academic promotions are decided at University level by the Academic Staff Committee (ASC), based on the candidate's CV, a letter of support from the HoD, and letters from independent external referees.

Our 2016 Athena SWAN submission identified a gender imbalance in the rate of promotion applications. To address this issue, the Department Promotions Committee (DPC) was created to better identify and support promotion candidates. The committee is chaired by the Deputy HoD and meets quarterly. Members of the committee reach out to eligible staff to encourage them to apply, assign mentors and internal reviewers, and provide feedback to improve cases.

The **impact** of the DPC is visible in a substantial increase in the number of applications made, particularly by female staff, as shown in Figure 5.2.2. In the staff survey, 100% of female academic respondents reported being aware of the work of the DPC, and being aware of the criteria for promotion. Feedback on the function of the DPC is positive:

*“It was really useful to have a one-to-one meeting with someone from the DPC to get detailed feedback on how to improve my case”*

– Female lecturer, promoted to senior lecturer in 2017

*Figure 5.1.2: Number of promotion applications made by female and male staff in three years prior to the formation of the DPC, and three years post*

**[Redacted – low numbers]**

Full data on academic promotions is shown in Table 5.1.3 and Table 5.1.4. All colleagues promoted over the period shown have been full-time. However, the criteria take part-time work into account and two female members of staff have previously been promoted to Senior Lecturer while working part-time. The overall success rate is 83% during the period shown, although it is higher for males than females. Unsuccessful applicants are offered Personal Action Plans. **Silver Action 6.3** will reaffirm the department's support for these colleagues and personally invite them to reapply.

*Table 5.1.3: Academic promotion application numbers, rates, and success rates since 2013/14*

**[Redacted – low numbers]**

*Table 5.1.4: Academic promotions since 2012/13*

**[Redacted – low numbers]**

The lower female success rate suggests a need to ensure everyone eligible is supported from an early stage to write a strong case. We will make better use of Staff Development and Performance Reviews (SDPR) and improve internal guidance on promotion processes (**Silver Actions 6.1 – 6.2**). Our target is for at least two female colleagues to achieve promotion to professor by 2022, matching the university-wide target of 20% female professors.

**(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.

Five of the six eligible female staff (83%) were submitted to REF2014, compared to 40 of the 51 eligible male staff (78%). There is no substantial gender imbalance. Gender breakdown of the RAE 2008 submission is not available.

*Table 5.1.5: REF 2014 submission by gender*

Submitted to REF	Submitted to REF	Total eligible	% of eligible staff submitted
Female	5	6	83%
Male	40	51	78%
Total	45	57	79%

## 5.2. Key career transition points: professional and support staff

### (i) Induction

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

There are 10 Professional and Support staff in the Department; six (5 female, 1 male) staff in the departmental office, managed through the Faculty of Science, two (both female) in the SAMBa Centre for Doctoral Training, managed by the Doctoral College, and two (1 female, 1 male) in the Outreach team, managed through the Department.

New starters have the same departmental induction as academic staff. They are also introduced to the whole department via an email which describes their responsibilities, working hours, and location.

There is a University-level induction for new starters which provides a one-day welcome session describing the University, its role and culture and a chance to meet key teams (Security, Estates, HR etc.).

### (ii) 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.

There is no formal promotion process for professional and support staff. The two routes for progression are:

1. Job Evaluation and Grading Review, which can reclassify existing job roles at a higher grade if appropriate
2. Applying for a different job at a higher grade

PSS are also eligible for the Annual Recognising Excellence Award (REA), or an Outstanding Contribution Award (OCA) rewarding exceptional performance over a period of at least 2 years with an additional salary increment.

As there is no route for promotion of PSS within the department, and all routes for career progression are managed at a University level, there is no relevant data available on application and success rates for promotion by PSS colleagues in the department. Nonetheless, the department takes an active role in supporting career development of professional and support staff. For example, in 2018 a member of staff was supported by the department to further develop her role and apply for regrading:

*“Over the last two years I have been encouraged by the Department to take on new challenges and experiences. I have grown in confidence with the extra expertise and responsibilities, and as a result was able to successfully apply for a*

*regrade. I was fully supported by my line manager and academic team through this entire process.”*

- SAMBa Administrator (Redacted - name removed)

Unlike academic staff, our PSS do not currently have access to personal funds for pursuing career development opportunities. In future we will provide a dedicated CPD budget for PSS in the department (**Silver Action 6.4**).

Last year, Dr Susie Douglas (SAMBa Centre Manager) was nominated by a group of colleagues in the department for the University of Bath Staff Recognition Award for Overall Excellence. At the Staff Recognition Evening in July 2018 Susie’s outstanding contribution to the life of the department was acknowledged and she was announced as winner of the overall award.

*Figure 5.2.1: Professor Dame Glynis Breakwell (then Vice-Chancellor) presents Dr Susie Douglas with the Staff Recognition Award for Overall Excellence*



Discussions in the PSS focus group identified a need to be more systematic in developing such nominations. We will expand the mandate of the department Executive committee to develop nominations for PSS contribution pay awards and other awards (**Silver Action 6.5**).

### 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?

The University provides a broad suite of training for staff at all levels, including research integrity, unconscious bias and diversity in the workplace. Staff joining the department in their first UK-based teaching role all undertake a bespoke work-based course leading to Fellowship of the Higher Education Academy.

Staff taking part in recruitment processes are required to undergo training in Recruitment and Selection, which includes a component on gender equality and other protected characteristics. A breakdown of training uptake by gender is given in Table

5.3.1; uptake among women (21% over all courses) is almost exactly in line with the percentage of women in the department.

Staff career development, including training, is monitored through SDPRs. The effectiveness of training is continually monitored by the Staff Development Unit via feedback questionnaires and consultation with departments.

*Table 5.3.1: Number of academic and research staff enrolments on training courses since 2014/15 by gender. Data from Academic Staff Development Unit.*

Academic training course attendance 2014/15 - 2017/18			
Course	Female	Male	Total (%F)
Bath Course	*	*	13 (31%)
Prize Fellow Programme	*	*	7 (29%)
Recruitment and Selection for Panel Members	*	*	38 (20%)
Academic Staff Development (Other)	*	*	76 (18%)

Amongst academic staff with at least one year's service, 64% have completed diversity in the workplace training, and 32% have completed unconscious bias training. This falls below the target set in **Bronze Action 6.2a** for all staff to complete these training modules. To improve engagement with ED&I training, we will implement a biannual induction/re-induction programme (**Silver Action 7.2**). All new staff will attend one session in their first year; existing staff will be expected to attend at least once every three years.

