



## Athena SWAN Silver department award application

**Name of university:** University College London

**Department:** Mathematics

**Date of application:** November 2016 (note: department bronze awarded May 2014)

**Date of university Bronze and/or Silver Athena SWAN award:** University Bronze 2006, renewed 2009, 2012. Silver 2015.

**Contact for application:** Professor Robb McDonald

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**Departmental website address:** <http://www.ucl.ac.uk/mathematics>



## List of Abbreviations

ADM	The Augustus De Morgan Society (the UCL UG Mathematics society)
ALCAB	A-Level Content Advisory Board
CDT	Centre for Doctoral Training
CoMPLEX	Centre for Mathematics, Physics and Engineering in the Life Sciences and Experimental Biology
DAW	Dignity at Work
DEOLO	Departmental Equal Opportunities Liaison Officer
EPSRC	Engineering and Physical Sciences Research Council
ERC	European Research Council
FMSP	Further Mathematics Support Centre
HEA	Higher Education Academy
HESA	Higher Education Statistics Agency
HoD	Head of Department
HoDoMS	Heads of Departments of Mathematical Sciences
HR	Human Resources
IMA	Institute of Mathematics and its Applications
IQR	Internal Quality Review
LMS	London Mathematical Society
LSGNT	London School of Geometry and Number Theory
MAPS	Mathematical and Physical Sciences Faculty
NSS	National Student Survey

PACT	Parents and Carers Together
PDRA	Postdoctoral Research Assistant; also includes Research Fellows in this document
PGR	Postgraduate Research
PGT	Postgraduate Taught
PI	Principal Investigator
SAT	Self Assessment Team
SET	Science Engineering Technology
SMT	Senior Management Team
StAR	Student Academic Representative
STEM(M)	Science, Technology, Engineering, Mathematics, (Medicine)
UCL	University College London
UCLU	University College London Union (students' union)
UG	Undergraduate

## 1. Letter of endorsement from the head of department: maximum 500 words

An accompanying letter of endorsement from the head of department should explain how the SWAN action plan and activities in the department contribute to the overall department strategy and academic mission.

The letter is an opportunity for the head of department to confirm their support for the application and to endorse and commend any women and STEMM activities that have made a significant contribution to the achievement of the departmental mission.

Ms Sarah Dickinson,  
Athena SWAN Manager,  
Equality Challenge Unit

November 2016

Dear Sarah,

[omitted text]

Yours sincerely,



Robb McDonald

[500 words]

## 2. The self-assessment process: maximum 1000 words

Describe the self-assessment process. This should include:

- a) A description of the self assessment team: members' roles (both within the department and as part of the team) and their experiences of work-life balance

**Pilar Guerrero Contreras** (PDRA) is a mathematical biologist collaborating with the Francis Crick Institute. She obtained her degrees at the University of Granada and was PDRA at the Centre de Recerca Matematica (Barcelona).

**Helen Higgins** (Departmental Manager) is the DEOLO, Departmental Manager and single parent. Helen takes an active interest in equalities matters in the department and UCL e.g. as a member of

the race equality group. Helen is line manager to the departmental professional services team including a part-time administrator who has a flexible working arrangement to assist with childcare responsibilities.

**Rod Halburd** (Professor) joined UCL as an EPSRC Advanced Research Fellow (2007) and promoted to Professor (2010). His wife is a Senior Lecturer at UCL and they have an 11 year old son. They live outside London and both work full-time but have sufficient flexibility to ensure that one of them can be available in the morning and late afternoon for their son. Rod and his family featured in UCL's 2013 booklet *Guidance on Supporting Working Parents and Carers*.

**Anna Lambert** (PhD student) was also an UG at UCL. She is actively involved in public engagement: a founding member of *Chalkdust* magazine, and organiser of outreach events at the Olympic Park, Science Museum, and Royal Institution. Anna took responsibility for conducting and processing survey data.

**Emily Maw** (PhD student) joined UCL in 2015 to study for a PhD in the LSGNT. She is a tutor for first year undergraduates, a departmental StAR, and a member of the LSGNT Student-Staff Liaison Committee. She also runs the Junior Geometry seminar, as well as the department choir.

**Robb McDonald** (Professor and HoD) chairs the SAT and, from 2014, chairs the Faculty-wide Equality & Diversity committee, and is a long-time member of UCL's 50:50 Gender Equality Committee. He was a member of UCL's SAT which prepared UCL's successful Athena SWAN Silver Award in 2015.

**Nick Ovenden** (Senior Lecturer) joined UCL in 2003 as a research fellow then Lecturer from 2005, and promoted to Senior Lecturer in 2012. He has two daughters under five years old and shares their care with his wife who works part-time, and often unsocial hours, as a midwife in London.

**Helen Wilson** (Professor) joined UCL as a Lecturer in 2004, was promoted to Senior Lecturer (2007), Reader (2009) and Professor (2016). She has two school-age children (both born while she was working at UCL) and her husband also works. Helen is active in the UCL-wide network *UCL Women in STEM* and also in organising events for *UCL Women in Mathematical Sciences*.

- b) an account of the self assessment process: details of the self assessment team meetings, including any consultation with staff or individuals outside of the university, and how these have fed into the submission

The department formed its Athena SWAN SAT in 2011-12 and its first task was to prepare a response to the LMS *Good Practice* survey in summer 2012. Feedback from the survey highlighted a number of challenges which subsequently shaped the SAT's 2013 submission for an Athena SWAN Silver award (awarded Bronze). Response to feedback on that submission is sign-posted by underlined text.

The SAT was refreshed in 2014, by (i) calling for volunteers and (ii) inviting individuals who would bring specific knowledge and background to the SAT, while ensuring that it is well-balanced in terms of gender, experience and grade. The number of academic women has remained at one in

order not to overburden women in the department. With the arrival of a 5<sup>th</sup> academic woman to the department in 2016 this will increase to 2 from spring 2017. The FMSP co-ordinator Dr Luciano Rila will also join the SAT in 2017.

**Action 2.1:** from spring 2017 appoint 2 academic women and the FMSP co-ordinator to the SAT

The SAT has the necessary 'clout' to realise its actions: all 3 members of the department's SMT (Helen Higgins, Robb McDonald and Helen Wilson) are SAT members. The SAT meet 4 times p.a., where progress on our Bronze Award action plan is reviewed, along with gender-related data, survey results analysed and matters requiring further investigation.

Wider consultation and engagement involved (i) members of the SAT attending Athena SWAN themed workshops hosted by the LMS (Autumn 2015, 2016); (ii) sharing its UG survey questions with York Mathematics and information on its UG recruitment practices with Imperial Mathematics; (iii) McDonald was involved in a SWAN-related presentation ("People Pipeline") at the annual UK HoDoMS meeting in April 2015, and gave an Athena SWAN-related presentation at the Athena Forum at the Royal Society in 2013. McDonald mentors 2 other UCL departments in early stages of Athena SWAN.

c) Plans for the future of the self assessment team, such as how often the team will continue to meet, any reporting mechanisms and in particular how the self assessment team intends to monitor implementation of the action plan.

The SAT will be refreshed following this submission adding UG and MSc students, and increasing the number of professional services staff.

A new Chair of the SAT will be appointed. In recognition of the necessary commitment required to advance the actions of this submission and to promote the 10 Athena SWAN principles in the department, University and the UK mathematical community, along with our ambition to achieve Athena SWAN gold status, the new Chair will receive a significant teaching and administration discount.

**Action 2.1 (cont):** Refresh SAT in 2017: Appoint new Chair, UG and PGT students and more Professional Services staff.

The present SAT Chair will continue to serve as an ordinary member of the SAT and on Faculty and University gender equality committees providing a direct link to these higher level committees and enable sharing of best practice.

The SAT will continue meeting 4 times p.a., reporting to the department via the standing agenda item at staff meetings. Pressing matters requiring action or attention from all staff will be communicated via email. This approach has been effective: this document details how the department has recently achieved a positive change in culture, with Athena SWAN principles embedded in its practices. Evidence also comes from the 2015 staff survey where Mathematics improved its positive responses (2013 survey figures in brackets) to the following questions

- *I am treated with fairness and respect.* 85% (78%) positive.
- *I think UCL respects individual differences (e.g. cultures, working styles, backgrounds, ideas).* 91% (87%) positive.
- *I believe that UCL is committed to advancing equal opportunities.* 89% (84%) positive.

The department's 2015 scores in the above questions were all 9 points above the UCL average.

[999 words]

### 3. A picture of the department: maximum 2000 words

- Provide a pen-picture of the department to set the context for the application, outlining in particular any significant and relevant features.

In October 2016 the department has 48 (43M, 5F) academic staff (5M of whom hold fractional appointments), 17 PDRAs, 10 professional services staff, around 640 UGs, 50 PGT and 65 PGR students. Compared to our bronze award submission in 2013, the most significant growth has been in PDRAs (from 9 to 17), reflecting the department's recent success at obtaining research funding. The number of PhD students has also increased from 45 to 65.

Along with King's and Imperial, the department is a partner in the EPSRC CDT in pure mathematics (the LSGNT). Since all three universities are involved first year LSGNT PhD students are not included in this submission, but they are included after they formally join one of the host departments after the completion of their first year.

Research in the department covers broad areas of pure and applied mathematics with notable research groups in pure and applied analysis, fluid mechanics, mathematical physics, geometry, number theory and mathematical modelling.

The department is presently spread across two neighbouring buildings. It is a UCL priority to co-locate all members of the department within one building.

The department is one of seven which comprise the MAPS Faculty. We are proud that our staff are regularly recognised by teaching awards at University, Faculty and UCLU "Student Choice" level. In the 2016 NSS the department obtained an overall satisfaction rating of 93%.

