



Department Application Bronze and 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	Bronze	Silver
Word limit	10,500	12,000
<i>Recommended word count</i>		
1. Letter of endorsement	500	500
2. Description of the department	500	500
3. Self-assessment process	1,000	1,000
4. Picture of the department	2,000	2,000
5. Supporting and advancing women's careers	6,000	6,500
6. Case studies	n/a	1,000
7. Further information	500	500

Glossary

O_{O1}

Indicates *Outcomes* of previous Bronze award Action plan

A_{A1}

Indicates current *Action*

School Refers to the School of Mathematical Sciences

University Refers to the Institution, the University of Nottingham

AWM	"Advancing Women in Mathematics: Good Practice in UK University Departments", LMS Report, 2016.
APM	Administrative, Professional & Managerial (job family)
CES	University of Nottingham's Careers and Employability Services
ECR	Early Career Researcher
EDI	Equality, Diversity and Inclusion
EWM	European Women in Mathematics Association
FTE	Full Time Equivalent
GEN	Gender Equality in Nottingham
HoRG	Head of Research Group
HoS	Head of School
HoO	Head of Operations
LMS	London Mathematical Society
MathSoc	University of Nottingham Mathematics Society
PDRA	Postdoctoral researcher
PDPR	Personal Development and Performance Review
PGR	Postgraduate research student
PGT	Postgraduate taught student
RBDM	Research and Business Development Manager
R&T	Research and Teaching
SAT	Self-assessment team
SoMS	School of Mathematical Sciences
STEM	Science, Technology, Engineering and Mathematics
UG	Undergraduate student
UoN	University of Nottingham

Staffing data are based on full time equivalent (FTE; except where stated). Benchmarking data is taken from the Higher Education Statistics Agency.

Name of institution	University of Nottingham	
Department	School of Mathematical Sciences	
Focus of department	STEMM	
Date of application	April 2019	
Award Level	Bronze	
Institution Athena SWAN award	Date: August 2018	Level: Silver
Contact for application <small>Must be based in the department</small>	Professor Paul Houston	
Email	paul.houston@nottingham.ac.uk	
Telephone	0115 8467468	
Departmental website	https://www.nottingham.ac.uk/mathematics/	

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.

Letter of endorsement Word count: 497/500



University of
Nottingham

UK | CHINA | MALAYSIA

Faculty of Science
School of Mathematical Sciences
University of Nottingham
University Park
Nottingham
NG7 2RD

11 April 2019

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

Dear Athena SWAN Manager

I am committed to creating a positive and vibrant School environment to help all members of staff and students to achieve their full potential. This letter lays out my dedication to the equality of opportunity to everyone, regardless of their role, sex, ethnicity, sexuality, disability, faith or any other characteristic. I am proud to have taken an active role in shaping this application and ensuring the delivery of its programmes. I will be responsible for the implementation of the School Athena SWAN action plan and my active involvement with the School EDI committee enables this.

I have personal experience of the demands on staff with caring responsibilities, and am especially mindful of how hands-on management can have a strong positive effect on a staff member's work-life balance. I am currently working with staff members to co-create a Behavioural Charter for the School of Mathematical Sciences, to empower a culture that values all staff, and building on the core principles of Athena SWAN. This initiative reflects a more general commitment to making the School an inclusive environment, as evidenced by one of my first acts as the incoming Head of School to open-up the regular School meetings to all staff, and not just academics. This simple action has already helped break down old perceptions about barriers between job families.

Since 2015 I am delighted that our highly supportive promotions strategy has seen the well-deserved elevation of two female staff to full Professors and three female staff to Associate Professors. The continued growth of our female ranks has been pursued through the appointment of three female fellows. Moreover, a new female Assistant Professor has joined us in April 2019, following a proactive approach post interview to make two appointments instead of one. Nonetheless, improving our recruitment of female academics remains a key aim, and we have developed new initiatives to increase our future numbers.

I am also delighted to report that the School Pregnancy Support Plans developed in 2017 have been very well received and will be used as a foundation for a wider institutional document.

The School is a member of the London Mathematical Society Good Practice Scheme and has a prominent link on our front page. To support the advancement of women's careers in Mathematics

we have organised annual grassroots events with female alumni - Inspiring Mathematics, whilst for more established staff we focus on regular events relevant to networking, and equality issues.

The following Athena SWAN application was prepared collaboratively by our self-assessment team under the leadership of Dr Susanne Pumpluen, the School's Director of Equality, Diversity and Inclusion, whose commitment to Women in Mathematics initiatives has been recognised by the award of a 2018 Vice-Chancellor's medal.

I testify that the information presented in the application (including qualitative and quantitative data) is an honest, accurate and true representation of the institution/department, and strongly believe that it shows our commitment to the Athena SWAN Charter.

Yours sincerely

A handwritten signature in dark ink, appearing to read 'Paul Houston'.

Professor Paul Houston

Head of School of Mathematical Sciences and Professor of Computational and Applied Mathematics

2. DESCRIPTION OF THE DEPARTMENT

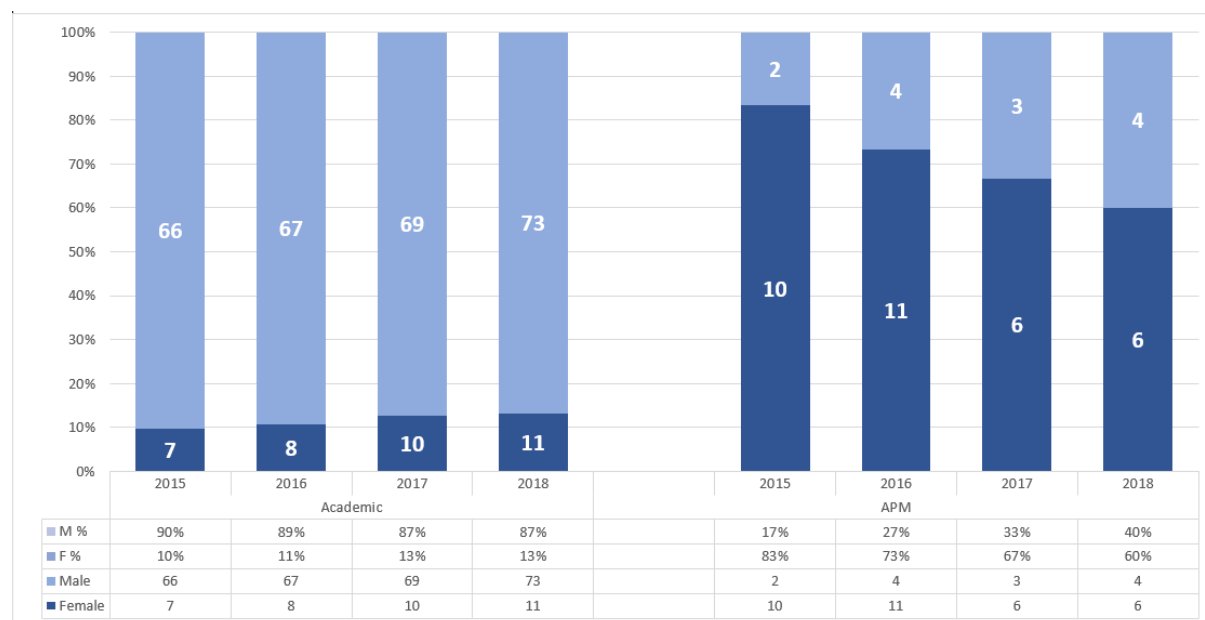
Recommended word count: Bronze: 500 words | Silver: 500 words

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

The School of Mathematical Sciences (SoMS) is part of the Faculty of Science (together with the Schools of Biosciences, Chemistry, Computer Science, Pharmacy, Physics and Astronomy, and Psychology) and is an international centre of excellence in Mathematics, ranked **10th for research** in the 2014 REF, rated **Gold** in the 2017 TEF, and ranked **9th** nationally in the 2019 Complete University Guide.

The School's research spans a broad spectrum of pure and applied mathematics and statistics, organised in seven overlapping research groups (Algebra and Analysis, Industrial and Applied Mathematics, Mathematical Medicine and Biology, Mathematical Physics, Number Theory and Geometry, Scientific Computation, Statistics and Probability), co-located in a single state-of-the-art and purpose-built facility that comprises accommodation for academic staff, postgraduates, undergraduates and administrative staff as well as a large adjoining lecture theatre. This provides a creative space for research, teaching, learning, social activity and administration. The School's **interdisciplinary collaborative research ethos** is reflected in the overlapping nature of the research groups, and extensive collaboration between members of the School and, for instance, the Nottingham University Hospitals NHS Trust; the Centre for Plant Integrative Biology; the Sir Peter Mansfield Imaging Centre; the Physical Sciences, Social Sciences, Arts, Medicine and Health Sciences, and Engineering Faculties. The School currently holds major research grants worth £15M; it has a vibrant seminar programme as well as numerous PhD student-led journal clubs.

Figure 1: Total number of staff by category and gender (2015-2018)



Currently, the School has over 84 full-time permanent academic staff, around 27 postdocs, 100 postgraduate taught (PGT) and 100 postgraduate research students (PGR) and around 1100 undergraduate (UG) students. The School also teaches mathematics to over 1000 students from other Schools. Figures 1 and 2 show the gender balance in the School. Overall, we currently have 13% female academic staff (2018/19), 33% female postgraduate (taught and research) students and 32% female

undergraduate students (2017/2018). In addition we note that the percentage of female research and teaching (R&T) staff has grown from 6% in 2015 to 10% in 2018, and that the gender balance in our postgraduate and undergraduate cohorts compares favourably with similar Russell group departments (27% PG, 25% UG; 2016/17). Administrative and Professional (APM) staff are 60% female (with male percentage increasing from 17% to 40% between 2015-18). Figure 3 shows the APM staff structure and gender of each role.

Figure 2: Total number of students by category and gender (2014-2017)

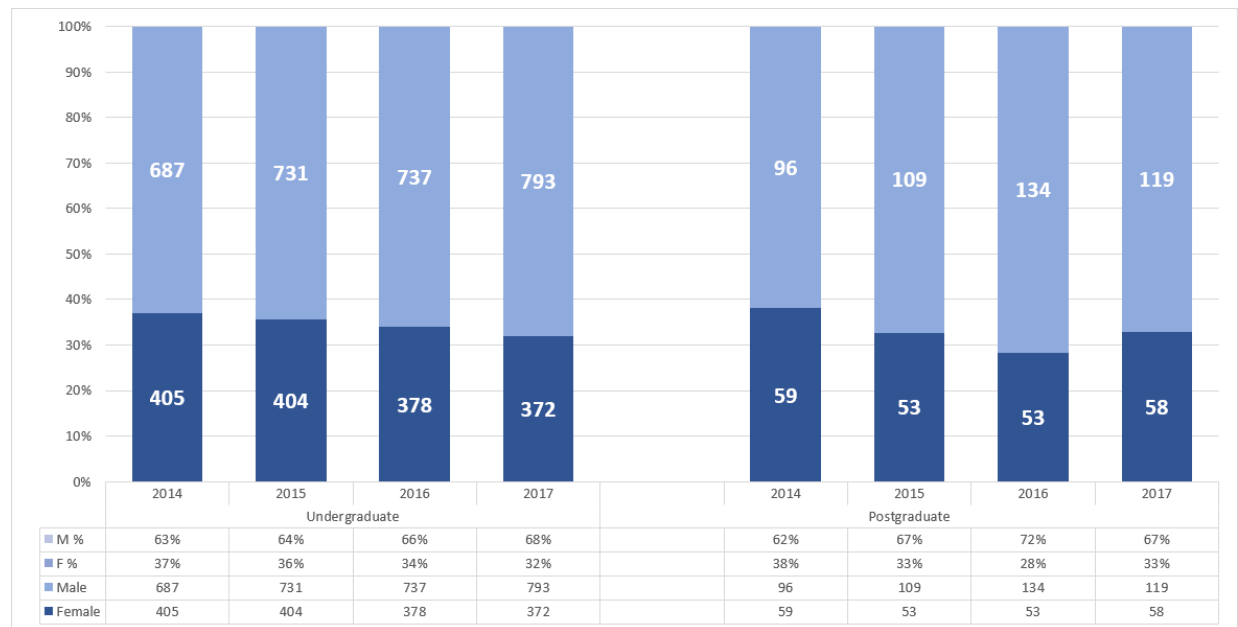
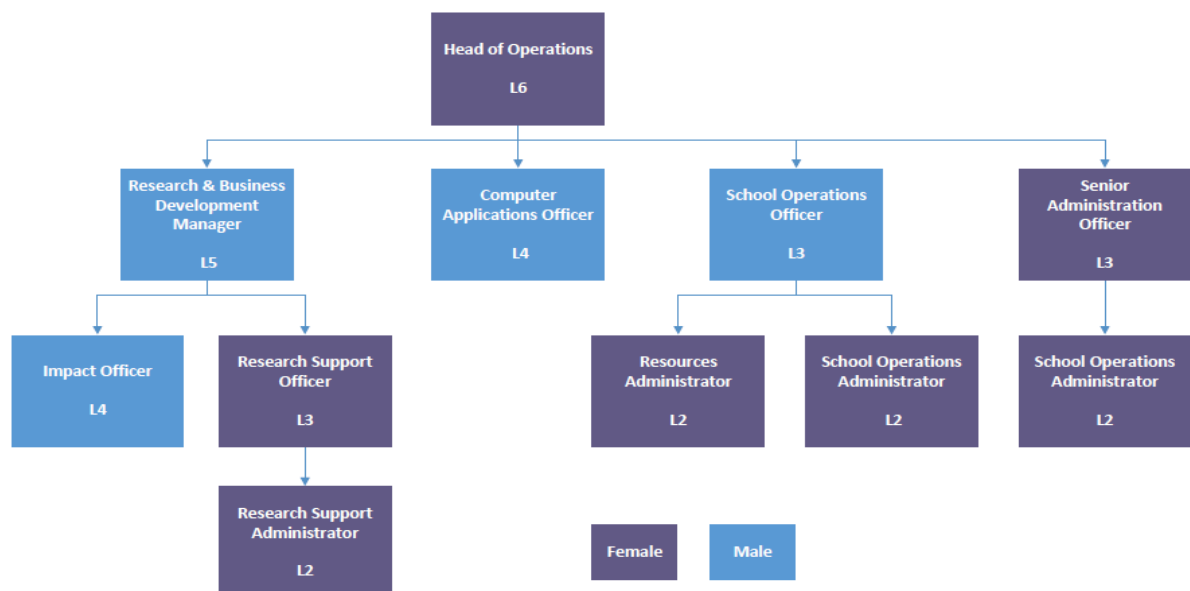


Figure 3: School of Mathematical Sciences APM staff structure



Our single honours Mathematics degrees (BSc, MMath) have an A-level tariff of A*AA/AAA/A*AB, and the School runs 3 other UG Programmes (Statistics, Financial Mathematics and Mathematics and Economics), with similarly high entrance requirements. In all cases, the admissions procedure is algorithmic (to avoid any bias), but flexibility is employed in offers on a Widening Participation basis.

Our postgraduate cohort is approximately evenly split between those on our **7 PGT programmes** and those studying for **PhDs**.

Word count: 450/500






3. THE SELF-ASSESSMENT PROCESS





Recommended word count: Bronze: 1000 words | Silver: 1000 words

Describe the self-assessment process. This should include:

(i) a description of the self-assessment team

The self-assessment team (SAT) is also the School's Equality, Diversity and Inclusion (EDI) Committee. This team, described in detail below, comprises representatives from R&T and APM job families from a range of career levels (including the Head of School), and PDRA and PGR representatives. The chair of the committee is also the School's Director of EDI and the Athena SWAN lead. SAT members are appointed by the HoS, after consultation with the Chair, and on consideration of staff workload allocation (measured via the SoMS Workload Model; see **Section 5.6 (v)**).