#### (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 are required to take part in an annual SDPR (including PDRAs since 2017). During this process, they meet with their reviewer to engage in a reflective discussion to identify development needs and set goals. Completed SDPR reports should then be uploaded to the central HR system. Although SPDR is mandatory, until now no action has been taken to ensure reports are uploaded, and Table 5.3.2 shows a low (but increasing) completion rate. New University rules from 2019 will enforce completion of the SDPR paperwork. We will further incentivise effective engagement by providing a talking points guide for SDPR covering grant applications, student supervision, track to promotion and work-life balance (**Silver Action 6.1**).

*Table 5.3.2: Numbers and rate of completed SDPR reports uploaded to the HR system*

		SPDR reports uploaded	Completion Rate
2015/16	Female	5	29%

	Male	31	45%
	Total	36	42%
2016/17	Female	4	21%
	Male	11	17%
	Total	15	18%
2017/18	Female	11	61%
	Male	42	61%
	Total	53	61%

Staff on probation are more closely supported via frequent meetings with their mentor and annual meetings with the HoD.

### (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.

The culture of the department is to encourage early-career researchers to begin developing a research profile that is distinct from their supervisor's. PDRAs are embedded in the research group structure outlined in Figure 2.2 and take an active role in organising conferences and seminar series. In the anonymous survey of early-career researchers, 80% reported being happy with the support offered by the department for their career development. PDRAs are encouraged to apply to appropriate positions within the department when they open, and three such appointments (2 male, 1 female) have been made in the past five years.

When early-career academics are preparing for interviews (e.g. for external jobs or funding schemes) it is common for mock panels to be organised; one such staff member reported this to be the *"single most useful thing"* they had done since their PhD. Currently, mock interview panels are handled in an ad-hoc fashion and the opportunity is not clearly advertised to the whole department. **Silver Action 6.6** will formalise this provision, with the DHoD acting as single contact point for enquiries and the scheme advertised to all fixed-term staff (including teaching-only staff).

The DHoD is also the Mentor Co-ordinator responsible for overseeing the department's implementation of the University-wide mentoring scheme. Amongst permanent academic staff 33% have been assigned a mentor. There is no imbalance in uptake of the scheme by gender; however, very few staff at Senior Lecturer or Reader level are benefitting. We will promote the mentoring scheme with a department-funded coffee card for mentor/mentee pairs to use, advertised with an annual email to all staff inviting them to request to take part (**Silver Action 4.4**).

Feedback on the mentoring scheme is positive:

*"The mentoring scheme has helped me achieve key career transitions. I was initially sceptical about meeting my mentor, thinking that if I needed advice, I could ask informally to colleagues, but I soon realised that I would never dare*

*asking my ‘silly’ questions without having an official mentoring meeting.”*

– Female Research Fellow

However, discussion in the probationary lecturers’ focus group also reported some mentors occasionally not being well-prepared for the meeting. To address this, the coffee-card proposed in **Silver Action 4.4** will come with a guide for talking points, covering grant applications, student supervision, next career steps, track to promotion, and maintaining a healthy work-life balance.

**(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).

The primary point of contact for UG and PGT students are the personal tutors and the Directors of Studies (DoS) team. Students can request a change of tutor, including requesting a female tutor, if they wish.

*“During my first year in particular, the support from my personal tutor was invaluable in helping me settle into the University and feel welcome. Importantly, it meant that I had someone I could contact if I had any questions or concerns and so I was always grounded.”*

– (Redacted - name removed) PhD student and former Bath undergraduate

The DoS team and the Senior Tutor curate and disseminate information and guidance for staff via the Staff Moodle Zone. The staff survey showed that 91% of staff agree or strongly agree that they have the support they need to be an effective personal tutor.

*“The DoS team does a wonderful job of both helping personal tutors to be effective and in supporting students.”* – Anonymous staff member

The University Careers Service offers one-to-one career advice and guidance sessions to students; uptake data is shown in Table 5.3.3. In light of falling uptake amongst female undergraduates, and higher rates of unemployment for male graduates (Figure 4.1.11), we will increase promotion of careers guidance opportunities to final-year students, particularly targeting those students below a 2:1 predicted classification (**Silver Action 2.4**).

*Table 5.3.3: Uptake of 1:1 careers service appointment by gender for Undergraduate and Postgraduate students*

	Undergraduate			Postgraduate		
Year	Female	Male	Total (%F)	Female	Male	Total (%F)
2014/15	52	54	106 (49%)	2	4	6 (33%)
2015/16	48	60	108 (44%)	3	6	9 (33%)
2016/17	40	57	97 (41%)	3	10	13 (23%)
2017/18	34	51	85 (40%)	7	9	16 (43%)

PGR students join the department as a cohort at the start of the academic year. The Doctoral College provides a week-long induction to life at the university and PhD study.

Incoming students to the SAMBa programme are assigned an academic first year supervisor to advise them on option choices and other academic issues, and a senior PhD student as peer mentor. Students are encouraged to present in research seminars, including the dedicated Postgraduate Seminar Series.

All new permanent academics are required to undertake training on effective PGR supervision. 91% of respondents to the staff culture survey agreed they are supported to be an effective supervisor.

Discussions in the PG student focus group revealed a lack of understanding of processes for dealing with any difficulties in the supervisory relationship, and only 39% of PG survey respondents agreed with the statement "I know who to talk to if I experience or observe any unacceptable behaviour." To address this, we will develop and disseminate a "what to do if..." flowchart for staff and PG students (**Silver Action 3.2**).

Anonymous survey responses also identified some worries about working hours in academia, e.g. *"it is considered normal to work during the weekend"*. In the staff survey, 26% of responders agreed that the department has a long-hours culture. Flexibility in working schedule is an important aspect of academic life, however, it is important not to convey unhealthy working practices to students and colleagues. **Silver Action 7.1** requires senior staff's email signatures to remind readers that responses are not expected outside normal working hours.