The department values outreach and public engagement activities: the department's FMSP hosted *Celebrating Women in Mathematics at the Royal Institution* events in 2014 and 2015. The 2015 event attracted 270 Year 10 students (female and male) with all speakers being female mathematicians, including SAT member Helen Wilson. Following popular demand from the Association of State Girls' Schools, the department's FMSP also organised a similar event in September 2016 (*Inspiring Women in Mathematics*), which featured two UCL Mathematics PhD students as speakers, including Anna Lambert. Ninety-one Year 10 students (all female) and 17 teachers attended the event; one teacher remarked:

"Our journey home on the tubes was full of Maths Chat, it was wonderful to hear the conversations that were occurring between 13/14 year old girls. I noticed some other passengers give us a few unusual looks. It has also re-awoken something inside me too, I just wish it was closer to half term so that I had time to truly contemplate the ideas that are flying about in my head."

These events are widely publicised and celebrated (website, display screens, annual newsletter, staff meetings) and this alone helps raise awareness of the department's commitment to equality and diversity and has contributed to a genuine culture change in the department.



**Photos 1 and 2: Helen Wilson at the 2015 *Celebrating Women in Mathematics at the Royal Institution* (left) and students at the 2016 *Inspiring Women in Mathematics* event (right)**

In the early 1990s (some 10-15 years before the Athena SWAN Charter) the department's Admissions Tutor, Dr Bill Stephenson, initiated an annual *Women in Mathematics Day* in which potential university mathematics students visit the department to participate in activities and talks, with the majority of speakers being women. We are proud that through ongoing commitment of our staff and students, this annual event is still going strong today.

In 2016 the department was awarded a prize for its commitment to the UCLU campaign of *Zero Tolerance to Sexual Harassment Campaign*. This involved all newly starting 2015-6 first year UGs attending a workshop on eradicating sexual harassment at UCL and the department pledging



- To never tolerate, condone or ignore sexual harassment of any kind
- To educate students and staff about sexual harassment and why it's never ok
- To support students and staff when they talk about, report or challenge sexual harassment.

In 2016-17 the department facilitated the extension of the campaign to newly started PG students.

The department is proud of its history: established in 1826, it is one of the founding departments of UCL, the first university in England to be established on an entirely secular basis, and to admit students regardless of their religion and women on equal terms as men. We believe that Emeritus Professor Susan Brown, appointed to a Chair at UCL in 1987, was the first female professor (of mathematics) in a UK mathematics department (not including female professors of statistics in mathematics departments). At the SAT's initiative, there are definitive plans to name a room in the department after Professor Brown. The department's premier UG prize in applied mathematics was re-named the *Susan Brown Prize* in 2015.

**Action 3.1** Name room frequently used by mathematics students and staff after Susan Brown

In September 2016, the department was delighted to appoint its 5<sup>th</sup> female academic. That this is considered significant and worthy of comment here perfectly illustrates the challenge we, and the UK mathematics community, face.

- b) Provide data for the past three years (where possible with clearly labelled graphical illustrations) on the following with commentary on their significance and how they have affected action planning.

**Student data**

- (i) **Numbers of males and females on access or foundation courses** – comment on the data and describe any initiatives taken to attract women to the courses.

N/A.

- (ii) **Undergraduate male and female numbers** – full and part-time – comment on the female:male ratio compared with the national picture for the discipline. Describe any initiatives taken to address any imbalance and the impact to date. Comment upon any plans for the future.

Academic year	female	male	total	% female	National % female (HESA)
2010-11	271	338	609	44%	40%
2011-12	287	328	615	47%	-
2012-13	297	318	615	48%	-
2013-14	290	322	612	47%	39%
2014-15	281	320	601	47%	-
2015-16	296	335	631	47%	-

**Table 1: undergraduate population 2010-16**

Table 1 shows that the F/M ratio of UGs has been remarkably consistent since 2011, with around 47% being female. This puts us well-above the sector average for mathematical science departments in the UK (e.g. 39% in 2013-14), a result which we believe is partly due to our long-established outreach activities, friendly and inclusive open days and our positive portrayal of women mathematicians including our long-established *Women in Mathematics days*. According to 2013-14 HESA data we recruit a higher proportion of female UGs than other institutions who ask for similarly high entrance grades e.g. mathematics at Bristol, Cambridge, Imperial, Oxford and Warwick have UG populations with female proportion between 17%-35%.

Academic year	Total student intake	% of the intake who are female	Number of overseas students in the intake	% of overseas students who are female	% of female students who are from overseas	% (and number) of UK/EU students who are female
2010-11	197	49%	90	56%	56%	43% (46)
2011-12	184	48%	95	58%	63%	37% (33)
2012-13	203	50%	116	59%	67%	38% (33)
2013-14	194	45%	102	60%	68%	30% (28)
2014-15	173	47%	70	56%	48%	42% (43)
2015-16	217	48%	114	64%	70%	30% (31)

**Table 2: UG intake data according to gender and overseas status**

The department recruits a large percentage of overseas students (e.g. 50% in 2015-16) and it is of interest to examine the gender balance of this cohort. Column 5 of Table 2 shows that the majority (55%-64%) of overseas students are female, whereas (column 7) shows females are in the minority of UK/EU students i.e. a partial reason for our high proportion of female UGs compared to the rest of the UK is our large proportion of overseas students, most of whom are female. However, Imperial, King's and Warwick similarly recruit a large proportion of overseas UGs but have lower overall percentage of women than UCL: there seems to be some unique positive effect at UCL.

It is relevant to compare our data with the proportion of UK females taking A-level Mathematics. Since 2005 the proportion of females in the UK taking A-level Mathematics in any given year is about 40% and those taking Further Mathematics is 30%, the latter being an essential pre-requisite at UCL. Table 2 demonstrates that since 2009, we recruit UK/EU female students in at least the proportion of 30%.

**Action 3.2:** monitor % of female students recruited from the UK and ensure that it does not drop below 30%. Take further steps to promote UCL Mathematics among prospective UK female students e.g. explicitly promote Athena SWAN values at UCAS open days, continue to develop website, and roll-out social media as a way of promoting the department's friendly and open culture.

Feedback from our Bronze award submission asked us to monitor the effect of our increased entry offer (from A\*AA in 2012-13 to A\*A\*A, with A\*s in Mathematics and Further Mathematics, from 2013-14). Table 2 demonstrates that the increased offer has had no effect in the proportion of female students.

The number of part-time students is typically very small (e.g. 2 in 2016-17) and no gender bias is apparent.

- (iii) **Postgraduate male and female numbers completing taught courses** – full and part-time – comment on the female:male ratio compared with the national picture for the discipline. Describe any initiatives taken to address any imbalance and the effect to date. Comment upon any plans for the future.

Table 3 shows that compared to the sector average we consistently recruit a relatively large proportion of female MSc students to the programmes Mathematical Modelling and Financial Mathematics (introduced 2012-13), with female MSc students outnumbering their male counterparts in 2015-16.

Academic year	female	male	total	% female	National % female (HESA)
2010-11	4	6	10	40%	34%
2011-12	5	9	14	36%	-
2012-13	13	19	32	41%	-
2013-14	16	17	33	48%	32%
2014-15	18	24	42	43%	-
2015-16	26	23	49	53%	-

**Table 3: PGT population 2010-16**

Again, the number of part-time students is very small and no gender bias is apparent.

- (iv) **Postgraduate male and female numbers on research degrees** – full and part-time – comment on the female:male ratio compared with the national picture for the discipline. Describe any initiatives taken to address any imbalance and the effect to date. Comment upon any plans for the future.

year	female	male	total	% female	% national
2010-11	6	21	27	22%	25%
2011-12	6	25	31	19%	-
2012-13	6	35	40	13%	-
2013-14	6	39	48	13%	27%
2014-15	9	49	58	16%	-
2015-16	10	60	70	14%	-

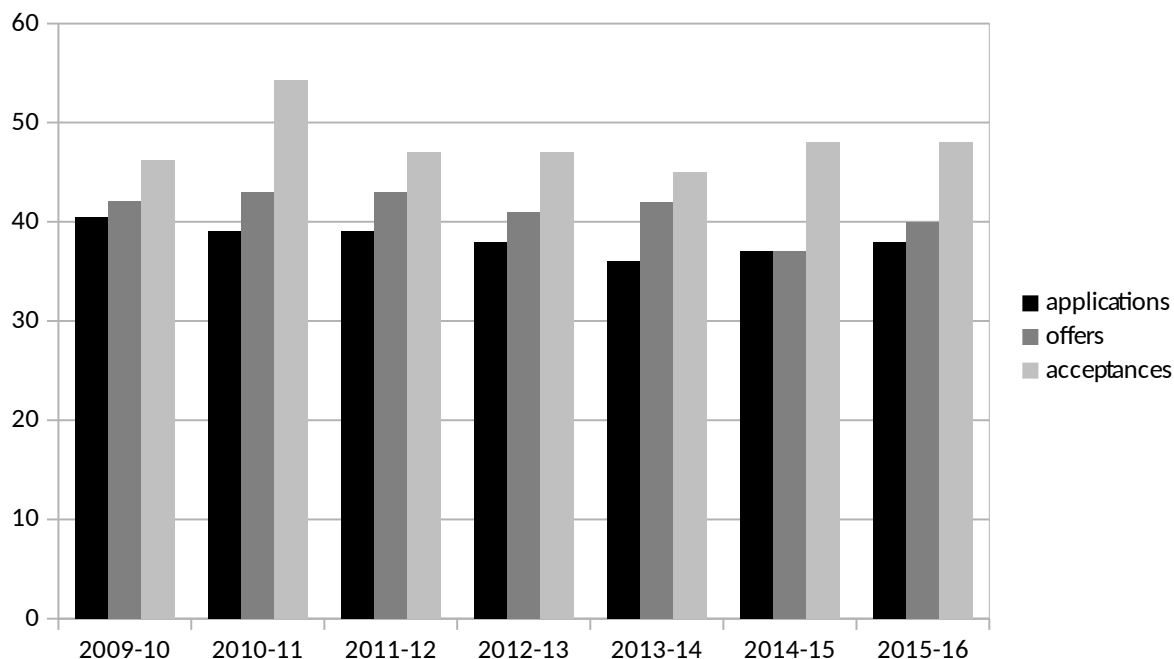
**Table 4: PGR population 2010-16**

Our smaller proportion of female PGR students compared to the national percentage is shown in Table 4. Some accommodation should be made for the fact that Statistics is a separate department at UCL and traditionally that discipline attracts a higher proportion of female PGR students (e.g. UCL Statistical Science typically has 32% female PGR), and that statistics students are naturally included in the HESA data for most UK mathematics departments. We are encouraged by 2016-17

where, to date, 7 out of 15 new PhD students (47%) are female (this data is not included in the submission as this year's recruitment is ongoing).