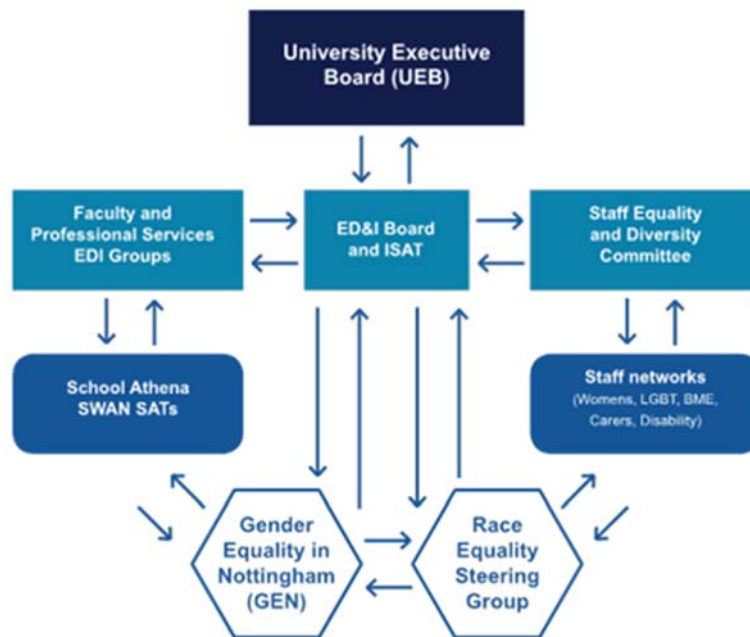
	Name	Role	SAT Role	Biography
	Susanne Pumpluen	Chair of SAT and EDI committee. Associate Professor.	Chair.	Joined SoMS in 2004, and is SoMS Careers Advisor and Tutor to Women.
	Leah Band	Assistant Professor. (Jointly employed with the School of Biosciences)	Academic staff representative.	Started PhD at UoN in 2003. Joined the SAT in 2018.
	Jennifer Gaskell	Assistant Professor and Research Fellow in mathematical modelling.	PDRA/Academic staff representative.	Completed her PhD (UoN) in 2016. School Health & Wellbeing Champion. Joined the SAT in 2016.
	David Hodge	Lecturer in Statistics, Digital Teaching and Learning Champion, UG Examinations Officer.	Academic staff representative. School EDI training lead.	School representative at numerous LMS, ECU events since joining department in 2010. Joined the SAT in 2017.
	Paul Houston	Head of School, Professor in Computational Applied Mathematics.	Academic staff representative.	Joined UoN in 2005; Head of School and SAT member since 2018.

	Harry Moriarty	Impact Officer, supporting REF and engagement activities.	APM staff representative; member of University EDI Committee.	Started in SoMS in 2015 as a project manager; joined the SAT in 2018.
	Reuben O'Dea	Assistant Professor in Mathematical Biology, PGR Admissions Officer.	Academic staff representative. Wellbeing survey lead.	Joined SoMS in 2013; previously UoN Maths UG, PGR and PDRA.
	Claire Palmer	Head of Operations.	APM lead.	Worked at UoN for 25 years, and joined SoMS in 2016.
	Katie Severn	Mathematics PhD student.	PGR representative.	PhD (3 rd year) following UoN Mathematics UG (2013-16). Organises Women in Maths events and seminars, and mental health awareness activities.

(ii) an account of the self-assessment process

The EDI committee was established in 2013 (originally named the Athena SWAN group) under the leadership of Susanne Pumpluen. The Chair of the SAT is a member of, and reports to, the Faculty EDI group, which monitors progress of the Action Plans. She is also a member of the University's Gender Equality in Nottingham (GEN) group, where best practice is shared and issues across the University are discussed. The Head of School reports EDI issues to the School's Executive Group. Figure 4 shows how these committees interact. The University Pro-Vice Chancellor for EDI is Professor Sarah Sharples, who sits on the University Executive Board.

Figure 4: The organisational structure showing how committees supporting Athena SWAN activities interact



The EDI committee met at least 4 times per year since its inception, leading to the renewal of the 2011 Bronze Athena SWAN award in 2015. This committee developed our last set of actions, leading, for example, to

- O 01.1, 01.7, 02.4, 02.9, 03.1, 04.8:** enhanced online visibility of female role-models via School web-site and social media, more prominent careers information, regular networking events, promotion of University career development courses, increased female numbers at Nottingham workshops and seminars.

Individual actions have a named responsible lead within SoMS, and progress is overseen by a nominated member of the SAT. Feedback from within SoMS on progress, issues arising or ideas for improvement are sought on a regular basis both informally and via surveys.

The September 2017 EDI committee meeting confirmed our plan to seek renewal of the Bronze award in April 2019, with a longer term aim to apply for Silver after successful implementation of the current action plan. In addition, one of our professors provided advice and feedback obtained via his membership of an Athena SWAN panel in 2016/17. Following this initial meeting, the SAT met 10 times. The first meeting of the 2018/19 academic year introduced new members to the SAT, and 3 subsequent meetings concentrated on developing the current action plan and analysing relevant data. Throughout this period, the chair arranged several Athena SWAN-specific satellite meetings between subsets of the SAT to look in more detail at survey data, discuss LGBT+ issues, discuss how to engage more staff with Athena SWAN initiatives, and capture best practice from other successful bodies.

Communication regarding EDI initiatives is facilitated via a SoMS intranet 'Workspace' page, accessible by all SoMS staff. All EDI committee minutes, together with other EDI-related material such as anonymous staff survey data, are published there. In addition to this, the development of this application was supported by an O365 shared drive (specifically to enable a collaborative writing effort). Drafts were circulated within the SAT for comment and development of specific aspects, as appropriate to the SAT members interest and expertise, and the whole application was made available

to the School for information and comment. In addition to SoMS feedback, the application was reviewed at the Faculty and University level.

Quantitative staff and student data analysed in this application were collected from the University Strategy Planning and Performance data unit, and benchmarked against HESA data. In addition, in 2017, the SAT commissioned a benchmarking report (as part of the LMS Good Practice Scheme), to provide detailed data on School diversity, and allow quantitative comparison against other UK mathematics departments. Anonymous staff and PGR student surveys (see references throughout this document) conducted within SoMS provide additionally quantitative and qualitative data regarding health & wellbeing, desire for specific EDI initiatives, and new ideas for exploration. These are conducted regularly, providing comparison data, and participation is generally good (e.g. Response rates: 2015: 65% academic staff, 58% PGR/PD; 2017: 57% academic staff, 36% PGR/PD; 2018(1): 42% academic staff, 41% PGR, 11% UG; 2018(2): 58% academic staff, 30% PGR/PD). We highlight that the 2018(1) survey aimed to uncover any issues of discrimination and raise awareness of LGBT+ issues in the School, and included the UG cohort.

We have found the survey data especially useful to collect, and are mindful of the benefits of increased response rate (**A_{A3}**). These data often form the backbone of EDI committee discussions, and has resulted in several new actions, such as

AA12,B5,C1,D6

Promoting the LGBT+ agenda, unconscious bias training, promotion of family-friendly School policies, improved PG and PDRA mentoring.

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

Following submission, the EDI committee will monitor and implement the action plan. SAT members responsible for each action will report progress at each EDI committee meeting. The EDI committee Chair will report to the Staff meeting (on which EDI matters are a standing agenda item).

EDI meeting minutes, and data from actions (as appropriate), will continue to be publicised on the SoMS intranet Workspace page, and all staff will be updated on the progress of ongoing initiatives via periodic email newsletter.

Together with the EDI Chair, the HoS will continue to ensure that the EDI committee has diverse members representing the School, by inviting staff and students to join, as appropriate (and with consideration of School role, and workload).

Word count: 903/1000

4. A PICTURE OF THE DEPARTMENT

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

4.1. Student data

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

Summary

- We currently have 32% female UG students across all our courses, which is slightly below the 2016/17 national average of 37%. However, this is above the national average for A-Level Further Mathematics students.
- We currently have 35% female PGT students, below the 2016/17 Russell Group average of 43%.
- We currently have 30% female PGR students, slightly **above** the 2016/17 Russell Group average of 27%.

(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.

Admissions

Our offered undergraduate courses do not include part-time study. However, we have a range of individually tailored, flexible arrangements for students with extenuating circumstances (recent examples include delayed MSc dissertation to accommodate PGT student pregnancy, reducing the number of UG modules taken per year due to exceptional circumstances).

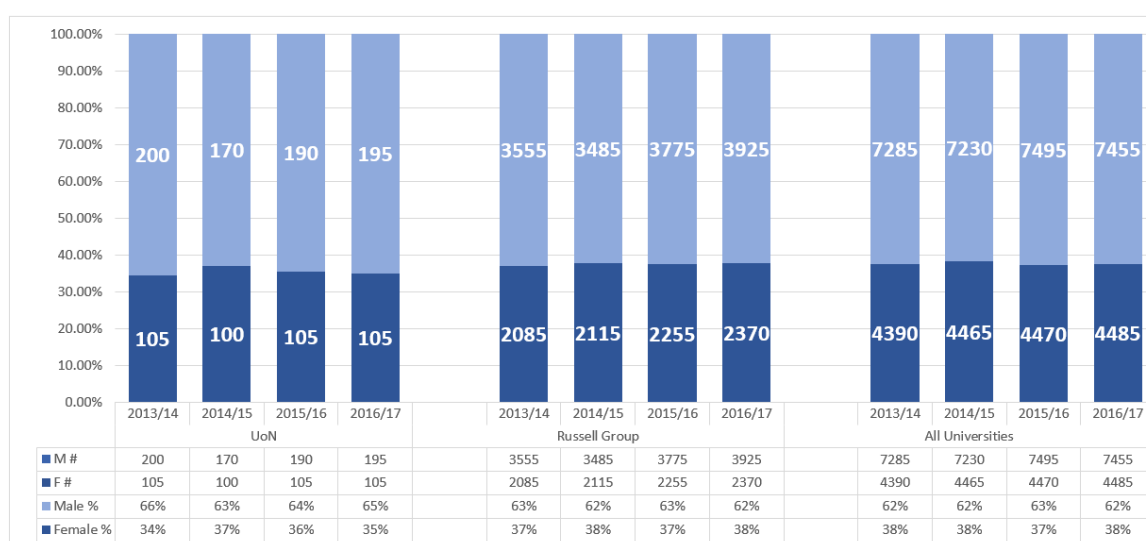
Our UG student numbers are steadily increasing; however, the percentage of female students is 32% (see Figure 2), below the national average of 37%, but above the 27% (2017; Joint Council for Qualifications A-level data) of female students taking A-level Further Mathematics. Around 80% of our students (male and female) have A-level further maths, though to encourage diversity in applications, Further Mathematics is not a formal entry requirement. The admissions procedure is algorithmic and we do not hold interviews (helping to avoid bias), but flexibility is employed on a Widening Participation basis.

Table 1: Total undergraduate students compared to national HESA (FTE) data (2013-2016)

Year	Female			Male		
	UoN	Russell Group	All Universities	UoN	Russell Group	All Universities
2013/14	38.0%	37.9%	38.8%	62.0%	62.1%	61.2%
2014/15	36.2%	37.3%	38.2%	63.8%	62.7%	61.8%
2015/16	35.3%	36.8%	37.7%	64.7%	63.2%	62.3%
2016/17	33.9%	36.8%	37.4%	66.1%	63.1%	62.5%

Figure 2, Table 1 and Figures 5-8 show the gender balance of our UG cohort, admissions data, and a comparison against HESA data. Figure 2 shows that the percentage of female UGs at UoN is declining slightly over the period 2014-18, and has generally been slightly below the Russell Group and National averages over the period 2013-17 (Table 1). However, Figure 5 shows that the percentage of female new-entrant UGs remains approximately constant, and very close to the national average. Figure 6 shows that the percentage of female applications, offers and acceptances of UG applications show no significant change over the period 2014-18 (except the positive change in 2018/2019 showing an increase to 36% female acceptances), and that the percentage of acceptances (varying between 30% and 36%) reflect the balance of original applications. Moreover, we note that the percentage of female applicants reflects that of Open day attendance (data not shown).

Figure 5: New entrant undergraduate students compared to national HESA data (2013-2016)



The data from Figure 2, Table 1 and Figure 5 indicates that our previous actions (O1.1: Increase online visibility of female mathematicians in SoMS; O1.2: UG/PGR/Staff outreach in local

Schools; O1.8: University “Taster days” for secondary School girls) have not, in the short-term, had the desired impact on increasing female UG numbers. We note, however, that our extensive outreach activities are having impact, as measured by attendance and feedback, and we anticipate that these will increase future female UG applications.

O01.2 Work with the students’ Maths Society, send students to primary and secondary schools, organize events with female UG / PGRs and staff geared towards female UG students

For example, at a recent Outreach event at [School] (January 2019, 20 attendees), 33% of attendees said that this event “had changed their attitude to studying a subject in which maths is a core part”. At another Widening Participation event, we saw 46 attendees with two female SoMS staff members. From this event positive feedback included:

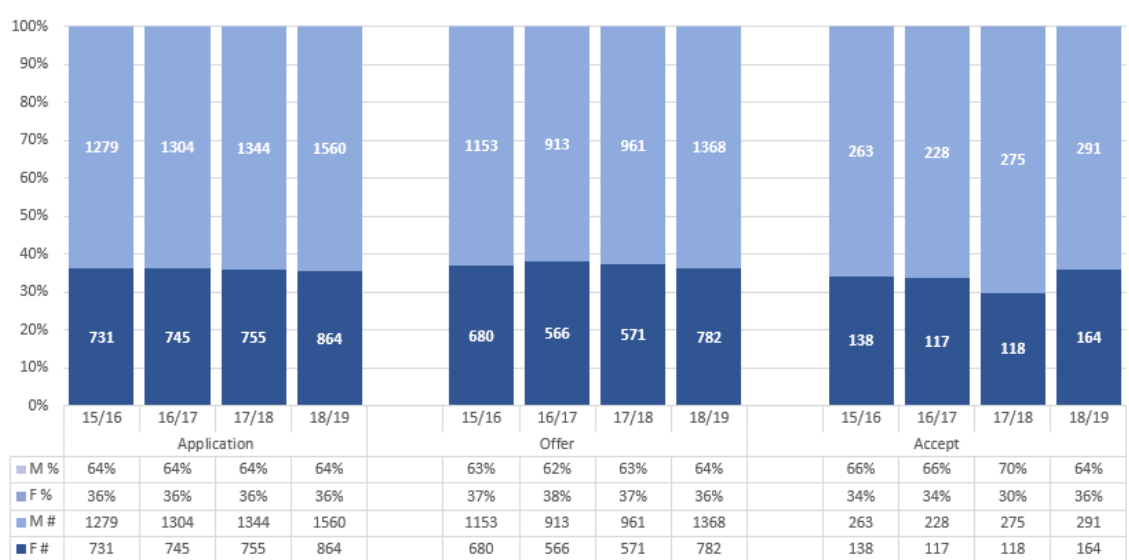
“ *“The speakers are passionate about the subject and it showed in their deliveries. Interesting to learn about real life applications of maths”* ”

We will continue these initiatives, and additionally:

A_{A5} Ensure there is a diversity of staff and student helpers at Open Days. To avoid overburdening female staff, introduce a Women in Maths stand with female UG/PGR helpers, and posters to showcase SoMS female staff and research.

A_{A6} Develop our marketing (prospectus, School and admissions web pages) to be more attractive and promote diversity, in order to increase the number of female applicants.

Figure 6: Number of undergraduate applications, offers, and acceptances (2015-2018)



Figures 7 and 8 provide a breakdown of gender balance on specific single honours and joint honours degree programmes (courses that are no longer offered only show historic data). For the larger cohorts the BSc programme has seen a small decline in female numbers, whilst the MMath course has remained constant. The MMath course has a significantly higher proportion of male students, prompting the following action.

A13

Investigate the reasons for low take-up of our MMath programme by female students.
Personal tutors to promote MMath to female UGs currently enrolled on the BSc.

Figure 7: Number of undergraduate students on specific single honours mathematical sciences degree programmes (2014-2017). 2+2 indicates our joint programme with UoN Ningbo.