Our 2016 Athena SWAN submission identified a need to promote engagement with national "women in mathematics" activities. Adverts for such events are disseminated via email by the DEDC chair, and funding is now available to Bath students to attend (**Bronze Action 2.2b**).

*"The two Women in Mathematics days at the Isaac Newton Institute were inspirational and informative. I encourage everyone to try and attend one of the future events."* – Female PhD student

#### (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.

Prior to the 2016 Bronze Award, there was a substantial gender gap in the rate of grant application submission – see Table 5.3.4 below. Several actions have since been put in place to provide better support for all colleagues to develop grant applications. These include:

- Advertisements of relevant open calls
- Successful proposal 'library' available to all staff
- Internal peer-review of draft proposals
- Mock interviews for fellowship candidates



- £500 additional research funds for colleagues submitting large (>£100k) proposals to support e.g. the development of future research proposals in the event that the submitted bid is unsuccessful

The **impact** of these actions has been an increase in the rate of grant submission, and a considerable closing of the gender gap (shown in Table 5.3.4) with many more large grants being won by female colleagues. As shown in Figure 5.3.1, the grant income per staff member now shows no gender imbalance. These data are backed up by anecdotal reports:

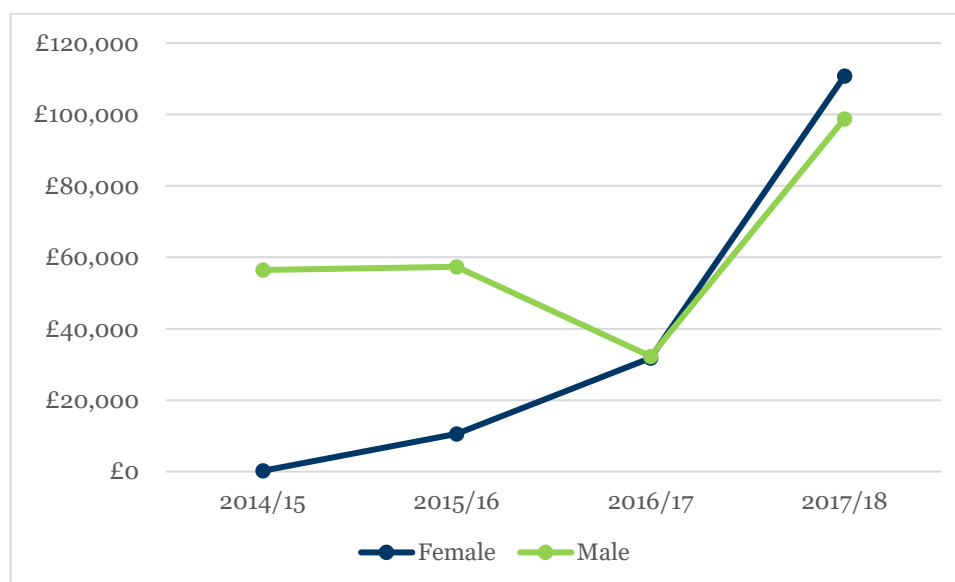
*“I am very grateful for the support I received in preparing my fellowship application.... I strongly believe that the support of the department was key to my success.”*

– Cécile Mailler, EPSRC Postdoctoral Fellow

Table 5.3.4: Grant application numbers, rates, and success rates by gender.

Mathematics Grants	Applications			Applications per staff member			Awards			Success rate		
	Female	Male	All	Female	Male	All	Female	Male	All	Female	Male	All
2015/16	6	40	46	0.55	0.77	0.73	5	19	24	83%	48%	52%
2016/17	17	50	67	1.42	1.00	1.08	12	18	30	71%	36%	45%
2017/18	19	66	85	1.46	1.27	1.31	10	22	32	53%	33%	38%

Figure 5.3.1: Annual total value of successful grant applications per staff member by gender



#### 5.4. Career development: professional and support 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 PS staff can take advantage of University training and receive monthly notifications of courses. There is a specific budget for training for PSS staff, which is held at Faculty level, and an online staff Development Toolkit with over 2000 resources for e-learning. We are boosting this provision with additional funds for personal CPD activities such as externally provided training (**Silver Action 6.4**).

Staff from the Outreach team have been supported to attend leading science communicators' conferences by the department and a University-level public engagement 'train the trainer' course.

All staff have an annual Staff Development and Performance Review (see section 5.4(vi) below) at which they are invited to reflect on their long-term career aspirations and discuss activities or training that could help to achieve these.

#### (ii) Appraisal/development review

Describe current appraisal/development review schemes for professional and support staff at all levels 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.

Annual SDPRs are conducted by the line managers of PS staff, most external to the department. Where appropriate, members of staff from the department are involved in the review meetings or provide feedback. These reviews include discussion and recording of achievements over the past year; objectives for the coming year; training and development needs; and work-life balance. Copies of all documents are maintained on the central University HR system and inform the consideration for performance pay awards. All line managers have training in how to conduct an effective review and all members of staff are encouraged to attend the training course: "Getting the most out of your review".

#### (iii) Support given to professional and support staff for career progression

Comment and reflect on support given to professional and support staff to assist in their career progression.

PS staff are given time to attend relevant career development opportunities within their working hours and staff have been nominated by the department for University-wide training opportunities (e.g. the Aurora Leadership Foundation training).

Staff are encouraged to get involved in University-level user groups and committees. This gives experience and allows them to raise their profile outside of the department, which is vital given that a major route for PSS progression is through promotion into new roles.

Several professional and support staff have been nominated by academic colleagues for annual recognition awards (which can include pay awards) but this has been handled on an ad-hoc basis. To make this process more transparent, in future the department Exec committee will consider all PSS for possible nomination and assign academic staff to help build a case (**Silver Action 6.5**).

## 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.

The Staff Moodle Zone has links to relevant HR policies and guidance regarding maternity and adoption leave. Once the line manager of the member of staff taking leave has been informed, they will discuss how the department and University will support them through the process of taking leave and returning to work. This includes how continuity of teaching and research will be managed during their absence.

### (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 are encouraged to use their entitlement to 10 Keeping in Touch days at full pay in order to maintain their involvement in research groups, PhD supervision and in planning their return to work. Staff on leave remain on department mailing lists and are invited to all social events.