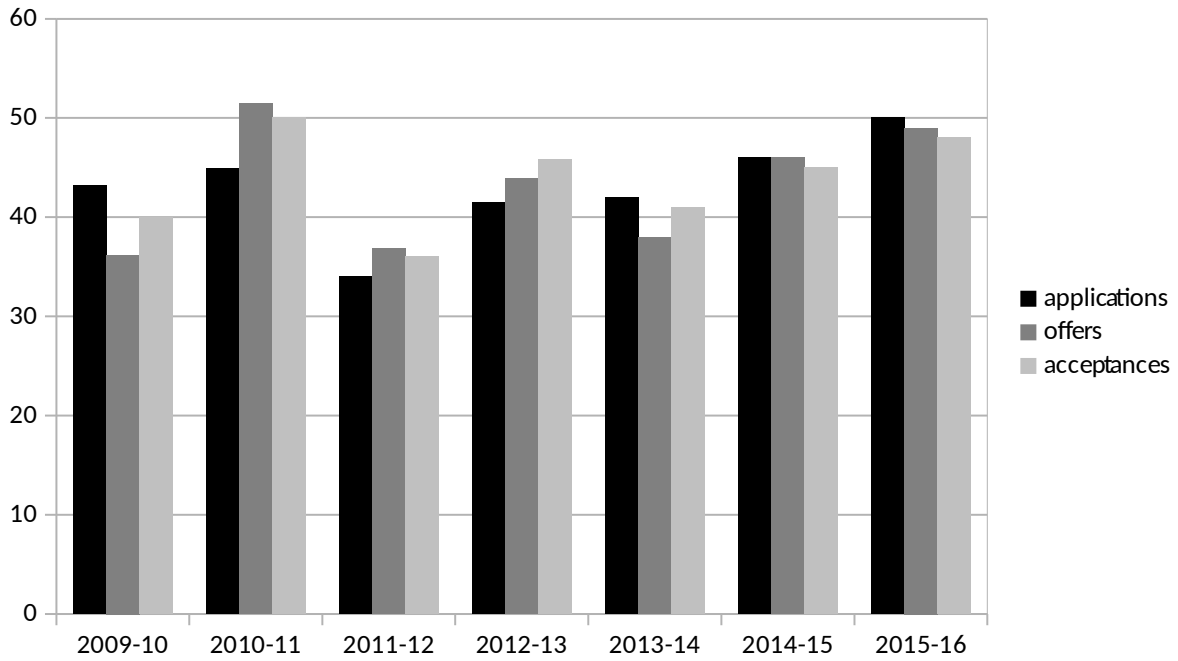
**Action 3.3:** increase proportion of PGR women

- (v) **Ratio of course applications to offers and acceptances by gender for undergraduate, postgraduate taught and postgraduate research degrees** – comment on the differences between male and female application and success rates and describe any initiatives taken to address any imbalance and their effect to date. Comment upon any plans for the future.



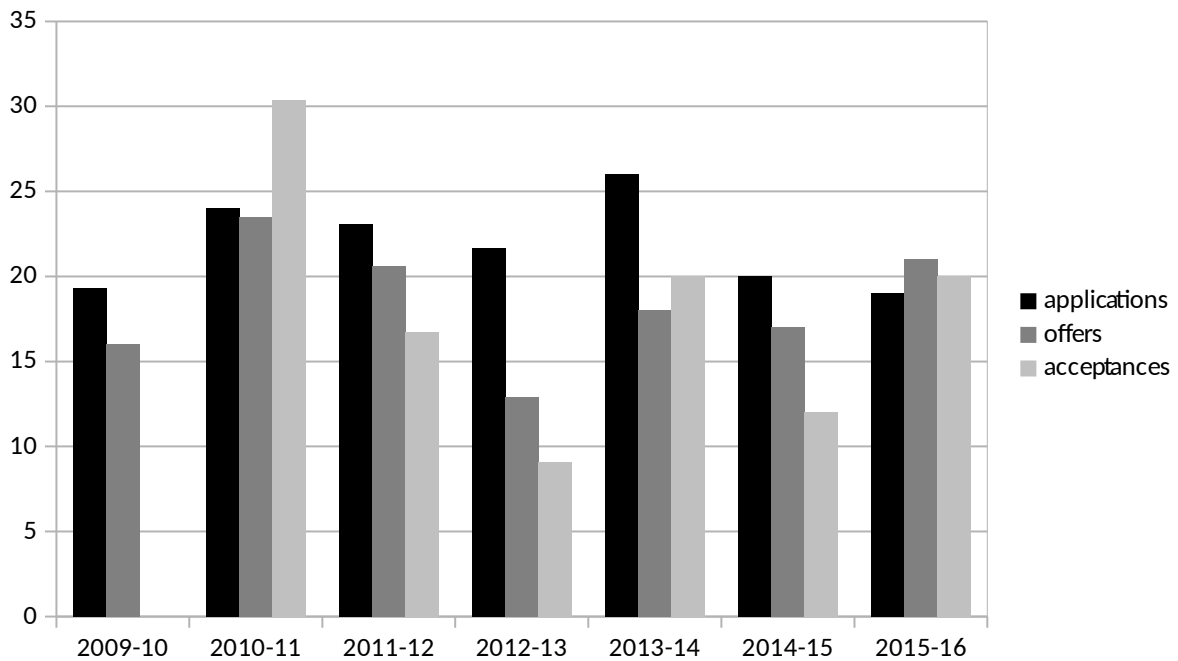
**Fig. 1: Percentage of female UG applications, offers and acceptances**

Fig. 1 shows that, consistent since 2009-10, the proportion of females increases at every step of the UG admissions process i.e. from application, offer to acceptance. Again, we believe that this is a result of our outreach activities and *Women in Mathematics Days* which leads to applications and then attendance at our friendly and inclusive open days which deliberately involve current female UG students as tour guides and friendly staff meeting and greeting UCAS applicants and answering question they may have.



**Fig. 2: Percentage of female PGT applications, offers and acceptances**

For PGT, Fig. 2 shows there is no observable trend over the last 7 years in each of the steps of the admission process: the application process is not disadvantaging females.

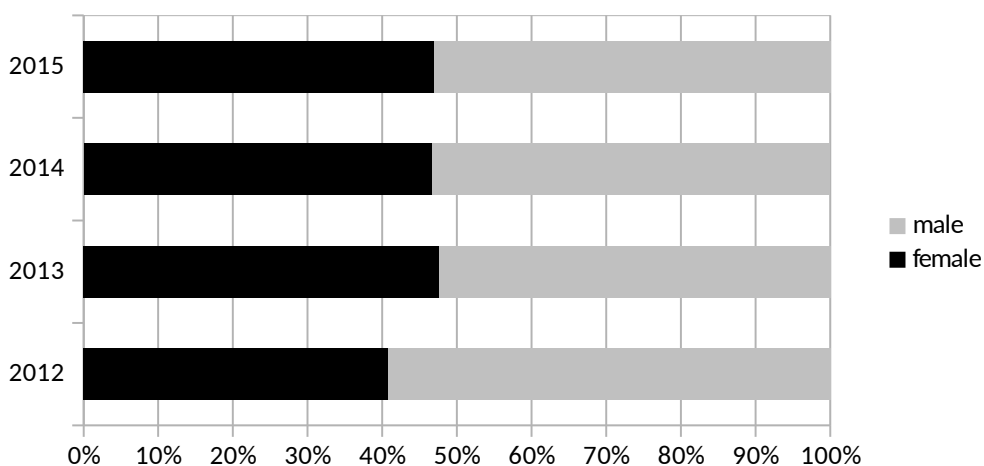


**Fig. 3: Percentage of female PGR applications, offers and acceptances.**

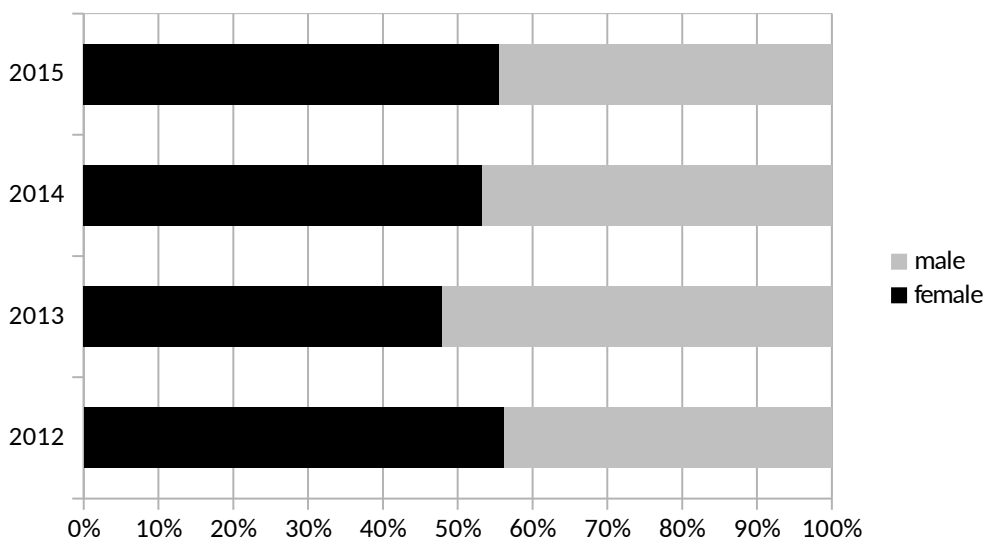
Fig. 3 shows applications, offers and acceptances for PhD students. There are two concerns. The first being that in most admission years, the percentage of women declines at each step of the process, the exception being the most recent year, where each step retains the same percentage of women. We are confident this is owing to actions of our previous SWAN submission.