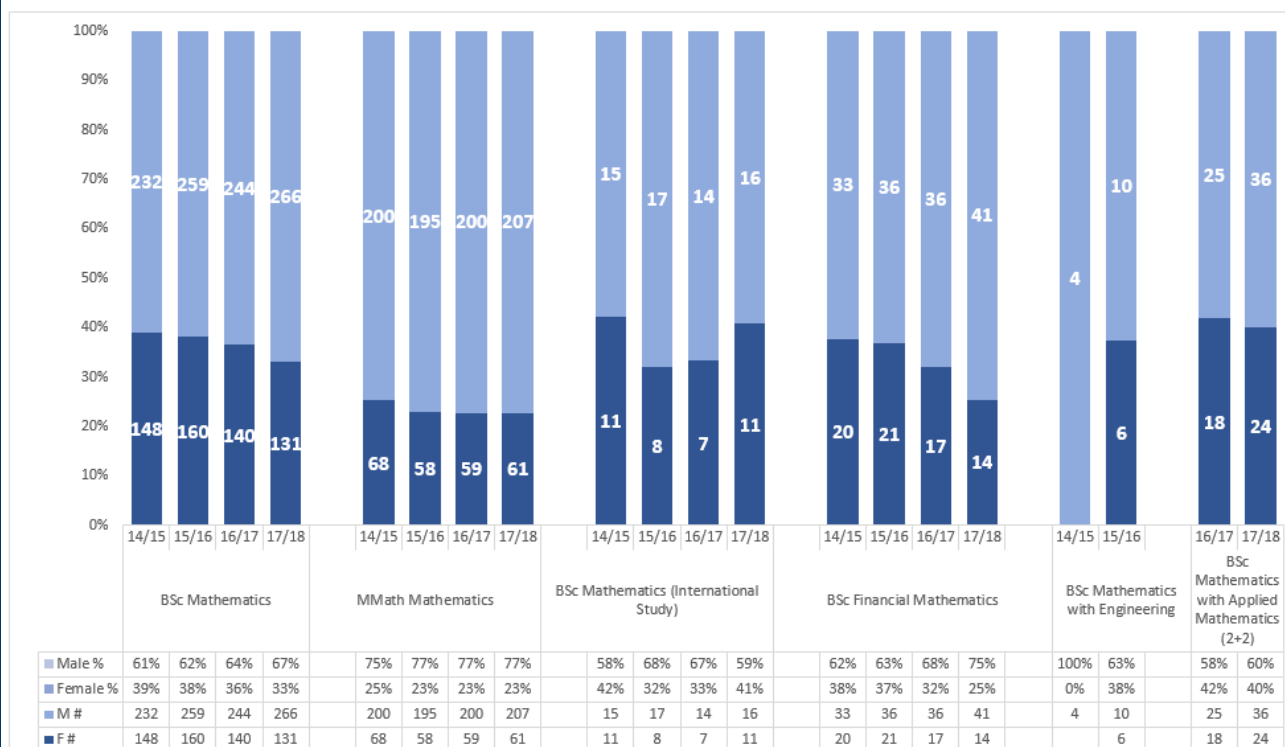
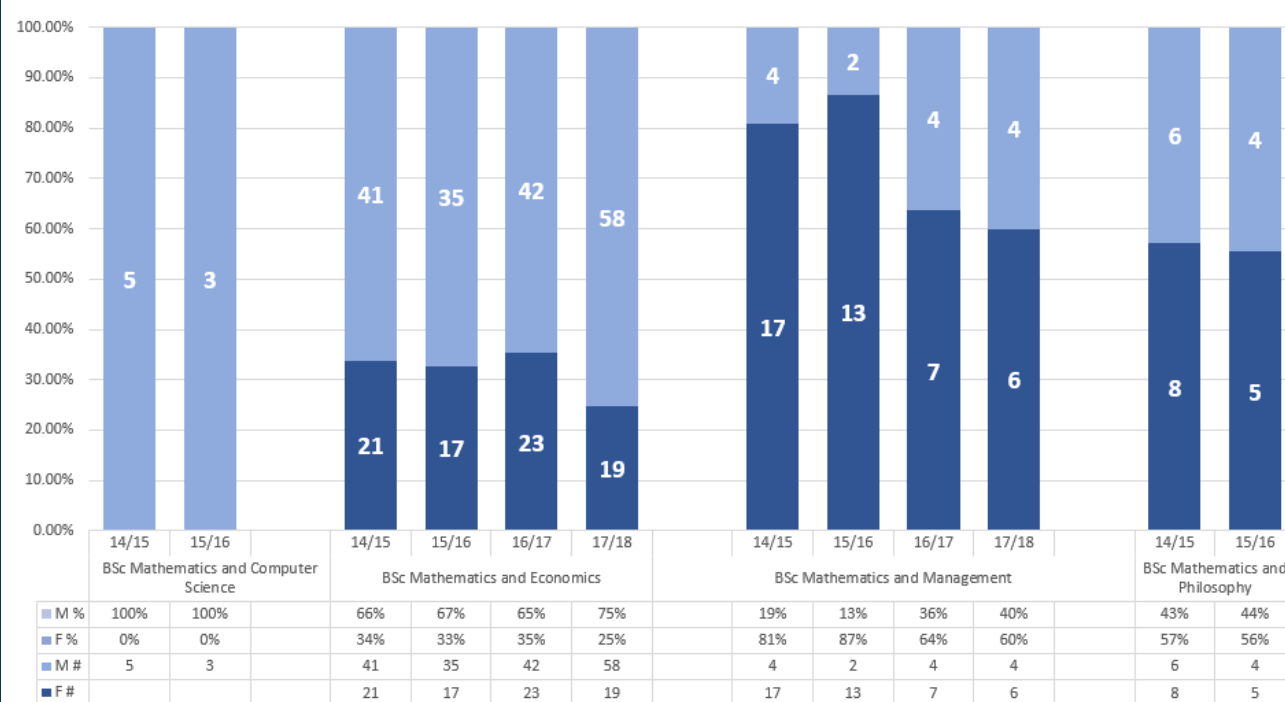


Figure 8: Number of undergraduate students on specific joint honours mathematical sciences degree programmes (2015-2018)



Attainment

Figure 9: Undergraduate degree outcomes by gender (2014-2017)

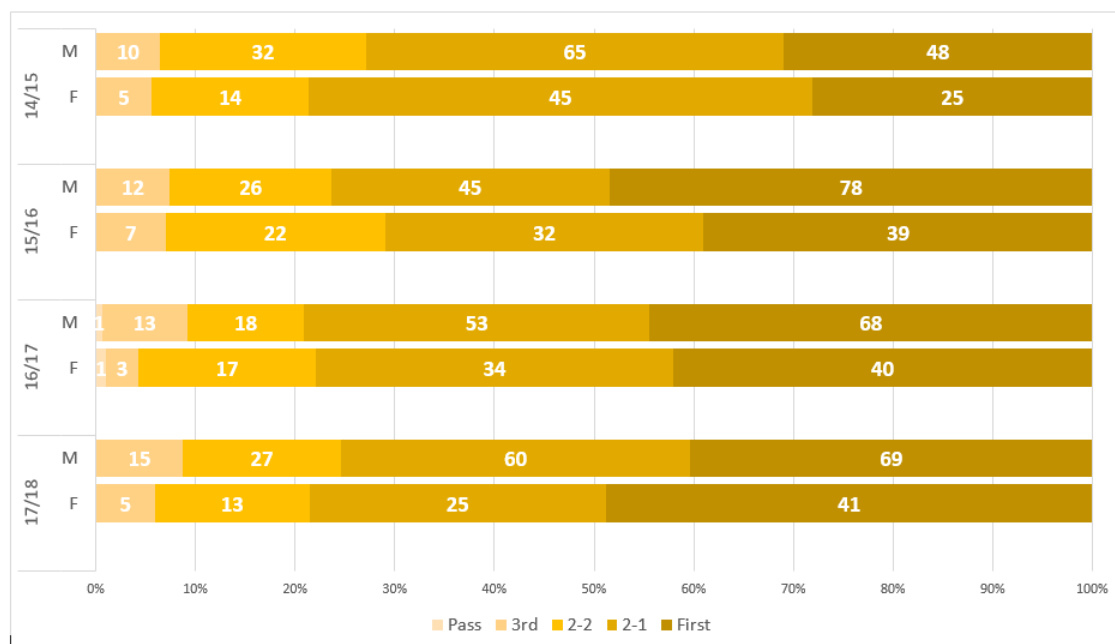


Figure 9 shows that female students attain at least as high degree classes as their male counterparts.

(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.

Admissions

The School offers seven PGT MSc programmes. As for UG courses, our offered PGT programmes do not include part-time study, and applications are processed algorithmically.

Figure 10 shows that the total number of PGT students is generally increasing, and the proportion of female PGTs lies between 35% and 48% (apart from a dip to 27% in 2016/17), comparable to the UK average of 39%, but slightly below the Russell Group average of 42% (HESA: 2014/15-2016/17) shown in Table 2.

Figure 10: Number of postgraduate taught students on Mathematical Sciences programmes by gender (2014-2017)

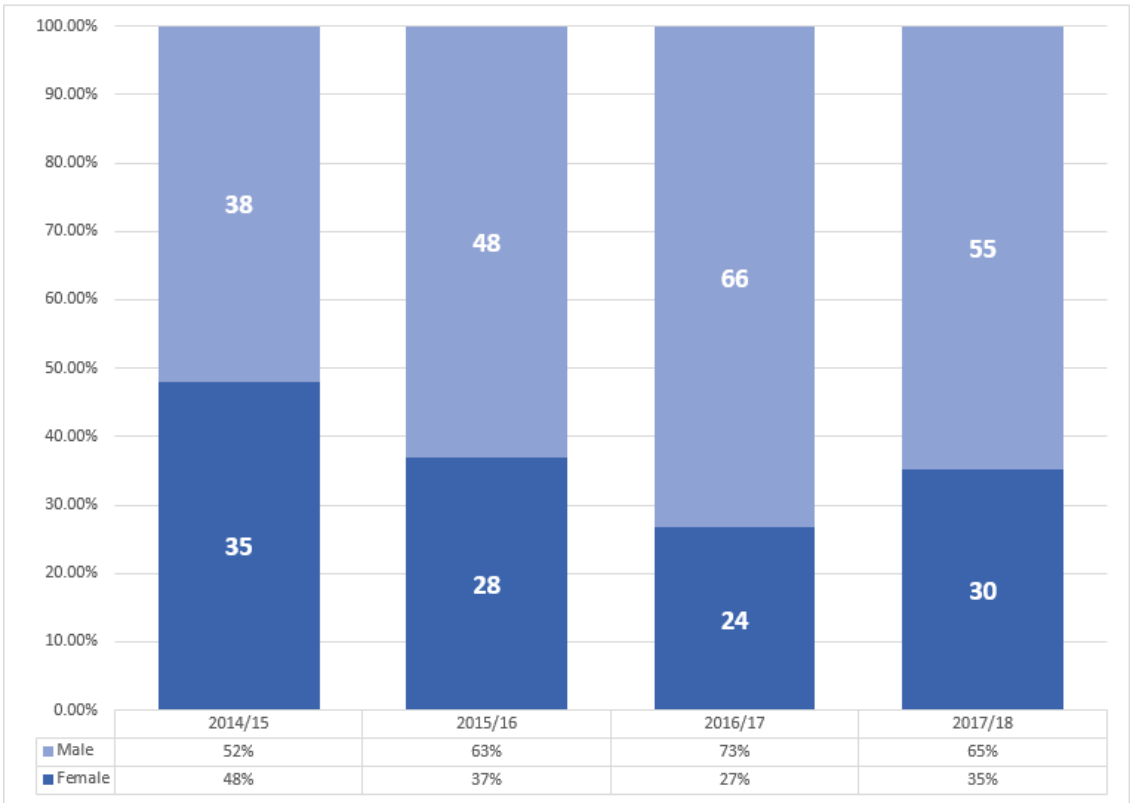


Table 2: HESA (FTE) data for Mathematical Sciences postgraduate taught new entrants by gender (2013-2016)

Year	Female			Male		
	UoN	Russell Group	All Universities	UoN	Russell Group	All Universities
2013/14	39.9%	38.0%	36.0%	60.1%	62.0%	64.0%
2014/15	56.9%	42.5%	39.6%	43.1%	57.4%	60.4%
2015/16	38.8%	42.8%	39.8%	61.2%	57.2%	60.2%
2016/17	26.9%	42.6%	39.4%	73.1%	57.0%	60.3%

Figure 11: Number of postgraduate taught applications, offers, and acceptances (2015-2018)

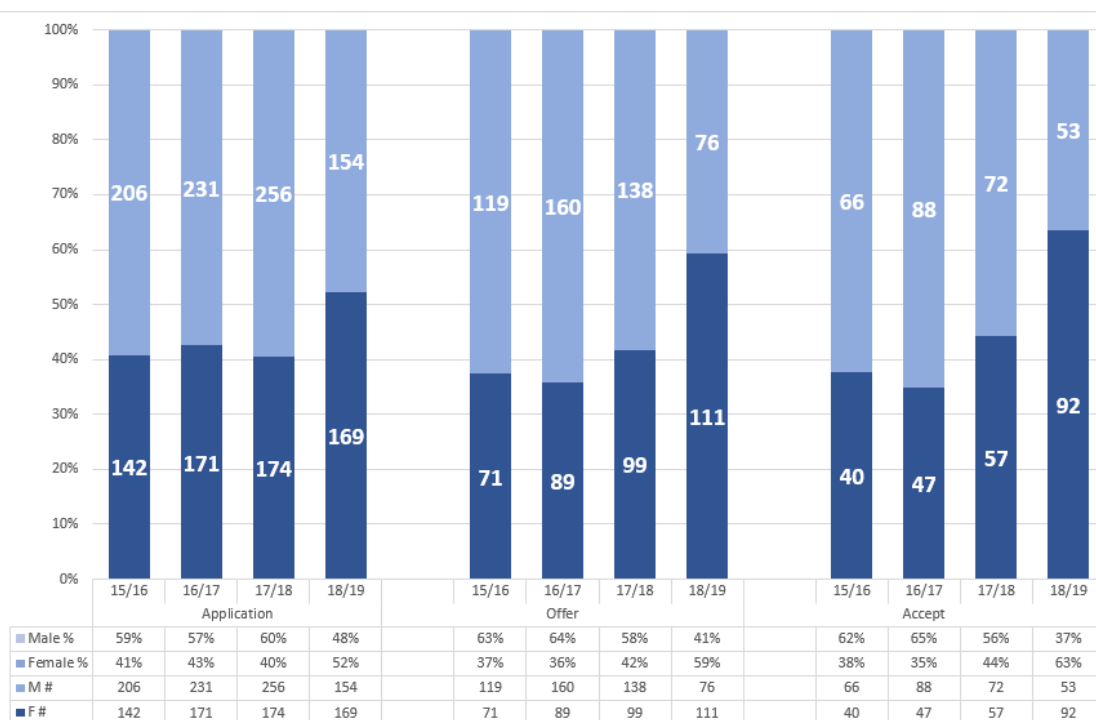


Figure 11 shows that our PGT acceptance levels are consistent with applications received and offers made, highlighting that our admissions procedures do not discriminate by gender. The acceptance data show a positive trend for increased numbers of female students in recent years with a current M:F ratio of 37:63. To build on this positive trend we will:

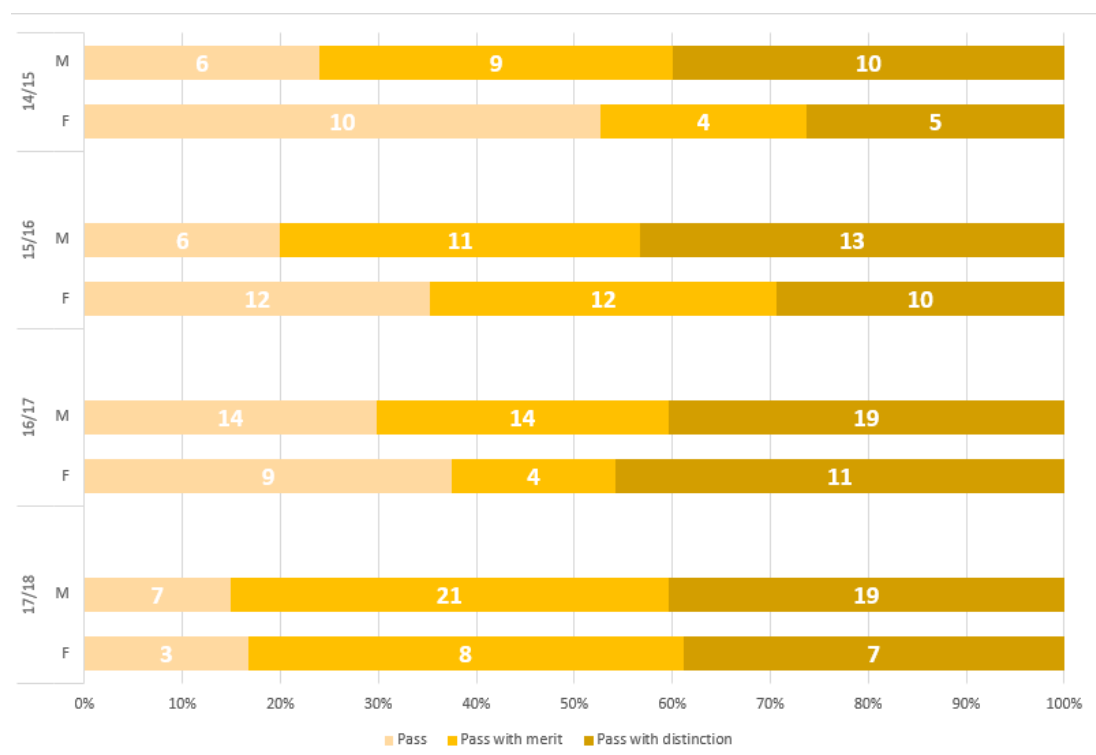
A_{A4}

Organise alumni showcase events to inspire UG to PGT conversion, e.g. the annual “Inspiring Maths” event with female with women graduates/alumni.