Since 2016/17 all major departmental seminars and department meetings are recorded and made available to staff online (**Bronze Action 6.5a**).

### (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.

Return to work can be phased in through the use of accrued annual leave or through flexible working. A welfare room for breastfeeding is available for use on campus.

Two key actions arising from our Bronze award (**Bronze Action 7.2c-d**) improve provision for staff returning to work from long term leave:

- lower teaching load in the first year
- priority access to funds for travel and hosting visitors.

Although we have not had an instance of maternity leave since these policies were implemented, they have had enormously **beneficial impact** for a member of staff who has returned to work following long-term sick leave (see case study), enabling him to resume his research career as smoothly as possible.

(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 2013/14 one member of academic staff and one member of PSS have taken maternity leave. The rate of return from maternity and employment 18 months post-return is 100%. The PS staff member was full-time before her maternity leave but has returned on a part-time basis to the same role.

(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.

Since 2013/14 there have been five instances of paternity leave (two weeks, paid), and none for shared parental, parental or adoption. There is a culture of staff taking paternity leave and colleagues supporting this through covering duties (including teaching) at short notice, which is facilitated by the Heads of Group.

*"I am genuinely happy with my paternity leave experience. I was made to feel very comfortable by the department. My teaching was covered with enthusiasm and when I returned to work it was easy to adjust my schedule of meetings to fit flexibly with looking after a newborn at home."* – Lecturer

Reduced duties and priority travel budget are available to all staff taking long-term leave, including paternity, shared parental, adoption and parental leave.

A (male) member of DSAT will start 2 months' shared parental leave in May 2019.

(vi) **Flexible working**

Provide information on the flexible working arrangements available.

The department is wholly supportive of flexible working. All academic staff are given the opportunity to request that their teaching duties are restricted to certain hours, often to facilitate arrangements around caring and childcare responsibilities. These requests are handled by the University's central timetabling team and are approved wherever possible.

The self-assessment focus group for professional and support staff highlighted the positive departmental culture around flexible working:

- At the request of the office staff, the department office opening hours have been reduced to 9:30 – 16:00, in order to improve flexibility for office staff.
- Members of the team have been supported to organise their duties to enable them to work from home one day a week.

*“I was full-time when I started working in the department, but was subsequently allowed to reduce my hours, and also to work from home one day a week. These changes have greatly improved my ability to balance work and family life.”*

– PSS 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.

Transitions between part-time and full-time work are well supported by the department. The process is covered by University Flexible Working and Leave Policy, available on the HR web pages and signposted on the department staff Moodle zone. Staff wishing to transition to a full-time role from part-time discuss this with their line manager and Faculty HR adviser, who supports them with the process.

Since 2015 we have had two members of staff transition from part-time to full-time work, both of whom had previously taken maternity leave, and had been promoted to Senior Lecturer while working part-time. For one member of staff the process was very straightforward – a request was made and immediately accepted. In the other case, it was necessary for the department to gain central financial approval for the change, due to the way the original appointment was made:

*“I joined the department in 2005 as a temporary lecturer, and during my maternity leave was appointed to a permanent position, working part-time. I was promoted to Senior Lecturer in 2012 and decided in 2017 to go up to full-time work. It took some time to get approval from the Centre, but Paul [HoD] supported me through the process.”* – Female member of staff

## 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.

Inclusivity lies at the heart of the department culture and underpins many activities. In the 2018 staff survey, 94% of staff agreed with the statement “My department has a

positive working culture” (scoring at least 3/5; this is unchanged since the previous staff survey in 2015), and 98% stated that they support the Athena SWAN Charter.

The department has been a member of the LMS Good Practice Scheme since 2014. Staff in the department are very active in ED&I issues on a national level (**Bronze Action 6.2b**), contributing to activities including: Athena SWAN panels; LMS Good Practice workshops; LMS Women in Mathematics days; L’Oréal UNESCO Women in Science award review panel.

Over recent years both female staff and postgraduate numbers have increased significantly which both is testament to, and an ongoing driver for, our culture change.

We have recently instigated a Women in Maths network, driven by the undergraduates but including members of staff and postgraduates. This will gain visibility as it grows and will be actively promoted throughout the department with financial support for activities (**Silver Actions 2.2, 2.5**).

Postgraduates organise regular social events, away days and conferences supported by departmental budgets. Consideration is given to those with caring responsibilities and speaker gender balance is always a high priority in conferences - this culture has been embedded within the postgrad community and they now usually deliver it without prompting.

The department hosts annual summer social events for academic and support staff, a Christmas Dinner and a weekly coffee morning (**Bronze Action 6.6**). The impact of these actions is that, compared to the previous staff survey in 2015, a higher fraction of staff now agree with the statement “It is easy to find opportunities to meet colleagues” (89% scoring at least 3/5 in 2018).

We recently introduced a Code of Conduct for all departmental events as a pre-emptive measure, with the dual purpose of setting out expected standards of behaviour and explicitly stating support provided to anyone reporting an issue. The staff survey showed that 81.7% of departmental staff are aware of the code of conduct.

The built environment of the department is warm and welcoming, with a shared social space for staff and PG students, as well as several open seating areas. At the department entrance there is a widescreen television used to advertise events (e.g. run by the WiM network), campaigns (e.g. #NeverOK) and celebrate successes, such as Dr Apala Majumdar winning a 2019 FDM Everywoman in Technology Award.

Figure 5.6.1: Celebrating Dr Apala Majumdar's success in the FDM Everywoman in Technology Awards at the department entrance



## (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 policies.

The HoD works jointly with the HR Business Partner for the Faculty of Science to ensure HR policies are correctly applied in the department. The "Dignity and Respect for Students and Staff" policy includes guidelines relating to harassment, bullying or victimisation. All policies are accompanied by advice for managers and staff and are developed in consultation with staff and students, trade unions and the Student Unions.

HR policies are subject to an Equality Impact Assessment to ensure that there is no direct or indirect discrimination inherent. The University Equality and Diversity Committee receives an annual report which reviews the application of HR casework processes by protected characteristic to determine whether application is consistent.