**Action 3.4:** Monitor each stage of the PGR admission process. Take further steps to ensure the proportion of women does not decline at either the application to offer step or offer to acceptance step.

- (vi) **Degree classification by gender** – comment on any differences in degree attainment between males and females and describe what actions are being taken to address any imbalance.



**Fig. 4: First class degrees awarded, 2012-13 to 2014-15**



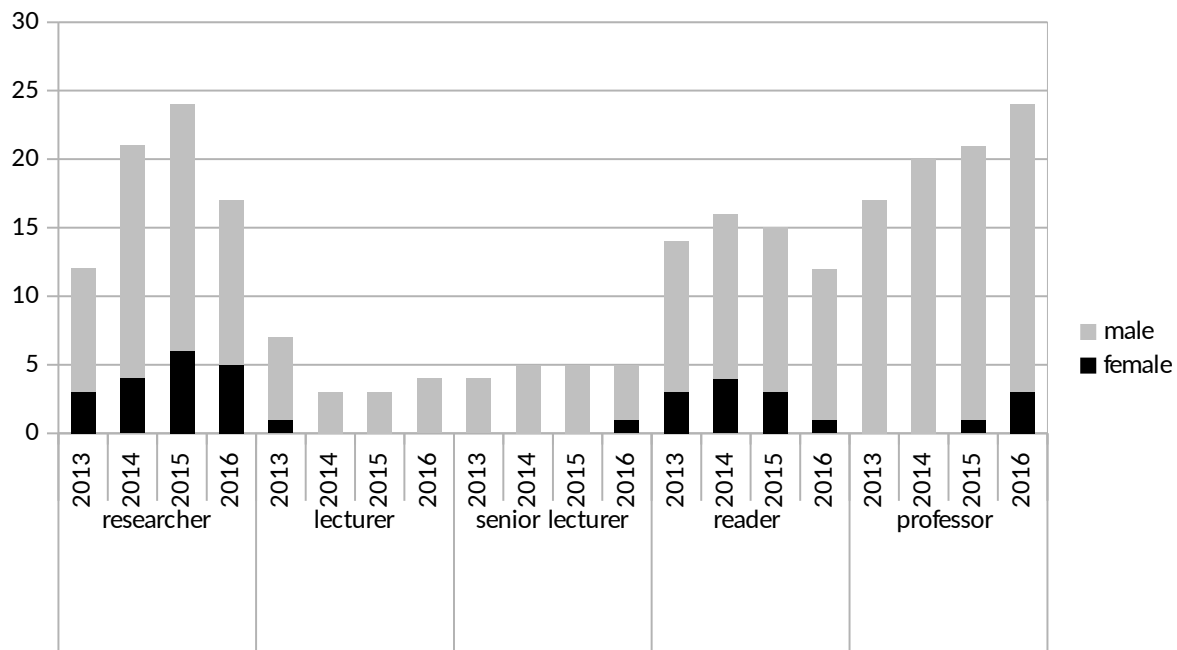
**Fig. 5: 2.1 degrees awarded, 2012-13 to 2014-15**

Figs. 4 and 5 show the proportion of first and 2.1 degrees awarded to female and male graduates for the 3 academic years 2012-13 to 2014-15. Recall that the percentage of UG women is about 47% (see table 1) for this period which matches very well the attainment of first class degrees by women since 2013. We conclude that women and men perform equally in the award of first class degrees since 2013. Over the same period women have, in any given year, been awarded between 48% and 56% of 2.1 degrees awarded.

Another way of measuring UG female attainment, at least among the very top-performing students, is to examine the proportion of women mathematics graduates who make it on to the *Dean's List* (an annual list of high-achieving graduates from across the Faculty). Since 2013 we have had 24 final year students on the Dean's List, of whom 10 (42%) were female which is close (bearing in mind the small numbers) to the overall proportion of female UGs. Also noteworthy was the award of the 2015-16 *Faculty Excellence Prize* for the very best UG across the whole of MAPS to a female mathematics UG.

### Staff data

- (vii) **Female:male ratio of academic staff and research staff** - researcher, lecturer, senior lecturer, reader, professor (or equivalent). comment on any differences in numbers between males and females and say what action is being taken to address any under-representation at particular grades/levels

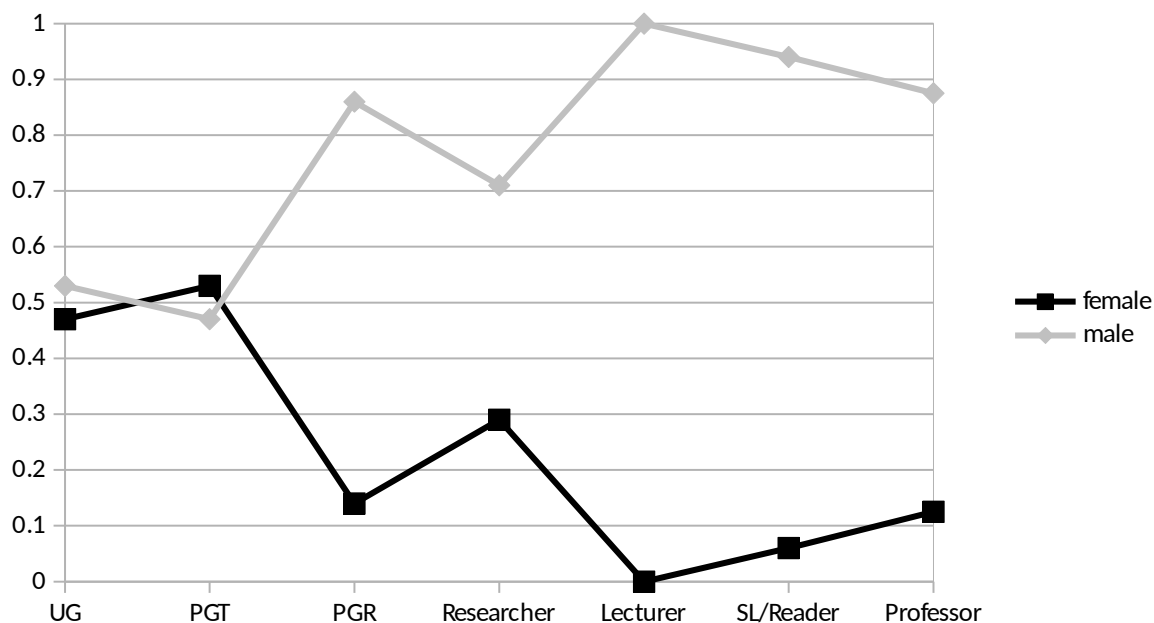


**Fig. 6: Numbers of female and male staff at various academic grades 2013-16. There have been the same 4 female staff over the period with a fifth joining September 2016 and Senior Lecturer**

Fig. 6 shows the gender profile of academic staff with census taken October 1 2013-2016. The proportion of women has increased at PDRA level reaching 29% in 2016 exceeding the HESA UK



average of 22% women PDRAs. The fluctuating numbers of women at Lecturer and above level demonstrates that female staff have been progressing through the grades (see case studies to see how our Athena SWAN actions have enabled this): three are now Professors (i.e. 12.5% of our professoriate, compared to the 2013-14 HESA average of 6% female professors in mathematical science) and one is a Reader.



**Fig. 7: Department's proportion of female and male students and staff (Oct 2016)**

Fig. 7 gives the October 2016 snapshot of the "people pipeline" in the department which clearly shows the critical transition point for the department is that going from UG/PGT to PGR (approx 50% to 15%). Compared to the HESA UK average (39% to 27%), clearly the drop is more significant at UCL owing to our relatively high proportion of female UG/PGT students but relatively low proportion of female PGR students.

- (viii) **Turnover by grade and gender** – comment on any differences between men and women in turnover and say what is being done to address this. Where the number of staff leaving is small, comment on the reasons why particular individuals left.

Since September 2013 five, all male, members of academic staff (lecturer and above), have left (around 11% of total staff) going to high-profile posts at LSE, Cambridge, Oxford (x2) and Berlin, despite best efforts by the department in trying retain them; in the end personal reasons were significant factors in some, if not all, of these departures. In the same period, six staff have been recruited: 1 female and 5 male.