Attainment

As shown in Figure 12, in general, the proportion of male and female students attaining a distinction in our PGT courses is comparable. Note that the data in Figures 10 and 12 are not comparable due to MSc completion timings.

Figure 12: Postgraduate taught degree outcomes by gender (2014-2017)



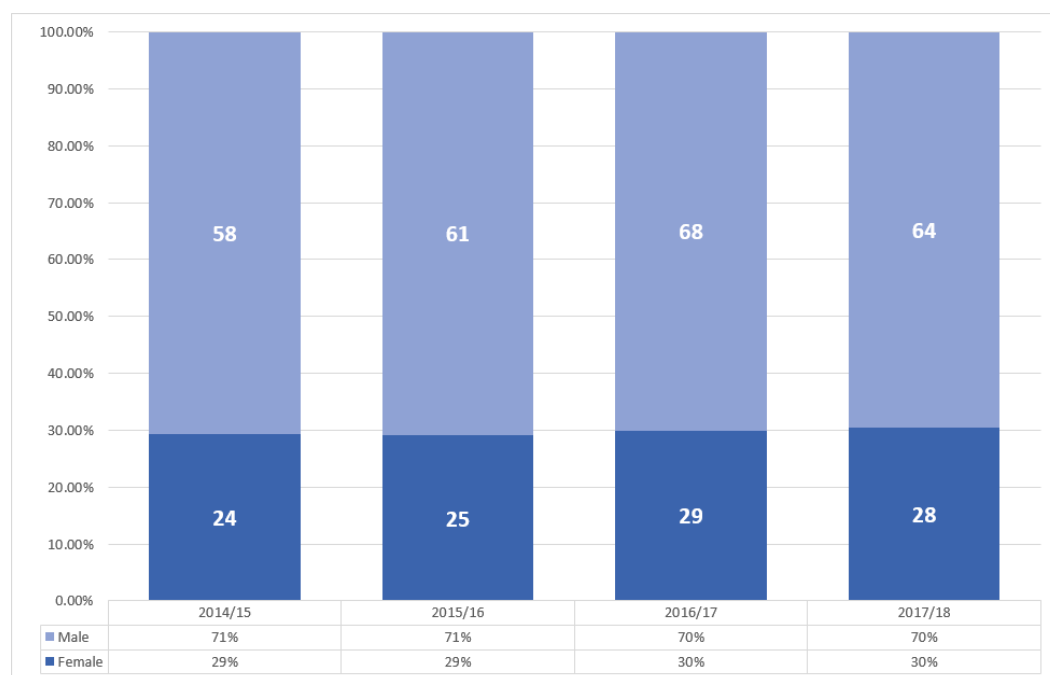
(iv) Numbers of men and women on postgraduate research degrees

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

Admissions

Our large PGR cohort has remained relatively stable over the last few years, at around 90 students, most of whom are full-time PhD students. We had one female student studying part-time in 2014/15 and one male in 2015/16. We do not offer MSc by Research.

Figure 13: Number of postgraduate research students on Mathematical Sciences programmes by gender (2014-2017)



The gender balance of our PGR cohort is consistently around 30% female (see Figure 13), comparing favourably with the percentage of female students at Russell Group universities over the period 2013-2017 (Table 3), and the new entrant gender balance in the Russell Group and the national average in 2015-17 (Table 4). We believe that this was influenced by the following Bronze action:

O02.13 Restructure the School's Postgraduate Open Days to make them more attractive, making use of current PGR research posters.

To continue to attract female PGR (and PGT) students, in addition to **A4** described above, we will

A01.10 Increase the number of visible diverse role models at our open days.

Table 3: Total postgraduate research student numbers compared to HESA (FTE) data (2013-2016)

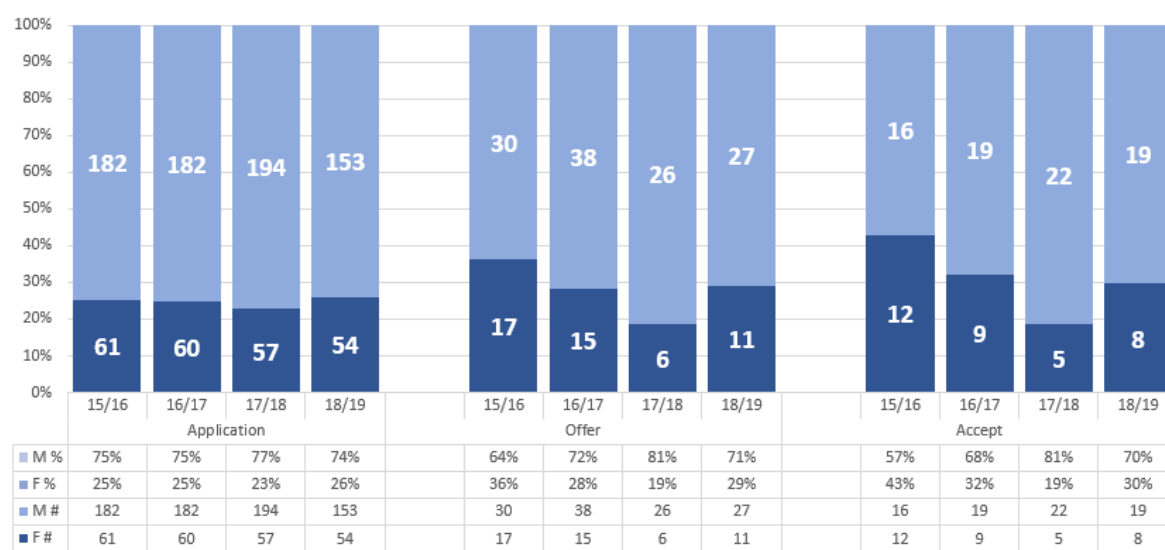
	2013/14		2014/15		2015/16		2016/17	
	Female	Male	Female	Male	Female	Male	Female	Male
School of Mathematical Sciences University of Nottingham	20	55	20	60	30	65	30	65
	28%	72%	29%	71%	29%	71%	30%	70%
Mathematical Sciences Russell Group	455	1300	460	1355	485	1405	520	1405
	26%	74%	25%	75%	26%	74%	27%	73%

Table 4: HESA (FTE) data for Mathematical Sciences postgraduate research new entrants by gender (2013-2016)

Year	Female			Male		
	UoN	Russell Group	All Universities	UoN	Russell Group	All Universities
2013/14	27.8%	25.9%	28.6%	72.2%	74.1%	71.4%
2014/15	24.7%	25.3%	28.4%	75.3%	74.7%	71.6%
2015/16	30.1%	25.7%	28.6%	69.9%	74.2%	71.3%
2016/17	30.5%	26.9%	29.7%	69.5%	72.9%	70.2%

Figure 14 shows PGR application data. Overall the female acceptance rate (69% over the period 2015/16-2018/19) is slightly higher than that for males (62%), reflecting a higher percentage of offers.

Figure 14: Number of postgraduate research applications, offers, and acceptances (2015-2018)



Attainment

Table 5 shows that the vast majority of our PGR students gain an external examiner-approved PhD within 5 years. Completion rates for each gender are broadly comparable when considering 4.5 or 5-year completion, but the data shows an apparently lower completion within 4 years for female students, and with high variability. This can be explained by the larger proportion of female students undertaking interdisciplinary research programmes with 3.5 or 4 year funded duration, rather than 3 years, and the relatively small size of the female PGR cohort.

Table 5: Postgraduate research student completion data (2010-2013 cohorts)

Cohort	Number (headcount not FTE) of Running Total Student Numbers						Percentage of Running Total Student Numbers					
	Within 4 Years	Within 4.5 Years	Within 5 Years	Within 5.5 Years	Within 6 Years	Over 6 Years	Within 4 Years	Within 4.5 Years	Within 5 Years	Within 5.5 Years	Within 6 Years	Over 6 Years
Female												
2010	1	8	10	10	10		9%	80%	100%	100%	100%	
2011	3	4	5	5	5		57%	79%	100%	100%	100%	
2012	1	3	3	3	3		25%	63%	63%	63%	63%	
2013	2	10	12	12	12		5%	50%	68%	68%	68%	
Male												
2010	6	12	19	20	20	20	32%	58%	90%	93%	93%	93%
2011	5	12	14	15	15	15	31%	80%	92%	100%	100%	100%
2012	8	15	18	19	19	19	45%	72%	82%	83%	83%	83%
2013	11	22	27	27	27	27	35%	72%	90%	90%	90%	90%

(v) Progression pipeline between undergraduate and postgraduate student levels

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

The School and the University's Careers and Employability Services (CES) collect leavers' data every year. Overall, the return rate is very low and, where the gender data is available, there is no statistically relevant difference between male and female students choosing to continue studying for a postgraduate degree. Around 20% of our UG students undertake post-graduate study.

A key aim is to **improve the progression pipeline** between UG and PGT and PGR degrees. As described above, the proportion of female PGTs is broadly in line with the UK average of 41%. However, these student numbers are highly variable, and also included a decrease far below the national average to 27% in 2016-17. Similarly, while our PGR cohort has 30% female students, comparing favourably with the Russell Group (see Figure 13, Table 3), Table 4 shows that the proportion of new entrants is highly variable, and included a decrease to 25% female students in 2014/15.

In addition to the initiatives described above (e.g. A_{A3,A4,A5}) we will continue to **promote our Summer Undergraduate Bursaries to female students**. Funded both by the School and UK research councils, we have identified these as a key method to provide female students with experience of research, to strengthen their CV, and to give the confidence for future postgraduate application. This work is showcased at the annual Undergraduate Research Expo.



Undergraduate Research Expo in the Mathematical Sciences atrium

These bursaries have been highly successful - in the last four years, 8 recipients of Summer Undergraduate Bursaries (4 male, 4 female) became PGRs in the School.

In particular, from 2014-2019, we have two externally funded summer research internships **exclusively for female** undergraduates (Dr Margaret Jackson Bursary).

O02.1

Employ "Dr Margaret Jackson bursaries" to support female UG research.

Feedback from a female PhD student highlights their value:

“ I did a summer internship at the University of Nottingham in statistics between my second and third year of my undergraduate degree, which let me see what doing a PhD was like and encouraged me to do a PhD.”

Uptake by female students of these bursaries is a concern (5 out of 14 in 2015; 5 out of 18 in 2016; 4 out of 23 in 2017; 4 out of 24 in 2018 students were female); we aim to increase this uptake (to 30% from 2019) to aid UG to PG conversion.

AA8

Improve promotion of UG summer bursaries to female students. Include talks from current female PGRs who did summer projects, to promote their benefits.

4.2. Academic and research staff data

Summary

- After significant increase in 2016, the number of female staff remains stable.
- Increasing numbers of female staff are being promoted to levels 6 and 7.

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

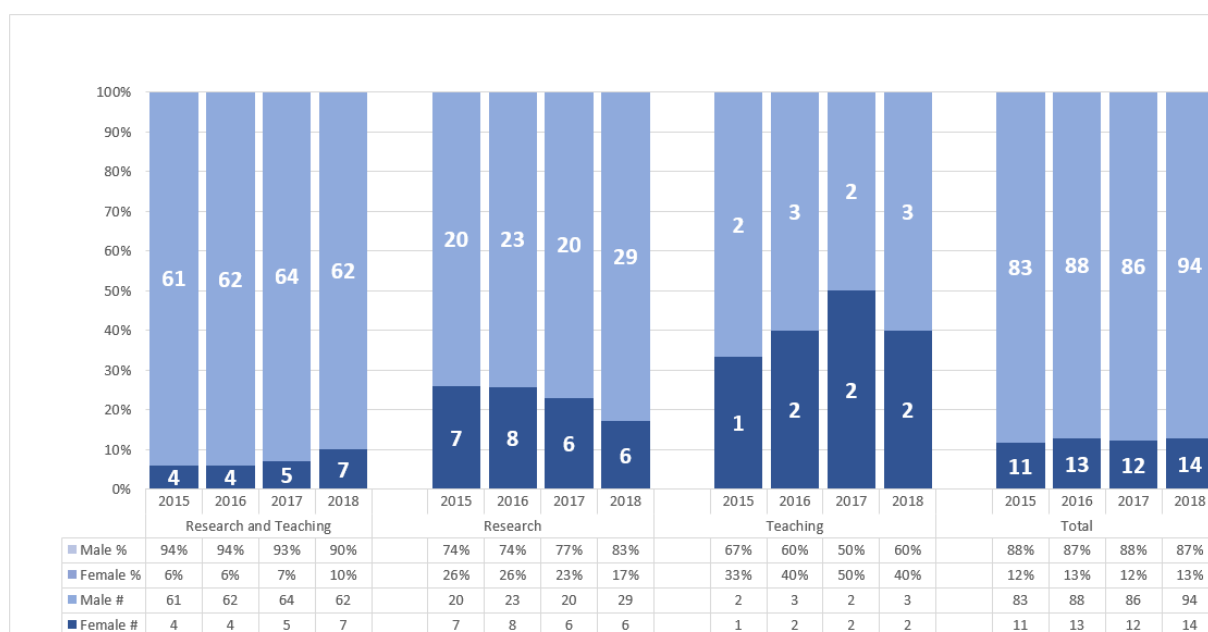
Look at the career pipeline and comment on and explain any differences between men and women. Identify any gender issues in the pipeline at particular grades/job type/academic contract type.

SILVER APPLICATIONS ONLY

Where relevant, comment on the transition of technical staff to academic roles.

Staff data for the period 2015-18 is summarised in Figures 1, 15 and 16, and Table 6. The School has no staff in the technical job family. We note that Level 4 corresponds to Research Associate/Fellow, Level 5 to Assistant Professor or Senior Fellow, Level 6 to Associate Professor or Principal Fellow and Level 7 to Professor.

Figure 15: Academic staff by job family and gender (2015-2018)



The vast majority of our staff hold Research and Teaching contracts; of the remainder, a higher proportion of our staff hold research-only contracts than those holding teaching-only contracts, though the latter has increased in recent years.

Research and Teaching staff

The proportion of female staff is low, although recruitment at the junior and mid-levels is improving this balance.

O_{03.2,3} Pro-active approaches to recruitment of academic staff, including direct advertisement to suitable female candidates, and to increase female research staff appointments via fellowships.

Research staff

The proportion of female staff is fair (consistently around 20%). However, not to be complacent we are actively pursuing the use of the Nottingham 100 Fellows scheme (Nottingham Research Fellowships, Anne McLaren Fellowships, and Beacon Fellowships) to bolster our proportion of female research staff.

A_{D1} Increase female fellowships exploiting both internal funding and prestigious external independent fellowship schemes (building on the experience of our Nottingham female fellows, Anne McLaren and Royal Society University Research Fellow).

Teaching staff

The M:F ratio for teaching has been relatively stable in recent years (at roughly 1:1), albeit with small total numbers.