A dedicated HR contact is available to department staff to offer advice and support. All students and staff can access the HR policies directly from the University website. However, the survey of PGR students and PDRAs highlighted a gap in knowledge, with only 29% of female respondents reported being aware of HR policies on career breaks and flexible working. We will seek to rectify this by publishing up to date information on these policies on the staff and postgraduates Moodle zone (**Silver Action 4.3**).

The University has recently introduced a #NeverOK campaign, which empowers students and staff to speak out against sexual harassment, for example, using the "Report and Support" online tool for (optionally) anonymous reporting. The department has embraced and promoted this campaign through multiple channels.

Figure 5.6.2: SAMBa leadership team wearing #NeverOK badges and tweeting support for the campaign



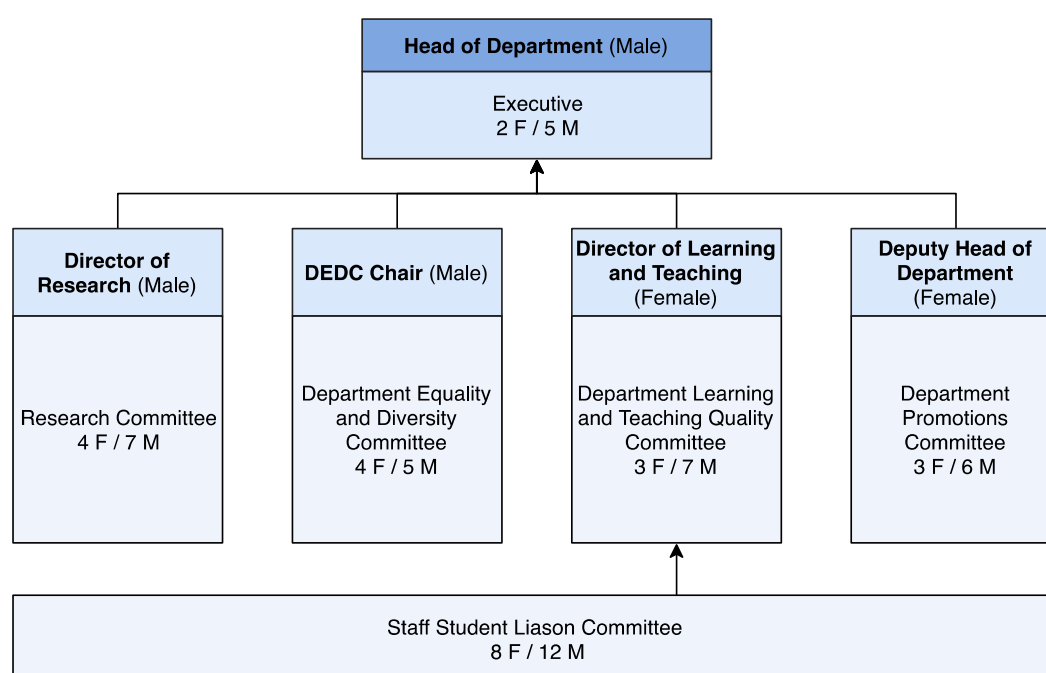
(iii) Representation of men and women on committees

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.

The highest-level committee in the department is Executive, chaired by the HoD. The committee consists of the chairs of other department-wide committees and the heads of groups (HoGs). All committees are gender balanced at least in line with overall department figures, see Figure 5.6.1 for a gender breakdown of committee structure.



Figure 5.6.3: Department committee structure and gender split of membership, arrows denote reporting lines via shared membership, e.g. a student member of SSLC sits on DLTQC



Committee memberships represent a breadth of career stages, research interests, and expertise. Gender diversity is considered when determining membership (**Bronze Action 6.3b**). However, we also take seriously the possibility of overload and there is no quota enforced for women to be part of the committees. Following **Bronze Action 6.3c**, the HoD emails all academic staff when any vacancy arises for a senior role in the department asking for expressions of interest and emphasising that non-professorial staff are encouraged to apply. Committee membership and leadership is recognised in the workload allocation model.

The **impact of these actions** has been an increase in female representation on the five main committees from 21% in 2014/15 to 35% in 2018/19. At the same time there has been no imbalance of workload (see section (v) below). Moreover, our 2018 staff survey shows an increase satisfaction with department governance. Amongst female academic responses, 100% agreed or strongly agreed with the statements “It is clear to me how to get on to important committees”.

#### (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 is explicitly recognised as part of the University’s promotions criteria. Opportunities arising, e.g. for research council strategy groups and

REF panels, are regularly advertised by the HoD, who will approach suitable members of the department to encourage them to apply.

Dr Apala Majumdar has been selected to serve on the prestigious GCRF Strategic Advisory Committee:

*"I have been widely supported by my colleagues, HoD and SAMBa in building my national and international profile which has played an important role in my appointment to this strategic committee, with both external and internal support."*

- Apala Majumdar, Reader

#### (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 workload allocation model has recently been standardised across the University, with the new model developed in consultation with staff to ensure fairness and transparency. It includes teaching, administrative roles, research and scholarship.

HoGs are responsible for oversight of the workload of their group, including monitoring for gender bias. Any anomalously high or low workloads will be queried by the faculty Dean. Current workload data show no gender imbalance: the mean allocation for female staff is 102% of the nominal annual hours, for male staff it is 103%.

Workload is discussed as part of SDPR, and staff with high workloads can be given reductions for subsequent years by reassignment of teaching or administrative duties. Workload is not formally recognised as part of the promotion criteria, to avoid promoting overwork.

Only 2% of academic staff responding to the culture survey reported dissatisfaction with the way roles are assigned in the department.

#### (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.

Academic seminars, departmental committees, and staff meetings are scheduled to occur within core hours (10:00 – 16:00) to ensure the widest participation of staff. In the 2018 staff survey, 90% of respondents agreed with the statement that “Key departmental meetings are timed so that as many people as possible can attend them” (scoring at least 3/5). Following **Bronze Action 6.5a**, both the departmental “Landscapes in Mathematics” colloquium series, and any all-staff department meetings are recorded using our lecture capture system Panopto and made available online for staff who are not able to attend, for example because of caring responsibilities.

*“Being able to keep up with events via Panopto has been really helpful and made me feel still included when I’ve had to miss things due to childcare responsibilities”* – Male senior lecturer

The department holds a weekly coffee morning, the timing of which was recently changed at the request of the office staff to fit better with their workload. Coffee mornings are used to celebrate success or bid farewell to staff. Children are welcome, enabling staff on parental leave or absent for caring responsibilities to attend.