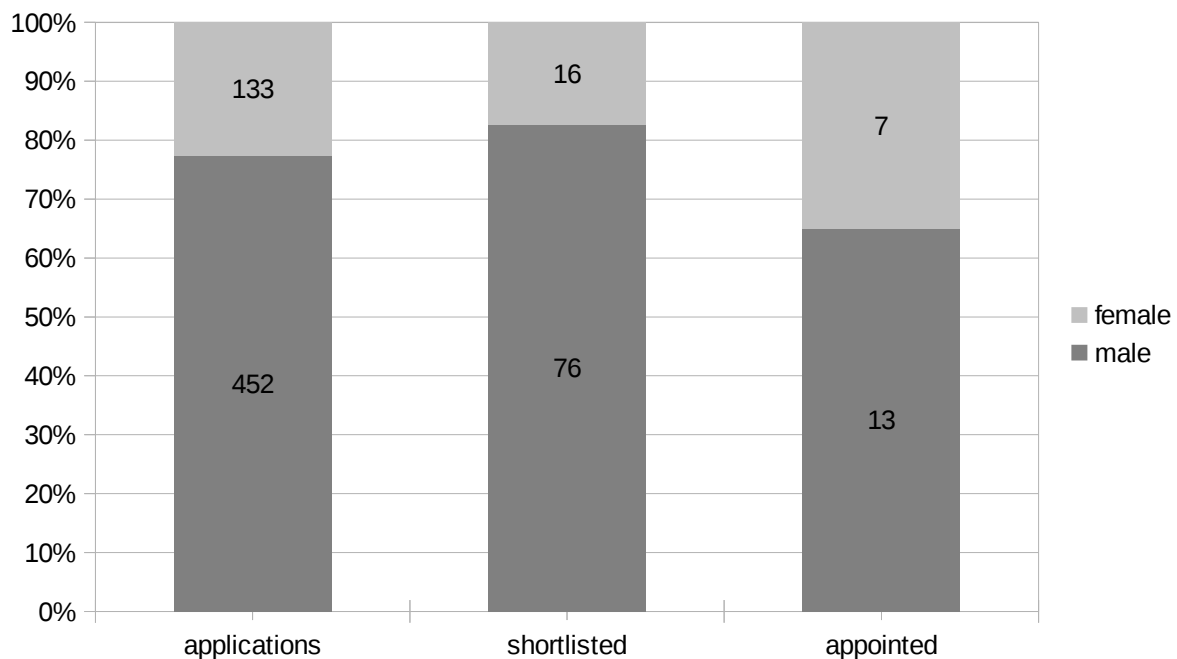
Since 2012, 12 (2F,10M) PDRAs have left UCL when their funding finished. Ten of these have moved on to other academic appointments e.g. research fellow at Cambridge (M), research fellow at Cardiff (F). Note that moving to another institution can be desirable from a career development perspective. The other 2 (M) have taken posts in industry.

[1999 words]

#### 4. Supporting and advancing women's careers: maximum 5000 words

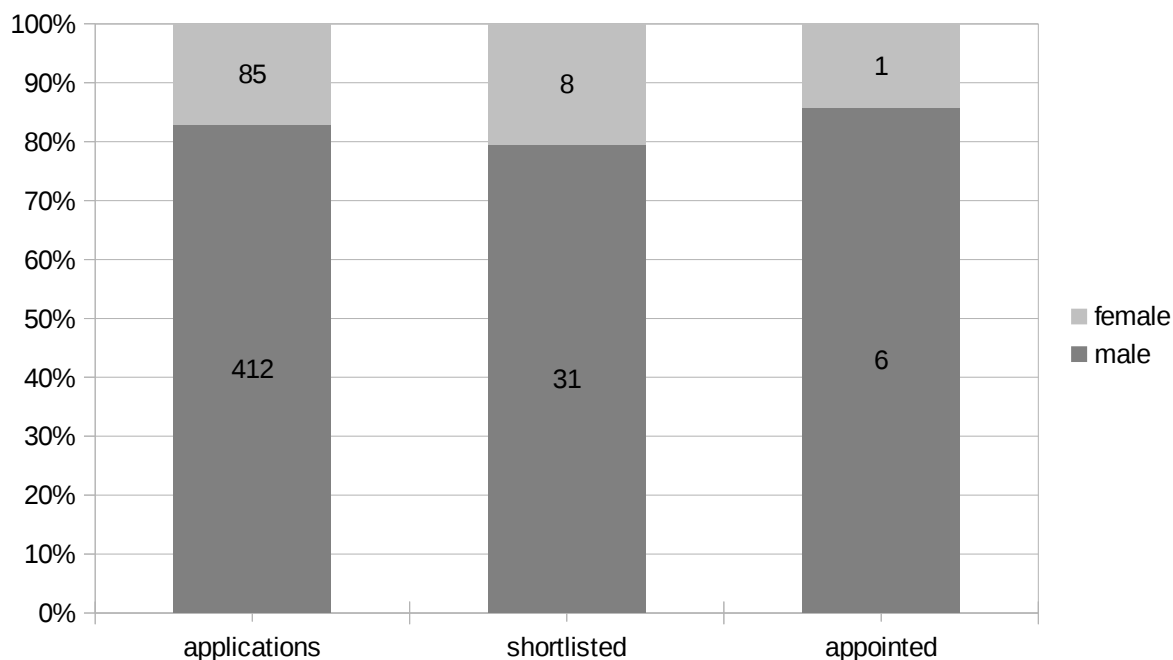
##### Key career transition points

- a) Provide data for the past three years (where possible with clearly labelled graphical illustrations) on the following with commentary on their significance and how they have affected action planning.
- (i) **Job application and success rates by gender and grade** – comment on any differences in recruitment between men and women at any level and say what action is being taken to address this.



**Fig.8: PDRA recruitment October 2013-September 2016**

Compare Fig. 8 with the HESA average of 22% female PDRAs in mathematical science. The proportion of women appointed in the last three years is pleasing, but the slight fall going from applications to shortlisting is something we'll monitor. A possible explanation is that the PDRA recruitment panels are often chaired by a PI who has not received training in unconscious bias. **Action 4.4** addresses this.



**Fig. 9: Academic staff recruitment October 2013-September 2016**

Fig. 9 shows data for academic staff: in the last 3 years, 1 professor (M), 3 Senior Lecturers (1F,2M) and 3 Lecturers (3M) were appointed. Compared to the previous 3 year period, application rates from females have increased slightly. Yet more encouragingly, there is an increase in the proportion of women shortlisted, as opposed to the fall to 10% observed in 2010-13, demonstrating that our previous actions to reduce bias at this stage have been effective. No shortlists have been all-male.

- (ii) **Applications for promotion and success rates by gender and grade** – comment on whether these differ for men and women and if they do explain what action may be taken. Where the number of women is small applicants may comment on specific examples of where women have been through the promotion process. Explain how potential candidates are identified.

In recent years all 4 academic female staff have progressed through the grades with three now Professors; all have had at least one promotion since 2012-13. In the three annual promotion rounds since 2013-14, five staff have been promoted to Professors (3F, 2M), five to Readers (1F, 4M) and one to a Senior Lectureship (M). In this period there have been two unsuccessful promotion cases, both men. Thus of all successful promotion cases since 2013-15, 36% have been women (well-above the eligible pool).

The 2014 Athena SWAN panel feedback asked for more proactive promotion support: a systematic and inclusive process was subsequently implemented, the timing of which follows UCL's annual senior promotion round. It is initiated with an all-staff email from HR announcing the promotion process is underway with links to procedures and promotion criteria. The HoD follows this with an all-staff email welcoming staff to chat informally with him about their own promotion prospects in light of UCL criteria. Instead of relying solely on this 'self-selection' process a promotions committee

comprising of 1 woman and 4 men, with 3 of the 5 being SAT members (Rod Halburd, Robb McDonald, Helen Wilson), meet to review all eligible staff. Deliberately, the promotions committee are precisely the same personnel responsible for appraisals in the department, and so collectively are aware of possible deserving cases in advance, especially given our policy to discuss promotion in all appraisals (this being an Action from our previous Athena SWAN submission). All staff are made aware that quality of work is rewarded over quantity, and that leave for e.g. maternity, illness, is taken into consideration.

Candidates are either invited to proceed or not. In the latter case, feedback to the candidate is given where it is explained what needs to be done to strengthen promotion prospects. For those proceeding with promotion, the HoD reviews all paperwork and provides candidates with feedback before the submission date.

In tandem with the above process, UCL runs various promotion workshops (which are promoted by the department) where the promotion criteria are explained along with discussion of successful cases.

UCL has a system of four professorial pay-bands and there is an annual process to consider promotion between these bands. The HoD appraises all professors and progression within bands is discussed with reference to UCL criteria. The SAT does not monitor this data for gender bias since pay-bands are confidential and known only to the HoD and Dean. Professors are also eligible for an annual salary increment (typically 1-3%) for exceptional performance. Both re-banding and annual salary increases are considered by a committee of Deans on recommendation by the HoD.

**Action 4.1:** HoD to ensure procedures for professorial re-banding and pay awards are gender blind so that, for example, no professorial gender pay-gap emerges, in accordance with item 4 of Athena SWAN Charter's list of principles.

- b) For each of the areas below, explain what the key issues are in the department, what steps have been taken to address any imbalances, what success/impact has been achieved so far and what additional steps may be needed.
  - (i) **Recruitment of staff** – comment on how the department’s recruitment processes ensure that female candidates are attracted to apply, and how the department ensures its short listing, selection processes and criteria comply with the university’s equal opportunities policies

The department believes that in order to increase the number of female staff, the most effective action is to increase the number of female applicants.