Figure 16: Proportion of academic staff (FTE) at each level (academic years 2015-2018)

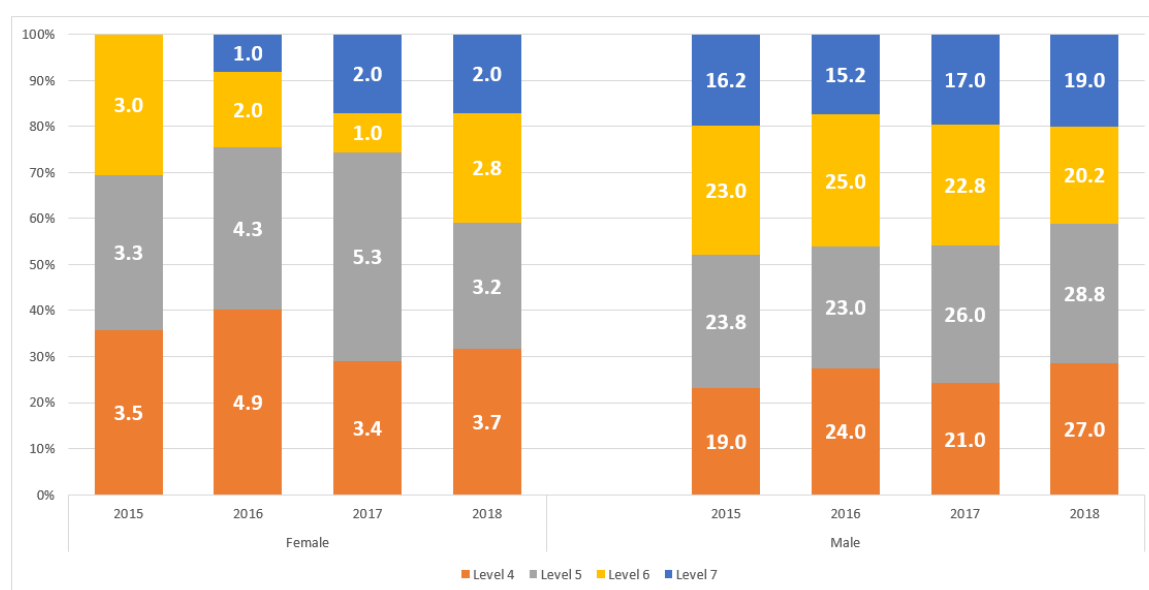


Table 6: Academic staff by gender and level compared to HESA data

Institution	Level	2013/14		2014/15		2015/16		2016/17	
		Female	Male	Female	Male	Female	Male	Female	Male
University of Nottingham	Other academic	10%	90%	14%	86%	13%	87%	12%	88%
	Professor	0%	100%	0%	100%	6%	94%	11%	89%
Russell Group	Other academic	21%	79%	21%	79%	21%	79%	22%	78%
	Professor	8%	92%	7%	93%	9%	91%	10%	90%

Figure 16 shows the proportion of academic staff at each grade in the School over the period 2015-18, and Table 6 provides a comparison against the Russell Group over the period 2013-17. These data indicate that the distribution of male staff remains relatively stable, but due to low numbers the fluctuations in female staff are larger. However, we highlight **recent increases in female staff numbers at Level 6 and Level 7**, and highlight that our proportion of female level 7 (professorial) staff exceeds that of the Russell Group in 2016/17. In the last four years, two female members of staff were promoted to full professor and two to associate professor/senior research fellow. A new female member of staff will be appointed as Assistant Professor in April 2019, and a current female member of staff will be promoted to Associate Professor in August 2019.

We attribute these successes to our Bronze actions, such as **O_{03.2,03.3}**, as well as actions for promotion (see **Section 5.1 (iii)**), and:

O_{02.1}

Pro-active approach to promotions, including annual CV review for all staff and additional encouragement to staff who have remained on the same grade for a long period

Currently, the School's female staff consists of two professors promoted in 2015 and 2016, two Associate Professors (one at 0.8 FTE) and three Assistant Professors (one at 0.6 FTE, a shared post with Biosciences), one Principal Research Fellow, one Anne McLaren Research Fellow and one Research Fellow.

The School has been highly proactive in its attempts to recruit more female members of staff at all levels. However, despite initiatives including wider advertising (e.g. American/European Mathematical Societies, European Women in Mathematics), including an Athena SWAN champion on appointment panels, and those highlighted above (**O_{02.1,03.2,03.3}**), improving our recruitment of female academics remains a key aim. To address this, we will continue and expand our actions described above, and also:

A_{D3}

Mandate Unconscious Bias, Race Bias, LGBT+ awareness training for all interview panel members (including the *University Diversity in Recruitment* activity), and increase the representation of female staff on panels.

A_{D4}

Redevelop advertising material to improve flexibility (including interview dates), and to ensure the absence of bias, use of gender neutral language and wider skills requirements of roles.

(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.

The School employs no staff on zero-hour contracts. Figures 17 and 18 summarise the numbers of staff on different contract types, by gender and grade. As indicated in the data presented in **Section 4.2(i)**, the dominant contract type at each level (Level 4: full-time, fixed-term; Levels 5-7: full time, permanent) has a low proportion of female staff. However, we note recent welcome improvements at levels 6 and 7.

Figure 17: Numbers of staff on fixed-term contracts, by Level (2015 - 2018)

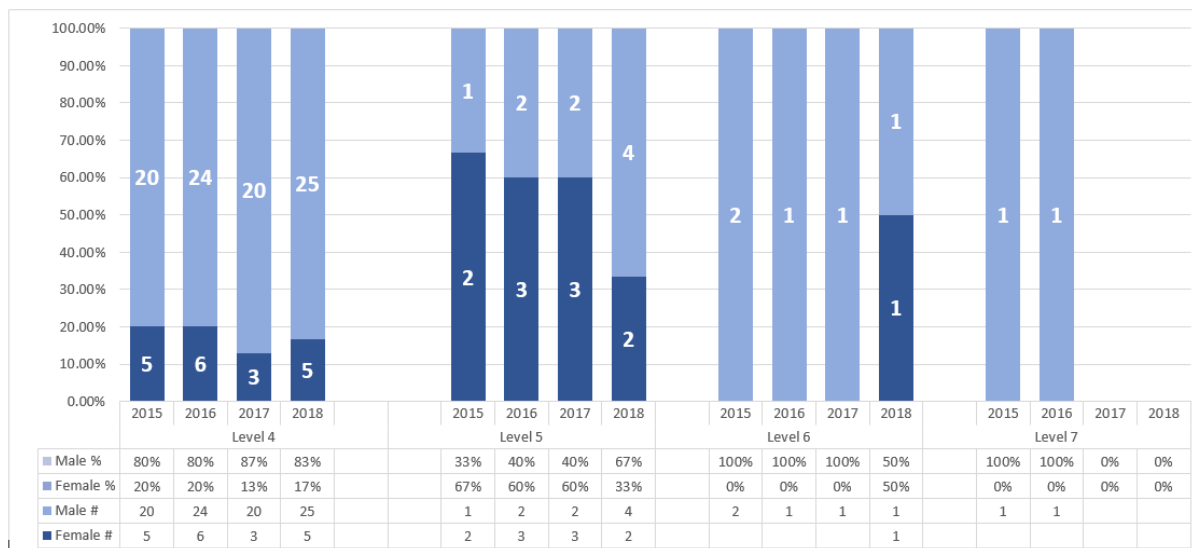
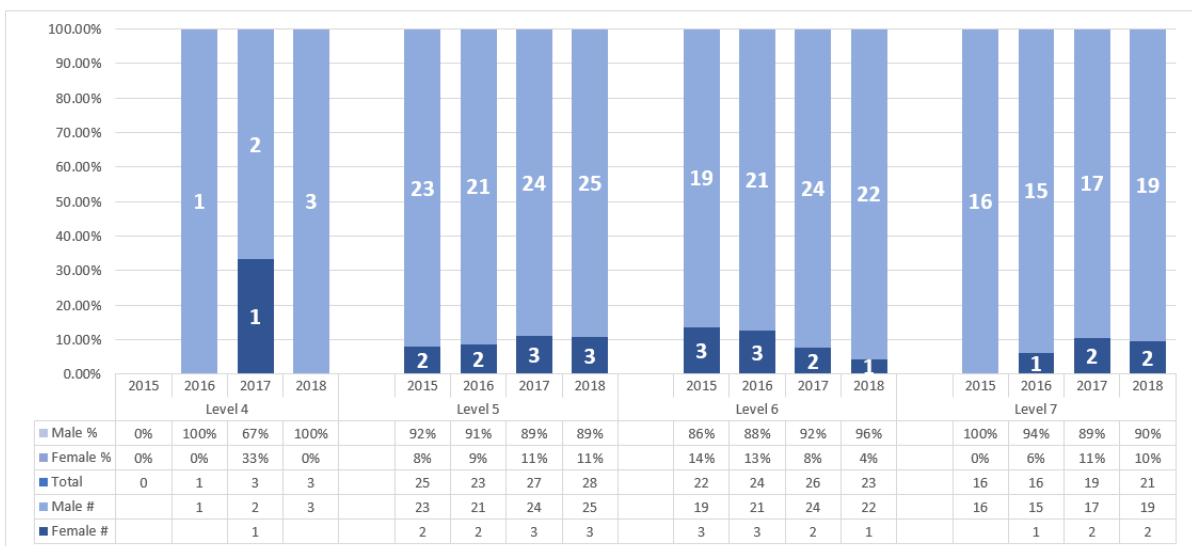


Figure 18: Numbers of staff on open-ended contracts, by Level (2015 - 2018)



Redeployment and return to work

All staff at the end of a fixed-term contract are eligible to enter the UoN's redeployment scheme. This scheme considers them for a position ahead of any advertising approach to external candidates. Should they apply and fit the job criteria, a successful interview leads to an immediate offer.

(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.

Table 7: Academic leavers by part-time/full-time and gender (2015-2018)

Gender / Year									
		F				M			
FT/PT Status	UoN Leave Reason	2015	2016	2017	2018	2015	2016	2017	2018
Full-Time	Expiry of Contract	2		2	1	5	6	8	8
	Redundancy/Voluntary Severance							1	
	Resignation			2		1	2	3	2
	Retirement						2		
Part-Time	Expiry of Contract		1	1				1	
	Resignation		1			1			
	Retirement					1			1

Table 8: Academic leavers by level and gender (2015-2018)

Gender / Year									
		F				M			
Level	UoN Leave Reason	2015	2016	2017	2018	2015	2016	2017	2018
4	Expiry of Contract	2	1	3	1	3	5	8	7
	Redundancy/Voluntary Severance							1	
	Resignation		1	1		2		3	2
5	Expiry of Contract					2			1
	Resignation			1			2		
	Retirement					1			
	Retirement						1		1
7	Expiry of Contract						1	1	
	Retirement						1		

As shown in Tables 7 and 8, since 2015, there has been a turnover of 52 (10 female/42 male) academic staff. Note these data correspond to headcount rather than FTE. These data are

collected centrally and via exit interviews, and none of these raised issues of unhappiness with the School. The turnover of level-4 staff is greater than in other levels, since these are mainly posts associated with fixed-term research grants.

Word count: 2156/2000

5. SUPPORTING AND ADVANCING WOMEN'S CAREERS

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

5.1. Key career transition points: academic staff

Summary

- A new approach to recruitment and marketing is being introduced to improve the recruitment of women to academic posts.
- The annual PDPR process encourages staff to apply for promotion when relevant.

(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.

The School has an Athena SWAN champion on each hiring panel, advertises directly to female academics working in the relevant research area, and is proactive in contacting female mathematicians at other universities to advertise vacancies. This resulted in the appointment of

[REDACTED]

This builds upon our previous action plans (**O_{03.3,3.2}**) to use tenure-track fellowship routes to lectureships to attract more women.

All job advertisements are worded gender neutrally and were rewritten in 2018 to explicitly acknowledge ATHENA SWAN principles (**A_{D4}**). University and School policies in relation to flexible working and childcare availability are described in detail in the staff handbook (available online).

The School holds job interviews in core hours, with the option of an interview via Skype if the candidate is unable to travel, and now puts the interview date for the post on the advertisement, so that potential candidates can plan and organise any family commitments (**A_{D4}**).

To expand the applicant pool, wherever possible we offer two year (rather than one year) fixed-term contracts, and similarly wherever possible all positions are offered on a part time basis.

Table 9: Numbers of applications to academic posts by gender and grade (2015-2018). This data does not include the small number of applications that did not specify gender.

		Applications		Shortlisted		Offered		Accepted	
		Female	Male	Female	Male	Female	Male	Female	Male
Level 4 Associate / Fellow	2015	39	173	8	20	3	8	3	7
	2016	37	165	7	22	2	11	2	9
	2017	55	166	5	36	2	11	2	11
	2018	29	120	10	43	3	19	3	17
Level 5 Assistant Professor/Senior Fellow	2015	13	96	4	12	2	4	2	4
	2016	31	164	3	12	0	4	0	4
	2017	4	33	0	6	0	3	0	2
	2018	2	19	1	5	1	3	1	3
Level 6 Associate Professor	2015	4	19	1	3	0	2	0	2
	2016	-	-	-	-	-	-	-	-
	2017	0	1	0	1	0	1	0	1
	2018	-	-	-	-	-	-	-	-
Level 7 Professor	2015	5	57	0	3	0	2	0	0
	2016	-	-	-	-	-	-	-	-
	2017	-	-	-	-	-	-	-	-
	2018	-	-	-	-	-	-	-	-

Table 10: Percentage of shortlisted and offered applicants to academic posts by gender and grade (2015-2018).

Level / Year		% Shortlisted from applicants		% Offered from shortlisted	
		Female	Male	Female	Male
Level 4 Associate / Fellow	2015	29	71	27	73
	2016	24	76	15	85
	2017	12	88	15	85
	2018	19	81	14	86
Level 5 Assistant Professor/ Senior Fellow	2015	25	75	33	67
	2016	20	80	0	100
	2017	0	100	0	100
	2018	17	83	25	75
Level 6 Associate Professor	2015	25	75	0	100
	2016	-	-	-	-
	2017	0	100	0	100
	2018	-	-	-	-
Level 7 Professor	2015	8	92	0	100
	2016	-	-	-	-
	2017	-	-	-	-
	2018	-	-	-	-

The overall percentage of women who are shortlisted is close to the percentage of female applicants. The percentage of offers at level 4/5 is 16.7% (consistent with shortlist %), but the number of offers at level 6/7 is zero. Although the percentage of females applying to our posts is small the percentages of females shortlisted or given job offers are similar to the number of applications.

Table 11: Percentage of women combined over the years 2015-2018 for Levels 4/5 or Levels 6/7 jobs

	Overall percentages of women 2015 - 2018	
	Level 4/5	Level 6/7
Applicants	17.8	10.3
Shortlist	18.9	12.5
Offer	16.7	0

A_{D3} Expand our recruitment panel membership. More junior staff members to be included (to diversify skillsets and provide training), and where possible include a female member of staff (and if necessary from another School).

A_{D4} Strengthen recruitment using a new School Brochure for circulation to potential candidates.

(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.

The School has a comprehensive induction process that is given to all new members of staff. Immediately following recruitment, they receive a welcome email, which confirms next steps, and if appropriate, support with their visa application. A follow-up email is sent prior to the staff member's start date, to set up the induction meeting, and which provides important, initial information that assists them in preparing for their new role.

An appointed member of staff **welcomes the new staff member in person** on their first day, where a bespoke induction to the department and information about key procedures are provided. All new members of staff receive a tailored electronic induction pack (**O_{6.1}**), and key support information is located on our internal Workspace pages. These contain important information relating to the workplace, including health and safety, School and University policies, EDI information, procedures and links to research/teaching and learning information. Meetings are arranged for the new staff member with the Line manager, Head of School, Head of Operations and the Director of Teaching and Learning, as appropriate.

All new academic members of staff including post-doctoral researchers are **assigned a mentor** chosen by the HoS, who sets up an initial meeting following induction. The mentor is a peer who is available to offer support and guidance.

In the 2017 School staff survey it was noted that some staff members felt that they would be able to engage more effectively with the induction process if they were provided with a more streamlined document for information and guidance. One staff member commented:

“ *“Make all induction paperwork available electronically (online) - there is much useful information there but being able to search it would often be helpful”* ”

This feedback has inspired the following action:

AD7 Streamline our existing induction process. Create a bespoke induction page, providing key information.

(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.

There is an annual promotion round. The HoS emails all staff to inform them of the opportunity and the process. Staff are invited to speak with their HoRG, Director of Teaching and Learning, and HoS (as appropriate) who also offers a CV review (O_{3.4}). A School review, covering the full range of work related activities (including administration, pastoral and outreach), is used to generate feedback for staff going forward to a full submission to the Faculty of Science. Staff surveys have shown how useful this feedback loop is:

“ *“Having this discussion has been useful to give me regular ideas and prompts for exploring and extending my role.”* ”

“ *“Useful to have this sort of prompt; many people feel awkward/unsure of asking about promotion [...] so the prompt to discuss these possibilities at the PDPR meeting is very useful* ”

To improve the support given to those who may not necessarily put themselves forward for promotion, the HoS speaks to all HoRGs, to identify staff who have not been promoted in some time. Moreover, academic staff can apply for study leave after six teaching semesters since the start of contract or last sabbatical. Study leave is encouraged at key transition points, e.g. if it enhances an application for promotion. Study leave was given to 5 staff members in 2018/19 (6 in 2017/18, 3 in 2016/17 and 4 in 2015/16).