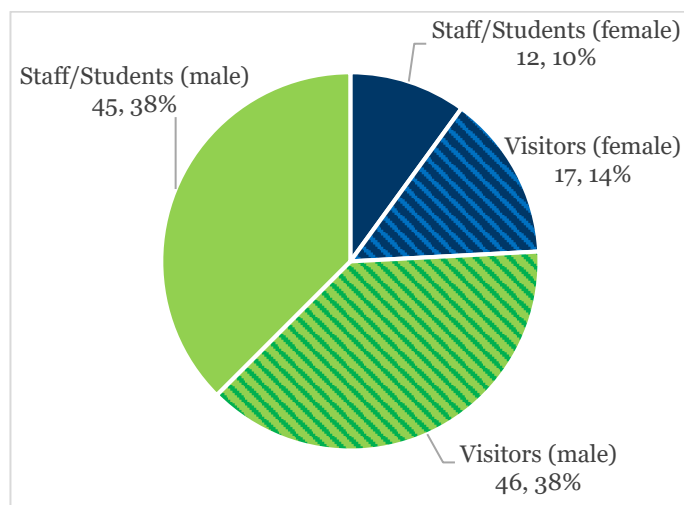
An evening Christmas dinner is held in December and a daytime barbecue in June. Both events are open to staff and PGR students. In the 2018 staff survey, 69% of responding staff, and 80% of female respondents, reported having attended a department social event.

#### (vii) Visibility of role models

Describe how the institution builds gender equality into organisation of events. Comment on the gender balance of speakers and chairpersons in seminars, workshops and other relevant activities. Comment on publicity materials, including the department's website and images used.

All seminar and conference organisers are expected to consider gender balance of speakers and chairpersons for internal and external events and are reminded of this regularly by the DEDC chair, following **Bronze Action 6.5b**. Over the academic year 2017/18, 27% of our visiting speakers were female (above the national figure of 23% of UK mathematicians being female), and 20% of internal speakers were female (in line with the proportion of female staff in the department).

*Figure 5.6.4: Proportion of internal (staff/student) and external (visitors) seminar speakers by gender in 2017/18*



The duty of chairing seminar series rotates amongst group members, typically with a preference for more junior staff as hosting visitors is a useful opportunity to build an external profile. Four of the eight seminar series are currently chaired by female colleagues. There is an annual Athena SWAN lecture run by the University, which is widely advertised to all department staff.

Electronic and print imagery for the department is developed to showcase gender and wider diversity. We will increase visibility of female role models, particularly year one/two lecturers (**Silver Action 2.3**). The newly-formed Women in Maths (WiM) group

will become a visible focus for female mathematicians in the department, with a programme of events funded by the department.

Seeking to promote further study options, from 2019 we are supporting the Women in Mathematics group to run an annual careers event (**Silver Action 2.5**). The first edition of this event ran in March 2019 and featured talks from a range of female role-models.

*Figure 5.6.5: Prof Vicky Pope (Met Office) presents at the Women in Mathematics conference 2019*



In 2019 we will award honorary degrees to Professor Dame Celia Hoyles (Mathematics Education, UCL) and Kelly Gallagher MBE. Kelly studied in Bath in 2003-2006 and was instrumental in the creation of our Large Print Notes programme which has helped countless partially sighted students in the years since its inception. Outside of Bath, she is better known for being the first ever British gold medallist in the Winter Paralympic Games.

#### (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.

A large number of students and staff actively partake in outreach / engagement / widening-participation (OEWB) activities. These include school visits, science festivals such as Pint of Science and Bath Taps into Science (an award-winning science fair which has roots in the department), local and national media. As a department we achieved over 600 hours of OEWB activities in 2018.

*Table 5.6.1: Participation in outreach, public engagement, and widening participation activities by gender and role in 2018.*

	Time spent on OEWB activities			Number of presenters		
	Female	Male	%F	Female	Male	%F
<b>UG</b>	81 hours	520 hours*	14%	7	12	37
<b>PGR</b>	20 hours	18 hours	53%	2	4	33

Staff	74 hours	90 hours	45%	2	8	20
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\*includes one male undergraduate student who logged 260 hours working for the Widening Participation Office

Since 1990 we have run Royal Institution Masterclasses for local year 8 students; as of today approximately 50% of the student attendees are female. Sessions are delivered by members of the department, including one session annually from undergraduates as part of the “communicating maths” unit in which around 65% of students are female.

Currently, the gender balance of department representatives is not explicitly considered during the planning of outreach activities, and occasionally some activities have been exclusively led by male staff. In future, we will require at least 33% female department representatives in outreach activities wherever possible (**Silver Action 1.3**).

In 2016 the department established a student-led outreach group the ‘Bathemicians’. Each of the 12 events they undertook in 2018 had at least one female volunteer and 57% (21/37) of the student volunteers overall were female.

*Figure 5.6.6: Bathemicians and Communicating Mathematics students at the Bath Taps science festival*



Bath mathematician Dr Geoff Smith MBE is Chair of the Advisory board of the International Mathematical Olympiad and in 2012 founded the European Girls Mathematical Olympiad (EGMO). Alessandra Caraceni, a PDRA from the department, was “Commander in Chief” of the 2018 EGMO in Florence, Italy.

In 2014 the department strengthened its ties to school mathematics by jointly appointing an assistant area co-ordinator with the Advanced Mathematics Support Programme (AMSP). The AMSP has a remit from the Department for Education to develop initiatives to address the gender imbalance in numbers of female students choosing to study (Further) Mathematics at A level. As part of our commitment to stimulate and inspire children to take up mathematics and to increase the proportion of women the department, in 2018 we appointed a (female) outreach coordinator. Part of her remit is to address the under-representation of females in the undergraduate degree course through a special focus on widening participation.

OEWP activities are logged centrally. Staff can (and do) use these activities to address several different promotion criteria in the areas of research and teaching. Students can (and do) use OEWP activities to as evidence of voluntary service on student scholarship and PhD programmes and as evidence for accessing the ‘communicating maths’ final year unit.