**Action 4.2:** Increase the proportion of women applicants to academic posts. Ways of doing this are detailed in this action point in appendix B.

For the next few years it is department strategy to hire at Lecturer level in the broad areas of either pure or applied mathematics. This will enable us to attract the greatest pool of female applicants.

Applicants for academic posts give 'open' talks for which all staff (including PhD students) are welcomed; their feedback is made known to panel members.

Applicants are welcomed by the departmental Manager upon arrival and have an academic staff host who is a non-panel member. They are typically taken to lunch by the host and are shown around the department and university and introduced to key staff. This is done informally and is not part of the interview process. Interviews, while formal, are conducted in a deliberately welcoming and friendly atmosphere.

All academic appointing panel members have completed mandatory *Fair Recruitment Training*. The Chair (HoD) has been trained in unconscious bias and, typically, at least 1-2 other members of the panel have also received such training. There is always at least one female panel member.

Reader/Chair appointments are chaired by the Dean (also trained in unconscious bias) and includes externals from other UCL departments (2) and other universities (2). There are at least 2 female panel members.

For the most recent advertised professorial post, a prominent female mathematician based in [omit] was explicitly made aware of the post. She applied and was shortlisted and narrowly missed being appointed (ranked [omit]).

All job adverts are written in gender-neutral language and display prominently UCL's institutional Athena SWAN Silver logo (along with the Race Equality Charter Bronze and Stonewall Diversity Champion logos). The 'further particulars' all display the department's Athena SWAN Bronze logo and the LMS Good Practice Scheme logo, and the words: "*We particularly welcome female applicants and those from an ethnic minority, as they are currently under-represented within UCL at this level. This is in line with the Equality Act 2010.*" In the person specification for Lecturer posts (e.g. those advertised in autumn 2016) the wording "*developing record of international research excellence and publishing in mathematics*" is used, with deliberate use of "developing" rather than, say, "demonstrated" as we believe the former will attract a wider pool of applicants. From 2017 we will further strengthen the appeal and welcoming nature of the wording in our job adverts (see **Action 4.5**).

Since June 2014 all jobs (PDRA to professor) have been advertised on the European Women in Mathematics network.

Once an offer is made every effort is made to make UCL and the department as attractive as possible including sending information on housing, relocation expenses and allowances, and staff benefits. Offer holders are free to negotiate terms and conditions and are not pressured into making quick decisions. Post-offer visits are welcomed. We are pleased that in the last 3 years, all 7 of the new-starters were our first-choice candidates.

We shall build links with female PGR and PDRAs from across the UK (and, if appropriate, outside the UK) by inviting them to give seminars, thus building relationships with potential applicants early on in their careers.

**Action 4.3** Proactively invite early career female mathematicians (including PGR) to all our seminar programmes.

Nine academic members of department have been trained in unconscious bias including the HoD who chairs appointing panels for all (academic and professional services) permanent jobs, the UG admissions tutor and one of the two PGR admissions tutors.

**Action 4.4:** PGT admissions staff (2) and the other PGR admission tutor to be trained in unconscious bias. Further staff to be encouraged via appraisal to complete the online training.

- (ii) **Support for staff at key career transition points** – having identified key areas of attrition of female staff in the department, comment on any interventions, programmes and activities that support women at the crucial stages, such as personal development training, opportunities for networking, mentoring programmes and leadership training. Identify which have been found to work best at the different career stages.

Following the success of our *What is a PhD?* Events, we plan a similar event this time targeting PGR students with PDRAs as panel members. This will enhance connections between PGR students and PDRAs, and help PGR students understand more about academic life.

**Action 4.5:** Run post-doctoral advice session for PGR students, led by a a gender-balanced panel of PDRAs.

The department has a dedicated 'Fellowship coordinator', an academic who facilitates applications to various funding bodies. Since 2014 two UCL (male) PDRAs have been supported in preparing *EPSRC Postdoctoral Fellowship* applications (e.g. mentoring, peer-review, mock interviews). One was successful. A female candidate was supported in applying for *EPSRC, Leverhulme Early Career* and *Dorothy Hodgkin Fellowships* (unsuccessful). Another *Dorothy Hodgkin Fellowship* application will be submitted Nov. 2016 by an external female.

**Action 4.6:** Continue to welcome, encourage and support applicants, especially female, to apply for prestigious externally funded Fellowships

Similar support including a rigorous internal peer review scheme of grant applications administered by SAT member Rod Halburd is offered to staff. All 4 of our female staff have been successful in obtaining significant grants (e.g. Wellcome, ERC, Leverhulme, EPSRC) after being helped by this scheme.

PDRAs who are hired for 3 or more years are required to perform light teaching duties (typically one module per year) since such experience greatly benefits their academic career development and job prospects. Those funded for less than 3 years are offered teaching on a voluntary basis.

We, along with the Department of Statistical Science and CoMPLEX, founded the *UCL Women in Mathematical Sciences* network, with 3 events p.a. aimed at (and organised by) female 3rd and 4th year undergraduates, postgraduate students and research staff from the three departments. The

meetings are a mixture of research presentations by leading female mathematical scientists, social events and talks where women describe how they succeeded in their careers and what difficulties they encountered along the way. The presentations are followed by further discussion over lunch funded by the departments.

### **Career development**

- a) For each of the areas below, explain what the key issues are in the department, what steps have been taken to address any imbalances, what success/impact has been achieved so far and what additional steps may be needed.
- (i) **Promotion and career development** – comment on the appraisal and career development process, and promotion criteria and whether these take into consideration responsibilities for teaching, research, administration, pastoral work and outreach work; is quality of work emphasised over quantity of work?

Appraisal is the mechanism for monitoring performance in all of UCL's four key performance and promotion criteria for academic staff: research, teaching, enabling and knowledge transfer (incorporating outreach). All appraisers emphasise quality over quantity of work and this culture is reinforced by the HoD at staff meetings, and in meetings with newly-starting staff. Appraisal is equally seen as an opportunity to communicate and celebrate achievements; review contributions to the department, UCL and wider community; discuss workload and promotion; and identify career-development opportunities. While such matters are welcomed to be discussed with the HoD at any time, it is important to be able to record and discuss such activity formally and the appraisal process is the chosen mechanism for this.

In the 2015 staff survey, 100% of female staff agreed that "my last appraisal was an accurate reflection of my performance". For both women and men the overall positive response rate to appraisals was 86%, up from 76% in the 2013 survey. Also in the 2015 survey, 90% said "my appraisal identified opportunities for career development".

An aim of our 2013 award submission was to appraise all staff annually (see Appendix A, Action 4.9). While we have improved our appraisal rate this target has been missed.

**Action 4.7:** Continue to increase appraisal rates of academic staff with yearly appraisals by end of 2019-20

UCL offers an annual *Women in Leadership Programme*. This involves action learning, coaching and a project, with the ambition to develop aspiring leaders. The department funded a place for the 2014 programme for Helen Wilson and plans to nominate and financially support another colleague to participate in 2017.

**Action 4.8:** nominate and support female colleague to participate in UCL's *Women in Leadership Programme*

UCL HR also runs a *Leadership and Management Framework*: a suite of leadership and management development training/workshops offered for all staff at UCL. Appraisals have a specific section on 'training needs'.

- (ii) **Induction and training** – describe the support provided to new staff at all levels, as well as details of any gender equality training. To what extent are good employment practices in the institution, such as opportunities for networking, the flexible working policy, and professional and personal development opportunities promoted to staff from the outset?

New academic staff are welcomed by both the Department Manager and HoD/Line manager and introduced to key colleagues. They are provided with a welcome pack which details such things as UCL's Work-Life Policy. The same information is also provided on the intranet. They are assigned a mentor. They are given reduced (50%) teaching loads and light (if any) administrative duties in their first year. After 1 month they have a formal meeting with the HoD in which training and development needs are identified, as well as re-iterating department policy that quality of work is valued over quantity. Mandatory training courses are: Diversity in the Workplace, Safety, Green Awareness, Introduction to Research Student Supervision, HEA Teaching Accreditation.

New female staff are invited to write a short paragraph about themselves for the Women in Mathematics webpage and to contribute to the prominent Women in Mathematics noticeboard.

The department holds an annual party immediately after the first staff meeting of the academic year to welcome new starters and enable them to meet with colleagues and current PG students.

UCL institutional support networks are promoted to new starters e.g. via the intranet, welcome packs and mentors. These networks include PACT: a social network that aims to support UCL staff members who are balancing ongoing caring responsibilities with work. Other networks include the DEOLO network, a network of departmental equal opportunity liaison officers that mainly act as a source of advice to staff and students in which SAT member Helen Higgins is the department representative, and the DAW network available to all staff.

There is also the UCL *Women in STEM* network who hold regular events e.g. Dame Jocelyn Bell-Burnell was a guest speaker in 2016 with an associated reception for networking.

- (iii) **Support for female students** – describe the support (formal and informal) provided for female students to enable them to make the transition to a sustainable academic career, particularly from postgraduate to researcher, such as mentoring, seminars and pastoral support and the right to request a female personal tutor. Comment on whether these activities are run by female staff and how this work is formally recognised by the department.

All first year UGs have two academic tutors, one of whom is a personal tutor who remains in this role throughout the duration of the student's time as an UG. UCL and UCLU offers comprehensive student support services covering financial matters to mental health.



The department funds the UG ADM Society which runs social and networking events including a freshers BBQ, careers seminars and a quiz hosted by the HoD. The UG Colloquium is a weekly series of talks, which has been running for seven years, given by UGs (with occasional talks by staff) to other UGs on mathematical topics outside of standard lecture material. Importantly, the talks are given in a friendly and informal environment (with no staff attending) and, most impressively, it is entirely student run, with the department simply offering encouragement, refreshments and logistic support in booking venues. Many of the talks are at a remarkably high level and some of the participants have gone on to do PhDs, including females e.g. 6 female speakers in the last 3 years are now studying for PhDs at UCL, Imperial, Warwick, Nottingham and Stanford.