Table 12 shows promotion applications, from which we observe that the proportion of female promotions exceeds that of male, reflecting the School's commitment to retention and advancement of talented female academics. Indeed, the overall success rate is 100% for female staff.

AD2 Head of School speak with Research Group heads to ask them to identify staff who may need support / encouragement to apply for promotion.

Table 12: Academic promotion data (2015-2018). Numbers in brackets indicate the staff grade at the time of application

	Candidates		Promoted		% Success rate	
	Male	Female	Male	Female	Male	Female
2015	2 (L5)	1 (L6)	2 (L5)	1 (L6)	100	100
2016	1 (L5)		0 (L5)		75	100
	2 (L6)	1 (L6)	2 (L6)	1 (L6)		
2017	2 (L5)	1PT (L5) 1FT (L5)	1 (L5)	2 (L5)	75	100
	2 (L6)		2 (L6)			
2018	1 (L4)	0	1 (L4)	0	80	-
	1PT (L5)		1PT (L5)			
	2FT (L5)		1FT (L5)			
	1 (L6)		1 (L6)			

(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.

For RAE2008, 54 (of 56 eligible) male and 5 (of 5 eligible) female staff were submitted. For the REF2014 exercise, 52 (of 59 eligible) male and 4 (of 5 eligible) female members of staff were submitted. It is not possible to identify any gender imbalance or bias here, as the overall number of our female eligible staff are too small.

The Faculty of Science did a REF Readiness review in 2017. For SoMS the agreement between author self-scores and overall review scores was among the best in the Faculty. We had 73 papers ranked 4*, seven of them can be assigned to five different female authors (with a total of 7 female staff on the system). This review data indicated that there were no male-female discrimination issues.

SILVER APPLICATIONS ONLY

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.

(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.

5.3. Career development: academic staff

Summary

- A wide variety of training is offered across the University.
- Annual PDPR meetings provide support for career development and promotion discussions.
- The School has an embedded RBDM to encourage and facilitate grant writing.

(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?

There is a **wide variety of training courses** provided by the UoN's Graduate School and Professional Development Unit, to support career development. The School has a Staff Development Officer, who oversees mentoring and arranges School based training. Staff are encouraged to participate in training workshops and leadership training which are centrally run.

We also use our annual Staff Away Day to deliver training, and keep staff up to date. Small training sessions are often organised during Staff meetings.

The PDPR process can identify training and career development opportunities, pathways to learning, and funds for external courses (with a recent example being a Media Training Workshop with a BBC journalist in Mar 2019, attended by 4 female staff and 6 male).

The 2017 and 2018 surveys indicate that a majority of staff, and PDRA/PGRs are "aware of UoN training courses to support career development" (2017: 81%, 49% respectively; 2018: 77%, 83%, respectively) (O_{3.1}). The **dramatic increase in awareness** of PDRA/PGRs in 2018 reflects an increased promotion of these courses, by email and annual review, following our 2017 survey.

The PDPR and mentoring/support mechanisms (as appropriate) are also valued as an aid to career development (2017: 67%, 85% rate as "good" or "very good" respectively; 2018: 57%, 96%).

We continue to pro-actively encourage participation in these courses (O_{3.1}).

(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.

Staff are appraised annually via **PDPR** (100% participation by male and female staff). All reviewers are trained using a centrally run training course. PDPR recognises broader skills and competencies and allows a continuous line of support. It provides an opportunity to discuss future career plans and possible **promotion applications (A_{D2})**, to analyse performance over the last 12 months, and set goals for the following 12 months and beyond. Staff complete a form reflecting on their progress and goals achieved over the last year, and set goals for the next review period as well. This is followed by a one on one discussion with the reviewer. Staff may request a change to their reviewer.

The HoS together with all PDPR reviewers and a representative from Human Resources then considers the reviewer assessments of academic staff and finalises the School recommendation (outstanding, standard, underperforming). Staff additionally have an interim meeting with their reviewer during the year to provide feedback on progress.

(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 School runs two **Mentoring Schemes** to provide support with goal setting and career management, grant development, and to share knowledge and expertise: one for academic staff, and one for PDRAs. Both pair the mentee with a more senior and experienced member of staff. The 2018 survey showed that staff value this support, with 88% rating it as “good” or “very good”. Example feedback:

“ *“My mentor is very helpful – happy to look at drafts and discuss things with me.”* ”

The line managers of those on fixed-term contracts do not supervise their PDPR, so that they may be given independent advice. Staff on fixed-term contracts are given the opportunity to enter the redeployment pool three months prior to the end of their contract.

The workload model (see **Section 5.6 (v)**) accommodates and supports research fellows who are recruited to a Research and Teaching position. These newly recruited members of staff are given reduced teaching commitments to support them in their new role.

Staff who wish to progress to professorial level can also join the University Research Leaders programme, but this is not a necessary requirement for promotion (e.g. neither of the two female members of staff promoted to full professor participated in it).

(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).

All UG and PGT students are allocated a personal tutor to offer both academic and pastoral support throughout their entire studies. All students have access to the University's Careers and Employability Service (CES), which give advice on career planning, CV writing and other skills. In addition, the School has a Careers Advisor who regularly organises careers events jointly with the CES and advertises careers in mathematics both inside and outside of academia. The School also has a female Tutor to Women for all UG and PG students, who advises on gender-specific issues, informs the School of issues arising, and maintains the relevant pages.

All UG and PGT students have termly individual meetings with their personal tutor, which give them the opportunity to discuss their career options. Each November, we also have an information day for final year UGs interested in doing a PhD, with current PhD students displaying posters of their research.

Information about career paths can be found on the School's webpages (O_{1.1}), and a leaflet with related information is distributed to staff/students who undertake outreach activities (O_{2.4}).

Since 2017 we run an annual event with CES for our UGs called **Inspiring Mathematics** with female alumni presenting different careers paths (A_{4.4}). We highlight the wide diversity of careers available to mathematics graduates, many of which are creative, well-paid and family-friendly. In 2016-17, we also ran several in-School events with female early career researchers (ECRs) and female mathematicians from industry, organised by our female PGRs and aimed at UGs and PGRs. We have successfully used the Summer bursary scheme to give a taste of research-life to UGs (see **Section 4.1 (v)**).

The School's statistics of students finding employment after the degree show significant improvement over previous years: in 2016, graduate prospects (the percentages of those who are studying at PG level or working at graduate / 'professional and managerial' level) were at 83.9%, up from 75% in 2013.

(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.

All staff are supported by training provide through the School, advice on where to apply for research and knowledge transfer opportunities, and receive regular emails from the School's RBDM. The RBDM, along with the wider research support team, mentor staff on grant submissions and management, and supports those applying for grants.

“ My grants would have been far harder to get without him: they would have taken longer to write; far more time to coordinate the bid; had less chance of success; and not been as generously funded! ”

Both the School and Faculty offer mock panels to those going forward for interviews. Annual training sessions are run in grant writing and in speaking to the media, to supplement those offered by the University e.g. CV clinics. Academic mentoring is provided by colleagues in the corresponding research area. Since 2014, there has been a formal internal peer review process prior to submission (**O_{3.10}**) for grants and fellowships with a value of £100k or greater, to enhance success rates.

On top of a guaranteed yearly personal allowance of £1K, R&T staff can bid for Research Board funds to support conference attendance, with preference given to ECRs. There is also School funding available to help with the additional childcare costs for academic staff who attend conferences.

Further support from the RBDM includes liaising with and helping to find partners, typically companies, who are willing to support applications, dealing with the administrative and financial components of the application, arranging for internal peer review, and mock interviews.

The 2018 survey highlights that all the varied forms of support from the RBDM and their team is highly valued (rated “good” or “very good”) by Staff and PGR/PDs (88% and 100%, respectively).

Data from 2014-2019 shows that grant submission rates reflect the gender balance in the School (12% female and 88% male), with almost identical success rates (31% female and 30% male).

SILVER APPLICATIONS ONLY

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?

(vi) 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.

(ii) 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.

5.5. Flexible working and managing career breaks

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

All the information within this part relates to academic staff, as no professional services staff have taken career breaks or flexible working during the time presented.

Summary

- Surveys indicate that the majority of staff and PGRs are aware of School's Maternity Support Plan and flexible working policies.
- A new School Pregnancy Support Plan will be used as a foundation for a wider institutional document.

(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.

In 2017, the School developed **pregnancy support plans** for staff (academic and support) and PGR students to better support parents before and during maternity / adoption leave, and on their return. We reviewed best practice across the sector, and consulted with staff and students about their experiences and how it could be improved. We also produced a guidance document for staff supporting pregnant PGR students. These plans have now been used repeatedly, with positive feedback:

“The School pregnancy support plan was very useful not just as a checklist for required documentation, but as a prompt to think about the practicalities of returning to work with a baby. I found the most useful aspect to be the conversations with the HoO pre- and post-leave. These allow for a much more personalised approach, addressing the needs of the individual”

Our School support plan has also been praised by the UoN HR department and is to be **used as a foundation for a wider institutional document**.

Prior to the member of staff taking their maternity leave, a risk assessment is carried out by the HoO considering their safety and wellbeing. The HoO is also responsible for coordinating the support for the member of staff through the Pregnancy Support Plan, and ensures any actions or queries are resolved.

Some staff choose to use their annual leave to reduce their hours prior to leave. The School supports such changes in working patterns. The 2018 survey indicates that the majority of staff and PGRs are “aware of [these policies], and how to access them” (86%, 74% agree, respectively).

O2.10 The School has an enhanced policy for PGR maternity leave (above and beyond the UoN four month provision), as well as cover for childcare costs for conference attendance.

AA3 Feed School plans covering topics such as communications while on leave, requirements on return, policy and facilities awareness into Institutional document.

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

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

The HoS (for academic staff) or HoO (for support staff) arranges cover for the employee’s duties whilst they are on maternity leave (typically by the appointment of a fixed-term post).

Members of staff are entitled to undertake up to ten days’ paid work - **Keeping in Touch Days** - to encourage them to maintain contact, and ensure that they do not feel isolated upon returning to work. Staff on leave are also invited and encouraged to attend social activities such as the Christmas meal.

The School’s Pregnancy Support Plan is used to coordinate how the member of staff would like to keep in touch during their maternity related absence. The HoO discusses with the staff member what information they will require during their absence to help them to keep up to date on developments, and who will be responsible for providing this information.

(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.

To help staff with the transition, a reduced teaching workload is offered to any Research and Teaching staff.

The School's **Pregnancy Support Plan** coordinates and supports the staff (academic or support) member's return to work, starting with contacting them prior to their return to check whether any of their plans or requirements have changed. The HoO meets with any staff member upon their return to discuss what support may be required when transitioning back to work, and update them on changes to staffing, policies or procedures. The HoO organises a suitable, private space within the School if the member of staff intends to breastfeed their child, or express. There are several parenting rooms available in the Faculty.

Several staff have used their accrued annual leave flexibly, to enable a phased return. This can help determine whether a formal flexible working arrangement is suitable for them. A good example of our support for a phased return to work is that of [REDACTED]

The Faculty of Science offers 6-months financial support to PDRA's who were out of contract when going on maternity leave to support their return to research, and future career development.

The University has a "Special Leave" policy for unplanned and urgent domestic, personal and family reasons, which is beneficial in managing, for example urgent childcare issues. Moreover, it has committed to the Working Forward pledge (a national campaign run by the Equality and Human Rights Commission).

(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.

Our maternity return rate is 100%. During the last seven years, the following staff had maternity leave:

- An Anne McLaren Fellow had two periods of maternity leave, reducing her hours after the first period. Her Fellowship has been extended to reflect these changes.
- An Assistant Professor and a teaching-only member of staff had two and three, respectively, periods of maternity leave, each reducing their hours after the second leave.
- An Assistant Professor took maternity leave and returned to work part-time.

[REDACTED]

[REDACTED]

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Provide data and comment on the proportion of staff remaining in post six, 12 and 18 months after return from maternity leave.

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

Provide data and comment on the uptake of these types of leave by gender and grade.

Comment on what the department does to promote and encourage take-up of paternity leave and shared parental leave.

Requests for paternity leave have increased since 2014. During the last four years, sixteen academic staff took paternity leave. All returned to work. No parental and adoption leaves were requested in the last seven years. Two male staff members have taken Paternity Leave as part of the new **Shared Parental Leave Scheme**, and one member of staff plans to utilise this in 2019.

Ac1

Improve and disseminate School documentation for shared parental leave and promote family friendly School policies.

Table 13: Paternity and maternity leave uptake by job family and grade (2014-2018). P=Paternity, M=Maternity

Job Family	ATHENA Year / Job Level											
	2015			2016			2017		2018			
	4	5	6	4	5	6	4	5	4	5	6	
Administrative Professional & Managerial	1P											
Research	1M			1P	1M		1M					
Teaching		1M							1P	1M		
Research & Teaching		4P	1P		3P	1P		3P		1P	1P	

(vi) Flexible working

Provide information on the flexible working arrangements available.

The University's **Flexible Working Arrangement Policy** allows staff with children aged 17 or under, or a disabled child under the age of 18, and other caring responsibilities, to request flexible working arrangements. For example, in the last seven years, two male lecturers worked four days a week for one semester, and two academic years, respectively, to fit work around childcare issues. Of current staff four females and five males have used the Flexible Working Policy to reduce their hours to aid family responsibilities. Flexible working arrangements are also supported when staff return after a long period of ill health.

Where possible, teaching allocation and timetables accommodate family/caring commitments. The teaching timetable construction aims to provide staff with at least one day a week free of

lectures. All staff can work from home one day per week during term time, unless teaching, administrative or supervision duties interfere. These **at home days** (visible in the School diary) allow an agile working culture. The 2018 Staff Survey indicates that the majority of staff (95%) are “aware of [the relevant flexible working policies] and where to find them” (up from 61% in 2015 following an email campaign) (O_{6.1}).

(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.

The School provides a supportive environment and is open to deal with any request to come back to work full-time flexible and on a case-by-case basis. We have a very small number of staff working part-time currently. One member of staff has returned to work full-time after a period of part time work.

5.6. Organisation and culture

Summary

- School events for female staff include the women's bi-weekly afternoon tea.
- Initiatives have been introduced to tackle work burdens for females serving on committees.
- Female seminar speakers have reached up to 27%, and we have adopted a new sustained target of 30%.

(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.

Members of the School meet both formally and informally: individual research groups organise regular seminars, work groups, and socials. Our



Women's bi-weekly afternoon tea meeting



Rosanna Nichols speaking at Inspire WIT

PGRs run a cake club, and several PGRs and staff regularly go walking or jogging at lunch times. The common room is a welcome meeting place, is used for Women's bi-weekly afternoon tea, and for welcome events for new PGRs and staff. Our School Health and Wellbeing Champion coordinates many of these activities, as well as, for example, walks, arts & crafts, and table-tennis. More widely, staff and student mental health within the School is supported by 6 staff members being trained as "Mental health first-aiders", and various activities aimed at raising awareness of, and providing support for, mental health issues (for example a recent "Mental Health Easter Egg Hunt" organised by SAT member Katie Severn).

External speakers are invited to lunch to socialise and network with members of the School, and young researchers are encouraged to engage with these exciting opportunities for personal development.

The School supports the **LMS Good Practice Scheme** and is welcoming to our **LGBT+ community** (see **Section 7**). Dr Susanne Pumpluen has been a member of the LMS Women in Maths Committee since 2016. In 2018, she was awarded the UoN Vice-Chancellor Medal for promoting women in Mathematics. Our former UG Maddy Ellis and our PhD student Rosanna Nichols received the same honour in 2017 and 2018. Rosanna's award is in recognition of her role as an ambassador for Women in STEM, e.g. she was lead organiser of InspireWIT, a free conference for women and gender minorities in technology. Maddy's award is for founding the initiative Night Owl; a service which assists vulnerable students by reducing the number of students walking home alone, and recovering and returning lost property found around the city centre during nights out.

Staff feel very positive about the School environment. This view is reflected more widely; a clear majority of academic staff rate the atmosphere/working relationships in the School as "good" or "very good" (2018: 92%), and "feel valued by the School" (2018: 91%). Staff



Recent mental health awareness activity, organised by SAT member Katie Severn

achievements are celebrated via email, social media and the School webpage. Example feedback includes from the 2018 staff survey includes:

“*“Probably the nicest maths department I've worked in”
“Colleagues in the School are great!”*”

Staff organising meetings or conferences, here or abroad, are asked to prioritise female names when building short lists. This has resulted in **dramatic improvement in gender balance**. For example, the speaker list for Generalized Network Structures and Dynamics, USA, March 2016 was over 30% female; and the plenary speakers list for the 800 participant 2016 Nottingham European Conference on Mathematical and Theoretical Biology meeting was 50% female; for the 2018 UK Conference on Multiscale biology (76 participants), 50% of plenaries and 46% of contributed talks were female.