Figure 5.6.7: Tamsin Smith delivering a widening participation session for secondary school children.



## 6. CASE STUDIES: IMPACT ON INDIVIDUALS

Recommended word count: Silver 1000 words **1016**

Two individuals working in the department should describe how the department's activities have benefitted them. The subject of one of these case studies should be a member of the self-assessment team. The second case study should be related to someone else in the department. More information on case studies is available in the awards handbook.

[Case studies redacted]

## 7. FURTHER INFORMATION

Recommended word count: Silver: 500 words **369**

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

We hope it is clear from this submission that Athena SWAN has had a hugely positive impact for us in recent years. Staff and students are aware of the importance of ED&I to the positive and welcoming culture of the department, and are engaged and energised to take action. Mathematics now has a reputation as a "leading department" for ED&I



in the University (Georgina Brown, University of Bath Equality and Diversity Manager), and innovations such as our Code of Conduct are shared across the institution.

This beneficial impact is not limited solely to issues of gender equality:

### **Building accessibility**

In 2014 one of our PGR students was involved in a serious road accident that left him in a wheelchair and with significantly reduced movement in his hands. Members of the department stayed in close contact during his treatment and recovery, discussing his needs and pro-actively engaging with the central University administration to deliver significant changes to infrastructure (e.g. installing automatic doors). This has enabled the student to return and make a success of his studies, and has made the department building more accessible for all.

### **Part-time staff and workload management**

After several staff in the department office switched to part-time working, the central administration did not immediately cover the hours lost, meaning that workload effectively increased. This matter was raised in the Department Equality and Diversity Committee and subsequently raised to Executive. The HoD actively lobbied the centre over this issue, and a new member of staff was recruited to bring the office back to capacity. The quick and positive action taken in this case is an example of how the reporting lines in the department are effective in responding to ED&I related issues.

*Figure 7.1: The "Reimagining Recruitment" team at the project launch. Left to right: Matt Roberts (Mathematics), Lucy Yeomans (Psychology), Tim Rogers (Programme Director - Mathematics), Peter Eley (Deputy Director of HR), Susie Douglas (Mathematics), Julie Barnett (Psychology), Leda Blackwood (Psychology).*



### **Reimagining Recruitment**

In 2018 three members of the mathematics DSAT (Douglas, Roberts, Rogers) secured £527k from the EPSRC for a research project to develop improved early-career recruitment practices in STEM subjects. "Reimagining Recruitment" is an interdisciplinary collaboration with researchers in the Department of Psychology, investigating staff-student interactions in collaborative environments, and possible lessons for recruitment and retention. The project will run throughout 2019 and 2020

and there is commitment from central University and HR to implement the results in the form of University recruitment policies.



## 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.

\*Actions 1.1, 1.3 & 2.3 require additional investment of time from female colleagues; this will be balanced by reduction of other loads. As detailed in Section 5.6(v) of the submission, current data show no gender imbalance in workload allocation.

1. Increase female UG and PGT applications and admissions					
Ref	Action	Rationale	Milestones / timeframes	Responsibility	Success criteria / outcomes
1.1	Increase representation of female staff and students at UG open days	Accepts/offers for female students dipped in 2015/16; need to ensure consistency of message	1/3 of open day research talks given by women, and equal gender split of student volunteers by 2021-22	Dept co-ordinator; UG Admissions tutor	Consistently above 35% female UG and PGT intake by 2022
1.2	Produce videos for department website prominently featuring female role models	Need to increase visibility of female role models	Videos produced in 2019/20, online by Oct 2020	DEDC Chair; UG Admissions Tutors	
1.3	Outreach activities to have at least 1/3 female department representatives (students and staff)	Some activities have been totally male-led; need to increase visibility of female role models in Bath	Data discussed at DEDC summer 2020, feedback to organisers, 1/3 of outreach activities done by women by summer 2021	Outreach officer / DEDC chair	
2. Improve gender equality in UG programme choice and employment					
Ref	Action	Rationale	Milestones / timeframes	Responsibility	Success criteria / outcomes
2.1	Automatic email sent to high-scoring BSc students (75%+ in year 1) inviting them to consider switching to MMath	Lower proportion of women on MMath compared to BSc; talented female BSc students not continuing to 4th year	First emails sent after results in summer 2019, and each year thereafter	Senior tutor	30% female enrolment on MMath by 2022

<b>2.2</b>	Women in Maths group "switch up" event to be delivered, highlighting benefits and opportunities of MMath degree	Lower proportion of women on MMath compared to BSc; talented female BSc students not continuing to 4th year	Event occurs annually from 2019-20, attended by 75% of target audience (female 2nd year BSc scoring 70%+ in first year) by 2021-22	Staff rep on WiM committee	30% female enrolment on MMath by 2022
<b>2.3</b>	Ensure visibility of female staff in UG teaching during first and second years	Lower proportion of women on MMath compared to BSc; talented female BSc students not continuing to 4th year	% of year 1 & 2 UG teaching done by women is at least in line with % of dept that are women by 2021-22	HoGs	30% female enrolment on MMath by 2022
<b>2.4</b>	Engage with Centre for Learning and Teaching to embed equality, diversity and inclusion best practices in new curriculum	Intersectional data show substantial UG attainment gap between race and gender groups	New curriculum in place for 2021, first students graduating in 2024	DoLT, DEDC Chair	Halve spread in percentage of UG students belonging to different intersectional categories achieving at least 2:1 classification by 2025
<b>2.5</b>	Support Women in Mathematics group to deliver annual conference	Female graduates are less likely to pursue further study	Event occurs annually from 2020	Staff rep on WiM committee	Increase to 20% of female graduates pursuing further study by 2022
<b>2.6</b>	Promote careers guidance opportunities to final-year students, particularly below 2:1 predicted classification	Males are more likely to be unemployed 6 months after graduating; need to improve uptake of career guidance	New guidance for personal tutors available by September 2019	Senior tutor	Graduate unemployment rate below 4% for both men and women by 2022