The critical transition point is going from UG/PGT to PGR. Since 2014 we have introduced a number of initiatives aimed at increasing the number of female PGR students:

- We have funded our own programme of summer UG studentships, insisting that women are well-represented. The idea is that talented UG students will gain an interest in research mathematics on go on to do PhDs (though not necessarily at UCL).
- Our previous Action 4.2 introduced annual *What is a PhD?* workshops for our UGs. The workshops involve a selection present PhD students (at least 1/3 of whom are female) who give brief talks on their experiences of doing a PhD, along with general information on PhD study, including making applications and funding. The workshops are deliberately friendly and informal; academic staff leave half-way through, enabling UGs to quiz current PhD students freely.
- In 2015 the ADM Society also organised their own *Women in Mathematics* networking event (attended by 25 female UGs) with encouragement and financial support from the department. This featured a female PhD student who spoke about her positive experiences as PhD student.
- Since 2014 we have also held department open days for prospective PhD students—see previous action plan (appendix A). The events prominently feature female staff and PhD students.
- The department enthusiastically nominates, and supports (e.g. covering travel expenses) the maximum number of UGs permitted (usually 3) to attend the annual LMS summer school. At least 1 of these is female (as required by LMS).

PhD students also have their own regular seminar series and with support from the department in 2016 a *Junior Geometry* seminar has been initiated (joint with King's) with SAT member Emily Maw as organiser.

Following our survey of PhD students in 2014, we introduced female staff mentors for our female PhD students, who are introduced to new students at their induction. This role is formally recognised in our official list of staff duties.

**Action 4.9:** Repeat PGR survey in summer 2017 and assess effectiveness of female staff mentors for PGR females.

### Organisation and culture

- a) Provide data for the past three years (where possible with clearly labelled graphical illustrations) on the following with commentary on their significance and how they have affected action planning.
- (i) **Male and female representation on committees** – provide a breakdown by committee and explain any differences between male and female representation. Explain how potential members are identified.

Committee	Female	Male	Chair
Senior Management Team	2	1	M (HoD)
Teaching	2	10	M
Research	1	4	M (HoD)
Promotions	1	4	M (HoD)
Staff-student	4	7	M
Athena SWAN SAT	5	3	M (HoD)

**Table 5: Membership of 2015-16 departmental committees by gender**

The gender balance of committee membership has been stable for the last three years and Table 5 which shows the 2015-16 academic year is typical. Given that in 2015-16, 9% of our academic staff are female, the female representation on these committees is disproportionately high: this ensures our female staff have influence and gain leadership experience. There are also SAT members on all 5 key committees to ensure that issues related to Athena SWAN are recognised and addressed. However, all committee chairs are male. In fact these comprise only 3 male staff: the HoD chairs 3 committees ex officio, and chooses voluntarily to chair the Athena SWAN SAT. The department tutor chairs the Staff-Student Committee; only the Teaching Committee chair is a free appointment. This is an onerous role and care has been taken not to overburden female staff.

The HoD appoints committee members after discussing the role with potential role-holders and with committee gender balance and personal workloads in mind. All committees in Table 5 have

SAT members on them ensuring that issues related to Athena SWAN are recognised and addressed on all key committees.

- (ii) **Female:male ratio of academic and research staff on fixed-term contracts and open-ended (permanent) contracts** – comment on any differences between male and female staff representation on fixed-term contracts and say what is being done to address them.

UCL does not have fixed-term contracts: PDRAs are typically on open-ended contracts with a funding end-date. As Fig. 6. shows in September 2016 the proportion held by women which is larger than the HESA average.

- b) For each of the areas below, explain what the key issues are in the department, what steps have been taken to address any imbalances, what success/impact has been achieved so far and what additional steps may be needed.

- (i) **Representation on decision-making committees** – comment on evidence of gender equality in the mechanism for selecting representatives. What evidence is there that women are encouraged to sit on a range of influential committees inside and outside the department? How is the issue of 'committee overload' addressed where there are small numbers of female staff?

Care is taken to ensure women are represented on all committees, including appointing committees. The latter occur regularly and can involve considerable effort and without careful management women may become overburdened. PDRAs (sensibly trained) have been on recruitment panels to help this (as well as providing a career development opportunity for PDRAs e.g. they benefit from being part of a recruitment process).

Two of the three on the department's arguably most influential committee, the SMT, are women. The SMT is responsible for developing and implementing department strategies.

Women are encouraged to sit on committees outside the department, and such activity is considered favourably at appraisals and promotions e.g. Karen Page sits on the management board of the UCL-wide CoMPLEX; Helen Wilson is president of the *British Society of Rheology* and is on the Council and Research Committee of the IMA. Sarah Zerbes is a member of the management team of the LSGNT and has recently been nominated as a Member-at-Large of Council for the LMS. The department is especially keen to encourage and promote such activity and will accommodate such roles through reduced teaching and/or department administrative roles (see Case Studies). Enabling female academics to gain such leadership and management experience is also vital to succession planning and will ensure that the department's female academics are well-placed to take on future key department roles e.g. HoD.

- (ii) **Workload model** – describe the systems in place to ensure that workload allocations, including pastoral and administrative responsibilities (including the

responsibility for work on women and science) are taken into account at appraisal and in promotion criteria. Comment on the rotation of responsibilities e.g. responsibilities with a heavy workload and those that are seen as good for an individual's career.

The department is mindful of the need to carefully manage increasing demands on staff in all activities of research, teaching, administration and knowledge transfer but, quite deliberately, does not operate a formal 'point scoring' type workload model. Instead, the department makes clear how individual academic staff contribute to the smooth running of the department by annually publishing (by email and intranet) staff administrative, committee, enabling and teaching duties. The HoD has an 'open door' policy in relation to discussing assignment of such duties. Indeed, such discussions have led to adjustments of duties. The department as a whole 'buys in' to this open and transparent model and the majority, if not all, of staff perceive it to be fair. The 2014 Athena SWAN feedback asked for evidence that the workload is perceived to be fair. The following provides evidence:

- Our female staff have been able to flourish e.g. promotions
- The student experience is consistently good-excellent e.g. 93% in 2016 NSS indicating teaching staff are able devote appropriate effort into high-quality teaching, organisation of teaching and pastoral duties.
- High satisfaction levels from all staff compared to other UCL departments some of which do run workload models e.g. the department's overall 'employee engagement score' is 75%, 4% higher than the Faculty average and 3% higher than the UCL-wide average.

Nonetheless, considering feedback from our previous Athena SWAN submission, the department is open-minded about other, possibly more quantitative, workload models especially as the complexity and size of the department grows.

**Action 4.10:** investigate pros and cons of various workload models and consult with staff as to their merit.

Key administrative posts e.g. Chairs of Teaching Committee and Examination boards are refreshed every 3 years, HoD every 5 years. From 2014, UCL has a policy for HoDs to be appointed openly and transparently with all staff welcome to discuss the role with the Dean.

- (iii) **Timing of departmental meetings and social gatherings** – provide evidence of consideration for those with family responsibilities, for example what the department considers to be core hours and whether there is a more flexible system in place.

Department core hours are those stated clearly in UCL's *Work-Life Balance Policy* (a copy of which is included in 'welcome packs' produced by the department for new-starters), namely, 10am-4pm. All formal departmental committee meetings (i.e. those listed in Table 5) and most, but not all, social events are held within these hours. In most cases, dates are set well in advance (e.g. 3

months) to allow for planning. Meetings are also, where possible, scheduled to avoid school holidays.

- (iv) **Culture** –demonstrate how the department is female-friendly and inclusive. 'Culture' refers to the language, behaviours and other informal interactions that characterise the atmosphere of the department, and includes all staff and students.

The department prides itself on being open, friendly and inclusive. Evidence from all-staff surveys as well as NSS supports this (93% overall satisfaction in 2016), as does the very positive responses to the 2015 staff survey in the questions "*I am proud to work for UCL*" (89%) and "*My work gives me a sense of personal accomplishment*" (93%).

Staff have open door policies and enjoy good relations with students and often participate in student-led activities (funded by the department) such as the Fresher's BBQ and Quiz evening.

The department promotes both its female staff and students at every opportunity e.g. female UGs play important role at open days and in hosting visiting UCAS applicants, the HoD explicitly mentions notable achievements by its female staff at the welcome address to newly starting UGs e.g. in September 2016 research attributed to Profs Sarah Zerbes and Helen Wilson were highlighted.

The department ensures that women are well-represented as guest speakers at our annual alumni event, the *De Morgan Dinner*, for alumni, staff and PG students and final year graduates e.g. Hannah Fry (2013), a high-profile populariser of mathematics (TV, radio), and former UG and PhD student in the department; Dr Vicky Neale, Oxford (2016). The department has achieved its previous Action plan ambition of having 50% female speakers for its flagship seminar programme (Department Colloquium).

In 2014 the department removed its historical 'Men of Modern Mathematics' posters and replaced them with a scribble board for use by UGs and a poster display highlighting achievements by the department's female mathematicians.

The department makes a conscious effort to feature women prominently in its publicity, website and display-screens and its annual alumni magazine e.g. the 2015 magazine featured both current and honorary female staff with women representing about 70% of people in images used. The 2014 Magazine's lead article was themed on the Women in Mathematics.