In September 2018 the ‘School meeting’ was renamed to ‘Staff meeting’ to provide a more inclusive forum for support staff, who now regularly attend.

We believe that a **healthier work-life balance** is achieved by an explicit School policy stating that nobody is expected to answer emails outside working hours.

Ac3 Promote the school policy of not expecting out of hours email responses.

(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.

Complaints by students and staff are raised initially with line-managers, and can also be submitted anonymously via the School’s EDI webpage and suggestion boxes in communal areas. The School has a clearly defined process for handling HR issues. University and School policies are communicated through emails, newsletters and websites. Senior managers (academic and support staff) receive training as needed and attend regular briefings from HR regarding key changes to policy, or new policies like a new capability policy. This information is cascaded to other managers in the School, who attend relevant training as needed. At the Away Day 2016, all staff members received unconscious bias training to raise awareness of how staff are expected to behave. In 2018, we included a similar session on inclusive language.

All HR issues are initially reviewed at School level by the HoS with support from HR if necessary. For professional service staff, problems are raised and discussed with their line manager first. The University has several **Dignity Advisors** who help moderate in conflicts. No formal or informal complaints about inconsistencies in the applications of HR policies were raised in the last four years. However, we are mindful of the benefits to having our own School Dignity Advisor.

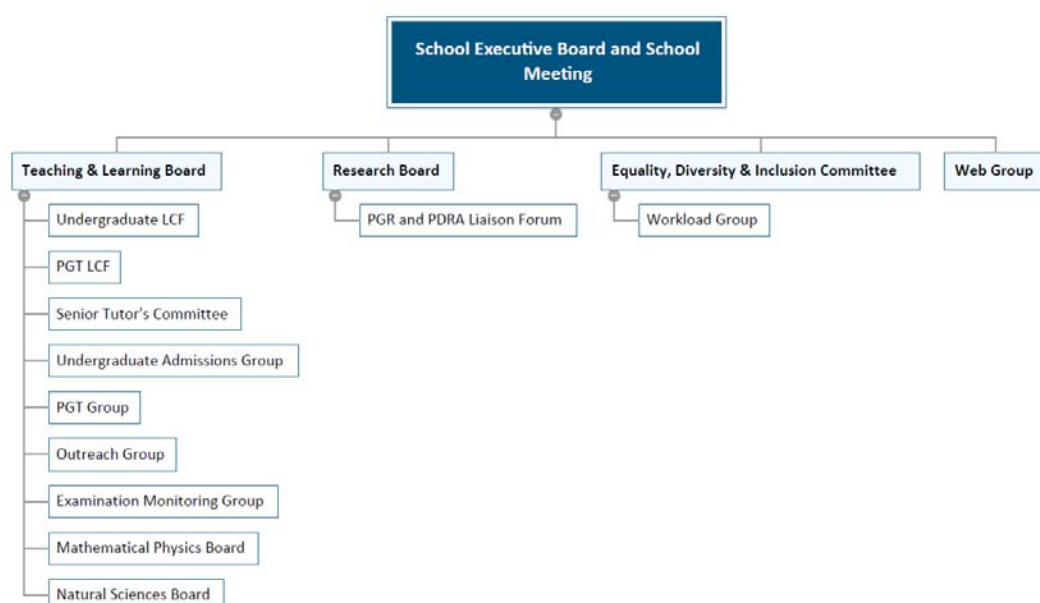
AB4

Appoint a Dignity Advisor within the School, and promote a more inclusive environment.

(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.

Figure 19: School Committee Structure (2018/19)



The School strives to achieve consensus on important matters. A key part of the democratic nature of the School is the **Staff Meeting**, which occurs three times per year and involves all staff members. The UG and PG Learning Community Forums provide a route for student engagement in School processes.

Table 12 shows the male and female representation on the various committees within the School. Where data is absent, the committee did not exist; '+1' indicates additional members from other job families (viz. HoO, RBDM, Administrator or Teaching Officer). School committees are dominated by academic staff and the gender imbalance within the School is reflected in the committee membership. Our 2014 Athena SWAN submission noted the need to **reduce burden on female academic staff** to protect their research time. Membership of committees is negotiated by the HoS, and informed by individual staff members' PDPR forms and workload data.

Table 14: Male and female representation on School Committees (2015-18)

	2015/2016		2016/2017		2017/2018		2018/2019	
Committee	M	F	M	F	M	F	M	F
Staff meeting	All	All	All	All	All	All	All	All
Teaching & Learning Board	11	1 +1	10	1 +1	9	1 +1	11	1 +1
UG Learning Community Forum	3 +1	0 +2	3 +1	0 +2	4 +1	0 +2	4	0 +1
PG Learning Community Forum	3	0 +2	3	0 +2	2	0 +2	2	0 +2
PGR and PDRA Liaison Forum	6	0 +2	5	0 +2	7 +1	0 +2	6 +1	0 +1
Research Board	11 +1	1 +1	11 +1	1 +1	11 +1	2 +1	12 +2	2
Resources Committee	4 +2	0 +2	7 +2	0 +2	4 +2	0 +2	N/A	N/A
Equality, Diversity and Inclusion Committee	4	4 +1	5	5 +3	5 +1	4 +2	4 +1	5 +2
Senior Tutor's Committee	2	0 +1	2	0 +1	4	0 +1	4	0 +1
Executive Board	5	0 +1	5	0 +1	5	0 +1	6	0 +1

Though not presented in the table above, gender representation on committees is improved by the inclusion of student members. In 2018/19 the School noted the first year of student gender parity on committees. In addition:

AB6 To increase representation, the School will trial a system whereby female academics are full committee members but not required to complete meeting actions.

(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?

Any opportunities for staff to participate in influential external committees are circulated widely. Some staff are members on external committees because of their role within the School, and where this is not the case the HoS strives to **achieve a gender balance while not overburdening female staff**. The HoS is proactive in encouraging staff to participate, and has successfully nominated Dr Susanne Pumpluen for the Faculty EDI committee and for the LMS

Women in Maths committee. Two male members of staff sit on the University Senate Committee, and two others are trained to sit on Athena SWAN assessment panels.

(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 School's workload model contains both tariffed (e.g. module lecturing) and non-tariffed activities (e.g. citizenship), where the non-tariffed activities are largely self-directed. The tariffs provide a useful comparator for the potentially flexible contributions of the different roles and activities of research and teaching staff. We have standard tariffs for modules depending on their size and year group. Pastoral and administrative responsibilities (e.g., chairing the Athena SWAN group, member of the EDI committee, being Tutor to Women or Outreach Officer) are tariffed activities (**O_{4.2}**). Tariffs are reviewed annually.

Information regarding the workload model is communicated to staff using an **online Workload Planner** (with a breakdown according to teaching, research, leadership & management, citizenship, and PGR supervision). The model is managed and reviewed by the HoS. Staff may access their own data, and use the online Workload Planner to see anonymised total workload data of their colleagues. Approximately every five years, significant administrative roles are rotated.

Staff may raise any further questions or concerns regarding the hours in the workload model assigned to their work with their line managers or directly with the HoS. At the annual PDPR review, the workload of each staff member is discussed and reviewed. Survey data shows that 76% of staff feel able to raise issues with the workload model within the school, and 88% rate is satisfactory to very good in 2018.

The workload model is not considered at promotion applications and only considered at the annual PDPR if a member of staff is significantly above the average workload. Since summer 2018, the School's model has been incorporated in a faculty-wide model.

Currently, the workload model is informally monitored by the HoS for gender, ECR and other biases. This will be formalised by the following action:

Ac2

Monitor workload model for gender bias, review responses on workload in annual staff survey, and respond to staff concerns.

(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.

Since our Bronze award, **core hours are re-defined as 10:00am-4:00pm**, to accommodate child-care issues. All dates and times for Staff Meetings, exam board meetings etc. are circulated at the beginning of the academic year, allowing staff to plan accordingly.

Staff Meetings usually take place at 2pm on Wednesdays, recognising that most current part-time staff are on site then. Staff with family responsibilities may leave early if they designate a replacement during their absence. Research seminars are scheduled within core hours, and School social events including the annual Christmas lunch and staff Sports day take place within core hours too.

The flexibility of the School is recognised in the 2018 staff surveys, with a strong majority of those with carer/family responsibilities (61%) agreeing that these “do not impact on their School role” (93%).

(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.

A_{E1}

Our last Bronze application set an ambitious target of 40% female seminar speakers, and although this has pushed us in a positive direction (see table below) we are now adopting a more pragmatic target of 30% which is still above the UK average.

Table 15: School seminar speakers by gender (2014-2017)

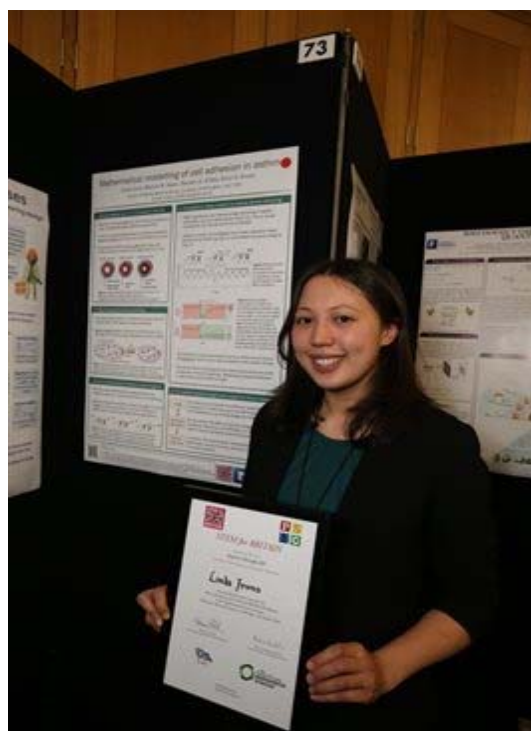
Year	Total Male	Total Female	Total speakers	% Female speakers
2014/15	121	22	143	15.4%
2015/16	94	36	130	27.7%
2016/17	87	33	120	27.5%
2017/18	85	26	111	23.4%

Seminar organisers are asked to put a list of female speakers together at the beginning of each academic year. They are reminded about EDI principles and the School target, and asked to report progress twice a year. The School has created a fund to offer accommodation to speakers from further away which **prioritises female speakers**. Workshops are monitored for gender balance.

We are working to update the School’s online pages to enhance the **visibility of female staff and students**. Since 2017, the School’s website has a special page on Equality and Diversity, aligning with the Faculty pages. Profiles of mathematicians’ careers (both academic, and elsewhere) are featured, including videos of our female staff (**O_{1.1,1.12,2.3,2.6}**).

Success stories of our staff are featured on the School's home page, frequently including women. Moreover:

- There is a series of “Women in Maths” videos featuring staff and PGR students.
- The 2019 School brochure features images of female role models and includes some student profiles/quotes from female students. The UG and PG conversion emails (to decided and undecided offer holders) feature images of women.
- PG emails feature written comments/photos from a female PhD student in the school about her research and an extract about a STEM for Britain female silver award winner. Similar articles are also promoted via the news section of the school website.



PhD student Linda Irons receives a silver poster prize at STEM for Britain 2017

Since 2015, the MathSoc has a Women in Maths student representative who organises events, focus groups and similar (e.g. about bias in student evaluations), feedback from one representative:

“ ... my eyes have definitely been opened! I thought I was well-educated on the inequalities between women and men in scientific fields yet holding this position I have been exposed to facts and figures that have shocked me to say the least, particularly with regards to women in academia. ... It has been such a fulfilling experience knowing that my emails have reached people even outside of the Mathematics course, so I certainly feel people are beginning to question what they have deemed ‘normal’ for so long as well as thing they may have been ignorant to in the past such as their gender bias. ”

To increase female UG applicants, we will undertake the following action:

Aa6

A review of material for our UG brochure will be undertaken. Our previous Women in Maths page, will be re-formatted as a linked sub-page from the School EDI page.

(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.

The School has an Outreach Officer who coordinates all activities **emphasising widening participation and gender equality**. Staff and students participate in a variety of outreach. We regularly participate in outreach activities such as the Maths Master classes (Ambition Nottingham programme), the Sutton Trust Summer School (an enrichment and widening participation event for bright, disadvantaged A-level students), the Nottingham Potential Summer School, and most recently Science in the Park.

In 2014-15, overall 22 male and 2 female staff participated in outreach events. In 2015-16, 17 male and 3 female staff participated in outreach events. In 2016-17, it was 23 male and 2 female staff. Due to the small number of female staff, it is not always possible to have a woman participate. However, we have a stand of female postgraduates and students at each Open Day since 2017.



Dr Bindi Brook and two PhD students (Hannah Pybus and Sarah Brown) running a session on Airway Smooth Muscle modelling at Science in the Park, Nottingham, March 2019.

Aa5

Staff will be regularly sent to local all-female secondary schools, and four such talks already took place in 2018.

Dr Ria Symonds is Area Co-ordinator for the Further Mathematics Support Programme, regularly running events for 6th formers, teachers, and year 10-13 students. Since 2014, she offers annual university taster days for around 180 girls in secondary school, Key Stage 4 (**O_{1.8}**). She will run a similar event for Key Stage 5 in May 2019.

Word count: 5539/6000

SILVER APPLICATIONS ONLY

6. CASE STUDIES: IMPACT ON INDIVIDUALS

Recommended word count: Silver 1000 words

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.

7. FURTHER INFORMATION

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

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

The School of Mathematical Sciences has undergone an exciting period of expansion and now has about 80 academic staff and 22 research fellows. In August 2011, the School moved into new purpose-built accommodation on the attractive University Park campus. We are a School with many international staff and have a strong sense of academic community. The School has a culture of openness and regularly seeks, and is reactive to, feedback from staff. At our most recent 2018 Staff Away Day, we had a training session on LGBT+ issues. Currently the School is engaging with all its members to co-create a **Behavioural Charter** to be followed by all staff and visitors. Recognising equality and diversity is at the heart of this Charter, empowering everyone to have a voice in creating a positive culture which values every member of our School.

A national survey of 80 UK HE institutions in 2014 showed that one in five LGBT+ and one in three transgender students have experienced at least one form of bullying or harassment on their campus and that LGBT+ students who have experienced a form of homophobic or transphobic harassment are 2–3 times more likely to consider leaving their course. Recognising this, and as part of our positive culture, since 2017 the School has placed Safe Spaces stickers on over 30 office doors to highlight its support of LGBT+ staff and students. This initiative was very welcomed by our students.

We are also very proud of long-standing activities of School staff in encouraging women to pursue a career in mathematical sciences and academia. Following on from our last AS Bronze action plan, these are exemplified by the activity of several Facebook groups (administered by female staff members from SoMS):

- *Women in STEM at UoN* has 147 members.
- *Women in Maths* has 787 members, and is the largest group of its kind (not run by an organisation).
- *Women in Physics* has 185 members.
- *Alice: Women in Quantum Theory* has 296 members, and is used to exchange examples of good practice in science.

Dr Susanne Pumpluen also runs a page profiling female mathematicians (with over 7,800 likes, posts that reach up to 118K recipients, and is read in over 45 countries), and has been interviewed by *Womanthology*, an online magazine that champions positive female role models (124k readers and

21.4k Twitter followers). Others have also raised awareness of Women in STEM, with interviews and videos, such as Dr Ria Symonds with three *Numberphile* videos on YouTube (around 2M combined views), and Dr Silke Weinfurter with a 2016 *Sixty Symbols* video (203,845 views), a 2017 *NOW THIS* video (3.1M 2017 views), a 2017 *Techinside UK* video and an interview with the prestigious *Spiegel* online.

We are also delighted with the well-deserved awards to two of our female PhD students:

- Linda Irons for Silver at the 2018 STEM for Britain poster event.
- A PGR student from the School for the 2017 Smith Institute TakeAim award, with a piece about her work published in the Cambridge Varsity magazine.



Susanne Pumpluen receiving the Vice-Chancellor's medal for her work supporting Women in maths.

Word count: 500/500

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.