3. Further improve female experience in postgraduate study					
Ref	Action	Rationale	Milestones / timeframes	Responsibility	Success criteria / outcomes
3.1	Open day for MSc and non-SAMBa PhD applicants following SAMBa equality practices	Decrease in offer acceptance rate amongst female MSc applicants; need to learn lessons from SAMBa which has been successful in increasing female PGR intake	All interviewees to meet cross-section of department, invited in gender-balanced batches wherever possible; visit days running by 2021	PGT DoS; PG Admissions Tutor	Female PGT acceptance rate returns to at least 35%, and proportion of female non-SAMBa PGR students increases to at least 30%, both by 2022
3.2	Develop "what to do if..." flow chart	PG survey highlight lack of knowledge of relevant policies on complains, maternity leave, etc.	Flowchart on PG Moodle zone by June 2020	DEDC chair	PG survey in 2022 shows at least 80% awareness of relevant policies and processes
4. Enhance support for female academics, especially at early career stages					
Ref	Action	Rationale	Milestones / timeframes	Responsibility	Success criteria / outcomes
4.1	"New staff" department meeting to include presentations from new PDRAs and teaching fellows	Some fixed-term staff reported to DSAT that they do not feel known by many colleagues in the department	PDRAs give talks at meetings from 2019-20	HoD / Dept co-ordinator	2022 staff survey shows 90% of PDRAs and Teaching Fellows feel welcome in the department
4.2	Coffee with Department Executive for all new staff		Coffee with Exec event occurs twice annually from 2020-21	HoD / Dept co-ordinator	

4.3	Publish up to date information on career breaks / flexible working / suspension of studies for PGRs + PDRAs	Only 29% of female PGs + PDRAs reported awareness of policies	Information appears on PG and staff Moodle zones by June 2020, updated annually	PGR DoS; DEDC Chair	2022 PG and staff surveys show 80% agree with statement on awareness of relevant policies
4.4	Promote mentoring scheme with annual email, and Department-funded coffee card coming with talking points guide (see AP 6.1)	Low uptake of mentoring scheme among non-probationary staff; Probationary lecturers focus group identified that mentoring was too variable, with different mentors focussing on different issues	Coffee card and talking points guide available in Dept office by Oct 2019	DEDC chair	2022 staff survey shows 80% satisfaction with mentoring scheme
<b>5. Further improve female academic recruitment rates</b>					
Ref	Action	Rationale	Milestones / timeframes	Responsibility	Success criteria / outcomes
5.1	Time job advertisements into biannual cycle, ensuring multiple posts are open simultaneously	Hiring for multiple posts in the same time period will enable more pair appointments including senior females	Majority of appointments grouped from 2020	HoD	At least 20% of SL/R/Prof appointments and 30% of Lecturer appointments over 3-year period (2019/20 - 2021/22) are women
5.2	Advertise senior job openings at SL/R/Prof wherever possible, appropriate offer level to be assessed at interview	Research suggests female applicants more than males likely to self-exclude from high-level positions	Majority of positions advertised at L/SL/R/Prof from 2020	HoD	

<b>5.3</b>	Improve Teaching Fellow advertisements - add a female contact point, emphasise career development opportunities	Low rate of application and appointment of female teaching fellows	New adverts in use for 2019/20 recruitment cycle	DoLT	Proportion of female teaching fellow staff in line with rest of department by 2022
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#### 6. Improve career progression opportunities for female staff

Ref	Action	Rationale	Milestones / timeframes	Responsibility	Success criteria / outcomes
<b>6.1</b>	Talking points guide for SDPR / mentoring, including grant applications, student supervision, next career steps / track to promotion, work-life balance	Female promotion success rate is lower than for male colleagues; need to ensure everyone eligible is thinking about their case from an early stage and is supported to write a strong case	Talking points guide in dept office, and emailed to SDPR reviewers annually shortly before SDPR process begins, from 2020	DEDC chair, HoD	Promotion applications and success rates at same level for men and women; success rates at least 75% over 3-year period 2019/20 - 2021/22
<b>6.2</b>	Annual promotions workshop led by Deputy HoD		Workshop takes place annually from 2019-20, attended by majority of eligible female staff	Deputy HoD	
<b>6.3</b>	DPC Chair and HoD to meet with unsuccessful promotion candidates to invite them to reapply and set out action plan for development of a new case	Need to fully support colleagues after unsuccessful promotion applications	Meetings to take place within one month of unsuccessful application; reapplication completed within agreed timeframe. Starting Oct 2019	HoD; Deputy HoD	

6.4	Department to provide CPD budget for professional and support staff	Need to improve departmental support for (majority female) PSS career progression	CPD budget available from 2019/20	HoD	75% of PS staff to attend CPD activities 2019/20 - 2021/22
6.5	Exec to develop nominations for professional and support staff contribution pay awards and other awards	Department has little control over PSS promotion etc; several PSS staff have been nominated for awards but this has been handled on an ad-hoc basis	Award nominations discussed at Exec meetings and assigned to suitable colleagues, beginning July 2019	Deputy HoD	At least one nomination each year from 2019-20
6.6	Formalise process for offering interview training for PDRAs and Teaching Fellows	Current provision is ad-hoc and not well-advertised	New process in place for 2020/21 recruitment cycle	DHoD	Survey of fixed-term staff in 2022 shows 100% awareness and 60% uptake
<b>7. Further improve department working culture</b>					
Ref	Action	Rationale	Milestones / timeframes	Responsibility	Success criteria / outcomes
7.1	Senior staff email signature to state that staff/students are not expected to respond outside normal working hours	Comments on PG / PDRA survey stating that "It is considered normal to work during the weekend" and "There is a lot of pressure to overwork to an unhealthy level"	Email signature appears on emails from all Department Executive by April 2020	HoD	Questions on student and staff surveys in 2022 show that at least 90% of respondents do not feel pressure from senior staff to work outside normal hours
7.2	Introduce annual induction/re-induction programme including appropriate ED&I specific training	Need to ensure all staff are upskilled in ED&I	Biannual programme running from 2020	HoD, DEDC Chair	All new starters from 2020 to attend in their first year, 80% of academic staff to have attended at least one re-induction session by 2022

7.3	Annual departmental equality review to monitor the progress of 2019 Action Plan and continued effectiveness of embedded 2016 actions.	Need to ensure progress against 2019 Action Plan and continued effectiveness of embedded 2016 Actions.	Annual review of Actions starting 2020	DEDC	Successful delivery of 2019 Action plan by 2022; further improvement in key gender-equality metrics
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