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Student focussed (UG and PG)						
Ref	Issue Rationale	Action	Timescales	Responsibility	Success measures	Notes
A1	Students working in Peer Assisted Study Support (PASS) and PGR demonstrators must meet behaviour standards	<p>Include EDI awareness in any new training provided to PASS leaders and PGR demonstrators</p> <p>Make use of growing collection of new EDI links and docs on the workspace (e.g. bias videos)</p>	Annual training (generally September) includes EDI training	Student Experience Officer	70% UG satisfaction with behaviour of trained PASS leaders and demonstrators by 2022	Integrate student feedback to demonstrators into a planned computer system (approx 2020)
A2	BME proportions of 1st and 1st+2:1s have been lower than non-BME (2013-2017)	<p>Draw up and enact action plan to address BME attainment gap</p> <p>Introduce buddy scheme on G123 (2+2 BSc) course</p>	<p>Action plan in place by 2020</p> <p>Improve on attainment gap by 2023</p>	EDI Chair, Head of Operations, Teaching and Learning Officer, G123 Course Director	Zero attainment gap by 2025	Pilot buddy scheme for 2018/19
A3	PGRs reported lack of clarity on, and support for, taking maternity leave	<p>Annual survey (staff and PGR) with questions to raise awareness, and new actions based on results</p> <p>Identify good practice (from students taking parental leave), suggest improvements, and disseminate case studies to wider UoN community</p> <p>Rewrite all existing policy documents in a more student centred and up to date way</p>	Annual emails to highlight policies (from 2018)	PGR Advisor	<p>100% PGRs taking maternity leave report awareness of policies, satisfaction with support before, during and after leave by 2022</p> <p>An increased survey response rate to 60%</p>	<p>New document on maternity leave produced in 2017 (for staff and PGRs) and put onto workspace</p> <p>Published annual review results from surveys since 2017</p>

A4	UGs and applicants report lack of information on possible careers for mathematicians	<p>Organize annual Inspiring Maths working lunch (with women graduates/alumni)</p> <p>Review online careers materials and UG/PGT prospectus for lack of diversity</p> <p>Organize other alumni events to showcase what our students have gone on to do</p>	On-going annual "Inspiring Maths" working lunch event with 3-9 speakers.	Careers officer, PGT/PGR admissions officers	<p>Record of careers events on the front-facing EDI webpage</p> <p>Students report higher satisfaction with career information by 2021</p>	<p>Around 35 students attended each event</p> <p>Annual marketing review</p>
A5	Low pool of visible female role models for prospective students	<p>Invite UGs/Staff/PGRs and students to give a short biography for posting on the "Women in Maths" FB page and attend open days to promote women in maths</p> <p>Local secondary school visits by women staff</p> <p>Setup buddy scheme between PGT and UG students, with focus on women</p> <p>Name some School prizes after female mathematicians</p>	<p>Facebook invitations (since 2015)</p> <p>Open Day stands on-going (since 2018)</p> <p>Invites to Open Days on-going (from 2019)</p>	Outreach co-ordinator/ Open day co-ordinator and Marketing team	2% higher rate of female applicants by 2020, then maintain and improve	
A6	UG application numbers from women have reduced over the last five years	<p>Review admissions pages and prospectus</p> <p>More local secondary school visits (see A5 too)</p>	<p>Annual webpages review</p> <p>Annual girls in Maths days for KS4/KS5 secondary school girls</p>	Marketing team	Increase our range of events promoting maths at university to prospective women students	Open Day "Women in Maths" stand since 2018 at UoN and London Accenture girls in STEM event
A7	Lack of informal socialising and	Maintain fortnightly [women's] teas	Organise annual events like those in 2017 with speakers	EDI PGR + PostDoc reps	Documented increase in number of such events, at	

	networking between women academics	Financial support for PGRs and Postdocs in organising seminar series exploring the careers available to women with a PhD in mathematics	from industry + academia	and Outreach co-ordinator	least two more (over the year)	
A8	Low numbers of female UGs taking up summer research bursaries Better uptake of bursaries will help increase UG to PG conversion	Audit email adverts for bias and use email feedback from previous years' students in future advertising and targeting of best female students Introduce talks from existing (women) PhD students who did summer projects, to promote their benefits	All items targeted at 2019 summer session Promotion of bursaries from Autumn 2018 will include talks from women PGRs	Internships Officer (MI)	Increase in women getting bursaries from 2019 to 30% Pipeline for strong undergraduate women to progress to Postgraduate studies	Text of email has been checked (summer 2018) and enhanced to encourage women applicants
A9	Lack of diverse role models identified in terms of lecturing staff seen by our undergraduates through teaching	Quantify the problem of non-diverse lecturing experiences of students Take actions in module teaching allocations to increase diversity in lecturing staff seen by students	Annual teaching allocation will consider implications for diverse visibility of lecturers	Director of Teaching and Learning	More than 40% of our undergraduates are taught by at least one non-male lecturer	Add other minority targets if identified as underrepresented
A10	Lack of visible diverse role models identified at Open Days for prospective students	Introduce surveying of characteristics of volunteers at outreach events Approach staff individually who would enhance the diversity of our open day organisers to encourage participation	Annual surveying of all volunteers (gender question) and annual demographic reporting	Outreach co-ordinator / Open day co-ordinator	50% of public-facing staff are not just "white men" by 2021	Questionnaires used for all outreach events since 2019
A11	The current allocation model of students to classes/tutor group model may not always accommodate	Create guidelines for allocating tutorial groups (and other student partitioning), considerate to student diversity issues Monitor reasons for student requests to change tutors or groups	Annual use of guidelines for tutor group allocations	Disability Liaison Office / Director of Teaching and Learning, Student	Adoption of guidelines Keep student requests to change tutor for reasons of	

	additional student needs	Ensure Student Welfare Support information reaches tutors for the start of every year		Experience Officer	poor accommodation of EDI needs to zero	
A12	Lack of direct support channels for LGBT+ students	Select several members of staff happy to talk about LGBT+ issues and publicise through screens and handbook	Regular advertising on plasma screens Update Student Handbook annually	Director of Teaching and Learning	Student Handbook contains list of names by 2020 Student reps report 80% awareness of new support channel by 2021	
A13	Low take-up of our MMath programme by female students	Investigate reasons for this. Personal tutors to promote this course to suitable UGs currently enrolled on the BSc programme.	Improve on gender gap by 2023	EDI Chair, G103 Course Director, Senior tutor	Gender ratio that matches BSc	

Culture (communications, departmental organisation)						
Ref	Issue Rationale	Action	Timescales	Responsibility	Success measures	Notes
B1	Historic difficulty in collating data for Athena SWAN	Rewrite staff admin roles to include EDI related business, e.g. monitoring stats and implementing actions	Perform additions during Summer 2019/2020	Head of Operations + Head of School	EDI committee report successful delegation in all cases by 2021	
B2	Low uptake of centrally organised training on EDI issues	Mandate generic EDI training, including race equality Create channel for staff feedback to understand low uptake of courses Make regular use of School-wide away days and Staff meetings for EDI training	Annual training at School Away Days (including unconscious bias, LGBT+ awareness, inclusive language)	Head of Operations, Staff Development Officer	Documented record of sending out planned emails. Standing agenda point at Away Days of at least one EDI talk	Regular reminders to staff requesting taking of EDI courses since 2015
B3	Meeting standards of expected behaviour for PGR students	Advertise anonymous online form on EDI webpage - for reporting problems Make improvement to existing induction information documentation Mandated bias training for all PGRs upon arrival (covering university student behaviour standards documentation) Track completion of training and induction	At least twice-yearly review of EDI awareness of induction training Year-round reminders on channels for reporting, and promotion of good behaviour	PGR Advisor / PGR Admin Support / Student Experience Officer (TW)	90% of PGR students report satisfaction with behaviour of fellow students in departmental interactions (common room etc..) by 2022	First bias training happened with Sept 2017 intake
B4	Lack of visible school initiatives to foster an inclusive environment for staff and students	Promote/Improve channels for UGs to report EDI issues, or suggestions to the School in a confidential fashion Look at other initiatives to promote a more inclusive environment, and appoint a Dignity Advisor within the School		Director of teaching and learning, Staff Development Officer	Adoption of School schemes across the Faculty Regular use of student reporting channels	Safe space stickers already in place EDI webpage contains problem reporting form since 2018

B5	Staff awareness of areas of unconscious bias have been found not to be to be universal in surveys	Create and disseminate materials to staff on topics including: writing student references, bias in student evaluation of teaching, ... Add all created documents to the workspace		Staff Development Officer, EDI survey co-ordinator	Staff intranet document repository created Regular emails sent to raise awareness	
B6	Previous Athena SWAN submissions have highlighted a lack of women representatives on School committees	Increase representation on School committees of underrepresented groups. Add EDI representatives on committees who do not take on same workload burden as others but have decision making power		Head of School	More than 8 women on different committees by 2022	Plan to put women on committees who are not given jobs/workload has been approved by Head of School

Valuing individuals (work-life balance)						
Ref	Issue Rationale	Action	Timescales	Responsibility	Success measures	Notes
C1	Identified lack of awareness in School of full range of family-friendly policies	<p>Greater promotion of family-friendly school policies</p> <p>Ensure performance is measured fairly for staff making use of such policies</p> <p>Improve and disseminate School documentation for shared parental leave</p>		Head of Operations	<p>Documented 90% awareness of policies by staff (through surveys)</p> <p>Annual report on staff using family friendly policies for audit purposes</p>	See the Athena Forum Good Practice Scheme January 2018 report
C2	Recent nationwide research and good practice for workload models around equality have been published which we could use to improve our existing model	<p>Workload monitoring group to implement as many of the recommendations in the Athena Forum Good Practice Scheme as possible under the umbrella of the new Faculty workload model coming in in 2019 – e.g. gender bias</p> <p>Review responses on workload in annual staff survey, and respond to staff concerns</p>	<p>Complete by 2020</p> <p>Keep workload documentation for staff up to date annually</p>	Workload monitoring group head, Head of School, EDI survey co-ordinator	Positive changes made to workload model by 2021	
C3	Many staff report feeling under pressure to reply to emails sent outside of work hours	<p>Promote the school policy of not expecting out of hours email responses</p> <p>Investigate technological methods of delaying emails sent out of hours</p>	Regular email reminders from Autumn 2017	Staff Welfare Officer + Computing support officers	Staff report substantial reductions in expectations to respond to emails outside of work hours, by 2020	

Supporting careers (appointments, promotion, support)						
Ref	Issue Rationale	Action	Timescales	Responsibility	Success measures	Notes
D1	Very low numbers of women staff at all levels above PG level	<p>Identify good example case studies of career pathways for women into academia and disseminate</p> <p>Investigate channels to increase women fellows (e.g. through research board funding knowledge)</p>		Research board, Head of School	Increased levels of female staff	<p>Monitor progression pipelines</p> <p>Promotion of women staff in recent years has been good</p>
D2	Important to maintain awareness of any issues with pipeline to higher levels of staff currently at postdoc and higher levels	<p>Run a promotions course for staff</p> <p>Continue to increase promotion of attendance of underrepresented groups of PhDs/Postdocs at conferences.</p> <p>Head of School speak with Research Group heads to ask them to identify staff who may need support / encouragement to apply for promotion</p>	Head of School to speak annually to Heads of Research Groups to identify unpromoted staff	Head of School	<p>On-going high attendance of female PGRs at conferences</p> <p>100% of staff not promoted in past 4 years have been offered support by 2022</p>	No current issues for women staff, given big successes in recent years with level 6 and 7 promotions
D3	Low numbers of women shortlisted and appointed as staff	<p>Introduce training for all panel interviewers covering Unconscious bias training, Race bias training, LGBT+ awareness training</p> <p>Invite more women staff members to be on interview panels</p> <p>Create a School Brochure to circulate to potential candidates during recruitment to show School info and highlight School commitment to women and diversity</p>	All staff on panels undertake unconscious bias training by 2020	Head of School, Marketing team	<p>A woman panellist on every appointment panel, where possible</p> <p>More diverse appointment panels by 2022</p>	

D4	Low numbers of women applying for advertised positions	<p>Broaden the pool of applicant to R&T jobs by widening job ads, checking these for biased language, and involving more staff in the job specification writing process</p> <p>Offer all positions on a part-time basis, where possible</p> <p>Include the interview date on all adverts to allow forward planning around potential family commitments for all applicants and offer Skype interviews if preferable</p>	All revised annually	Head of School	<p>100% of job advertisements contain interview dates</p> <p>Improve number of women applicants interviewed</p>	Adverts reworded in 2018
D5	Staff-identified need for transparency and fairness in how the School deals with staff with respect to the Research Excellence Framework (REF)	<p>Create mechanism for reporting of bias/equality/transparency/fairness concerns</p> <p>Perform equality audits (at least annually) to ensure lack of bias or unfair treatment of minority groups from School decisions</p> <p>Publish to all staff any criteria used for REF decision making</p>		REF co-ordinator	<p>No complaints from staff of unfair treatment</p> <p>Documented transparency of criteria used</p>	
D6	Staff surveys have identified demand for improved mentoring concerning career progression for PGRs and PostDocs	<p>Revitalise existing buddy system for PGRs to re-empower buddies and raise awareness</p> <p>Investigate informal mentoring system for Postdoctoral researchers</p>	Annual monitoring of scheme by responsible staff	PGR Advisor, Staff Development Officer	<p>Information on schemes provided to all new arrivals within 1 month from Autumn 2022</p> <p>Improved satisfaction in annual survey with mentoring provision</p>	

D7	2017 School staff survey: suggestion to streamline induction	All new staff to have an individual induction page, with more online/electronic components	Expected end of 2019	Head of Operations	Increased positive responses to induction survey questions	
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Addressing inequality						
Ref	Issue Rationale	Action	Timescales	Responsibility	Success measures	Notes
E1	In-house statistics show low numbers of women seminar speakers Lack of visible female role models in mathematics	Chase up research groups with low numbers of women speakers Research groups will be asked to justify low numbers of women and plan improvements (e.g. remote seminars, lists of people). Research groups asked to maintain diverse lists of speakers	6-monthly review of speaker gender breakdowns Before start of academic year, speak to organisers about lists	Research Group leads, Research Admin team	All groups have a diverse list of speakers by 2019 Every group has at least 24% women speakers Net percentage of women speakers across all groups is 30%	Speakers can include PhD students. Use sanctions on seminar budgets by increasing funding only for those groups who have good performance e.g. 30% women
E2	In-house statistics show low numbers of women conference speakers Lack of visible female role models in mathematics	Create/Find lists of women experts in different areas and make them available to conference organisers for their use Disseminate documents describing family-friendly facilities, and promoting inclusivity in conference organisation - through Research Support Team	Verify that lists created by end of 2018/19 year Annual reporting from Research Support Team of promotion of materials	Research/Conference Support Team	Lists created and disseminated Reported usage of materials by the Research Support Team	Childcare funding, can be incorporated into conference funds in many cases (as done for the recent UK Multiscale Bio conference)
E3	Several recent studies show that student evaluations can be biased against women lecturers	Circulation of information to raise awareness, and inclusion of relevant questions in staff survey Increase usage of Peer Observation of Teaching to twice a year	Information circulated to students via reps from 2018 Ongoing annual review	Director of Teaching and Learning, Student Experience Officer	Higher awareness of problem among students and staff (target 70% by 2023) Introduce bi-annual	

		Provide training to UGs for SET bias avoidance			Peer Observation from 2019/20	
E4	School actively considering gender equality and inclusivity in teaching materials	<p>Following discussion at the School EDI Committee the Director of Teaching and Learning was tasked with speaking directly to students via the Learning Community Forum</p> <p>Students will be asked to give their views on whether the examples given in course materials and exams are an acceptable mix of gender/age/nationality/ethnicity etc. and do not stereotype</p>	Annual review at LCF	Director of Teaching and Learning	Follow-up actions arise from the review	The EDI Committee will review material before the beginning of the next academic year, and repeat annually
E5	University-wide and national surveys indicate a disability attainment gap, which we have never previously examined	<p>Investigate, through data analysis, if there is a disability attainment gap for our maths students</p> <p>Draw up actions to address any gap</p> <p>Implement actions by 2020</p>		Disability Liaison Officer, Welfare support team, EDI Chair (SP)	<p>Complete a data review by 2019</p> <p>Draw up any further actions resulting from the review.</p>	
E6	Staff surveys have identified a number of protected characteristics about which there is not universal agreement of: fair, equal and respectful treatment	<p>Look at improvements to processes to enable staff to raise issues and feel they will be addressed</p> <p>Include in follow-up surveys questions to understand issues better</p>	<p>Annual survey monitoring</p> <p>Periodic emails to raise awareness of reporting</p>	Head of Operations	Reduce to 0% the number of staff disagreeing with statements in surveys on equal, fair and respectful treatment with respect to characteristics by 2022	