New staff complete within 6 weeks of their start date the mandatory UCL e-learning module '*Diversity in the workplace*' which ensures that all staff are aware of the implications of the Equality Act 2010 in both the employment and educational context. Additionally, new staff are required to complete HR's *Fair Recruitment Training* in their first year of appointment, enabling them to participate on recruitment panels.

Another example which nicely exemplifies the present culture of the department is the following 2016 quote from a male staff member:

When Maryna Viazovska posted her ground-breaking preprints on  $E_8$  and Leech packings in dim 8 and 24 last academic year I was teaching the fourth years about root lattices and the second years about tilings of spherical/Euclidean/hyperbolic space; the timing couldn't have been better. I described her result (briefly and as best I could without actually defining  $E_8$ !) in lectures. I think it's important that undergrads see that not all theorems were proved two hundred years ago by dead white males. There's a dearth of female role models in maths; Viazovska is one of a hopefully increasing number. In particular, two of the women taking the fourth year course are now doing PhDs and one of the second years (who was an affiliate student from the US) enjoyed the course so much that she is still in touch asking for related reading material.

- (v) **Outreach activities** – comment on the level of participation by female and male staff in outreach activities with schools and colleges and other centres. Describe who the programmes are aimed at, and how this activity is formally recognised as part of the workload model and in appraisal and promotion processes.

Knowledge transfer, which includes public engagement, is formally recognised and valued at UCL and forms one of the four criteria on which promotion is based and is explicitly recognised in the appraisal process. Hannah Fry's public engagement activity formed one of our REF2014's Impact Case Studies, and Sarah Zerbes gave a talk at the 2013 UK *Prospects in Mathematics* meeting aimed at potential UK PhD students in Durham. Helen Wilson appeared in the media commenting on the 2014 award of the Fields Medal for the first time to a female mathematician.

As mentioned above, the department has an established record of successful outreach with particular focus on promoting women in mathematics through its annual *Women in Mathematics Days, Celebrating Women in Mathematics at the Royal Institution*. Other public engagement activity examples include Jason Lotay's talk at the 2016 British Science Festival (Swansea) *Adventures in the 7th Dimension*, with subsequent appearance on BBC Radio Wales along with collaborations with artists in running public workshops, and Helen Wilson's talk on the fluid dynamics of the chocolate fountain at the previously mentioned event at the Royal Institution event, and (March 2016) two GCSE workshops of 450 students each.

The department funded SAT member Anna Lambert to attend a *Science Communication Masterclass for Women* led by Maggie Aderin-Pocock (*The Sky at Night*), where she was introduced to presentation, communication and media skills.

With support and encouragement from the department, early career (2 PDRAs and 1 PhD) mathematicians (1F,2M) contributed three posters at the 2016 SET for BRITAIN exhibition at Parliament.

With support from the department, in 2015 UCL mathematics PhD students established *Chalkdust* magazine. Published twice a year, it has global readership of over 10,000, and is distributed at over 20 UK universities. Women are strongly represented in its production with 4 of the present

*Chalkdust* team being female. The autumn 2016 issue featured an article on world-leading female applied mathematician Prof Andrea Bertozzi (UCLA).

### **Flexibility and managing career breaks**

- a) Provide data for the past three years (where possible with clearly labelled graphical illustrations) on the following with commentary on their significance and how they have affected action planning.

- (i) **Maternity return rate** – comment on whether maternity return rate in the department has improved or deteriorated and any plans for further improvement. If the department is unable to provide a maternity return rate, please explain why.

In the last 3 years 2 female academic staff have taken maternity leave, one of whom was promoted to Professor during her maternity leave (see case study).

- (ii) **Paternity, adoption and parental leave uptake** – comment on the uptake of paternity leave by grade and parental and adoption leave by gender and grade. Has this improved or deteriorated and what plans are there to improve further.

Over the last 3 years 100% of those eligible (i.e. 6 instances, including paternity and shared parental leave) for such leave have taken it up.

- (iii) **Numbers of applications and success rates for flexible working by gender and grade** – comment on any disparities. Where the number of women in the department is small applicants may wish to comment on specific examples.

Many academic staff working flexibly. Indeed, the default response to requests for flexible working is 'yes!', in keeping with our firm belief that flexible working is essential in order for staff to flourish. The only constraints are those beyond the department's influence e.g. scheduling lectures for large classes which must conform with demand from the whole university for the relatively few large-capacity lecture theatres available. Both case studies presented in section 7 give evidence for positive benefits of our flexible working policy.

There are no gender or grade disparities for those working flexibly.

- b) For each of the areas below, explain what the key issues are in the department, what steps have been taken to address any imbalances, what success/impact has been achieved so far and what additional steps may be needed.
- (i) **Flexible working** – comment on the numbers of staff working flexibly and their grades and gender, whether there is a formal or informal system, the support and training provided for managers in promoting and managing flexible working arrangements, and how the department raises awareness of the options available.

Working from home is accepted practice with many staff choosing to do so 1-2 days per week. More generally, all staff are able to, and do, work flexibly in order to meet personal commitments. Obviously days on which staff work at home are advertised clearly to students and the department considers it vital that students are still able to contact and meet with staff despite such flexible working practices. Reassuringly, this does not seem to have harmed students' overall satisfaction as evidenced by our good recent NSS results.

Benefits to staff of our flexible working policy are best summarized by the 2015 staff survey, in which 89% of department staff replying positively to the question "*As long as I get my work done, I have a choice deciding how I do my work*".

The department was supportive of recent requests for two of its male professors to undertake flexible retirement, both becoming 0.6FTE from October 2016. We have a further two academic staff (2M) who are 0.5FTE. They are allocated duties and teaching which are concentrated in one of the two teaching terms in order that they are able to meet their other commitments which requires them to be abroad.

When allocating teaching, requests for flexibility are considered and made where possible especially for those with family commitments.

UCL has recently updated its flexible working practices (now *Work Life Balance Policy*) and this is clearly marked on the department's intranet as well as UCL's HR website. A hard-copy is also provided in the information packs of newly starting staff.

Presently no academic roles are 'job-shared' but the department will consider the practicalities and processes required to make such an appointment.

**Action 4.11:** Consult with HR about the viability of making academic, teaching and research posts available as job-shares.

- (ii) **Cover for maternity and adoption leave and support on return** – explain what the department does, beyond the university maternity policy package, to support female staff before they go on maternity leave, arrangements for covering work during absence, and to help them achieve a suitable work-life balance on their return.

Upon returning from maternity leave, academic staff receive a one-term teaching free return-to-work sabbatical in accordance to UCL policy, which the department strengthens by making it administration-free. It is important to note that this does not increase the burden on colleagues and the possibility of resentment: we are in the fortunate position now have sufficient staff that such cover can be covered without increasing the typical workload of colleagues by careful advanced planning.

Since 2014-15, two members of staff have each taken 12 month periods of maternity leave. The university provided funds enabling us to employ someone to cover their teaching during these periods. For those on maternity leave who are themselves line managers of, for example, PDRAs



then these line-management responsibilities are covered by other members of staff. Again this latter effort is comfortably accommodated by existing staff and has not led to workload increases of staff.

Both case studies comment on how our maternity, post-maternity and flexible working policies have been beneficial.

[4801 words]

## 5. Any other comments: maximum 500 words

Please comment here on any other elements which are relevant to the application, e.g. other STEMM-specific initiatives of special interest that have not been covered in the previous sections. Include any other relevant data (e.g. results from staff surveys), provide a commentary on it and indicate how it is planned to address any gender disparities identified.

The Department is fully supportive of the FMSP and provides additional funds for our coordinator Dr Luciano Rila to be employed full-time. This ensures that we can continue to recruit UK students on merit and not on a limited selection of schools that provide A-level Further Mathematics. Moreover, it enables Luciano to organise successful events such as *Celebrating Women in Mathematics* at the Royal Institution. The following is feedback from this event, which featured with UCL's Helen Wilson, Hannah Fry, and UG student Nikoleta Kalaydzhieva, and was attended by 270 Year 10 students (mostly female) and 30 teachers:

*On 26th February, I attended a women in mathematics event at the Royal Institution. In case you couldn't tell, it was based on celebrating women's achievements in maths to escape the thought that only male mathematicians have been successful. Also, it helped us youngsters to understand how maths is used in everyday lives. The event featured talks from inspiring women who worked/had worked at UCL and British Airways (for example). With lectures about things like chocolate fountains and holidays, it kept us year 10s hooked and when we learned how maths is used in crime, it helped me to realise that I'd make a terrible criminal as I'd easily be tracked down using maths! As the day ended with a talk from Countdown's Rachel Riley, I saw how useful the event was in allowing us to think about pursuing maths at A level or University. I have definitely been persuaded and have already looked at careers in operational research. Because of this trip, I also believe that education facilities everywhere should hold events such as this to help teens to realise that a career like maths has hundreds of opportunities.*

The department has applied (Oct 2016) to the LMS for funding to host a 'Girls in Mathematics Event'. Funds will enable us to run an event in addition to similar events we have run in recent years.

Robb McDonald has applied to be an Athena SWAN assessor for the November 2016 round of submissions. He was a panel member which selected prominent women to highlight in the 2016 exhibition and publication: *Women at UCL: Presence and Absence*.

In the last 3 years the department has sponsored 2-3 UG students per year to attend the International Mathematics Competition. This is a tough competition featuring top teams from the USA, Eastern Europe and China. We are delighted that our top-performing representative in 2014 and 2015 was female and she won a 2<sup>nd</sup> Prize in 2014 and a 3<sup>rd</sup> Prize in 2015. She starts a PhD at Stanford in 2016.

Our "Women in Mathematics" logo (see front cover) features the symbol " $\Sigma\text{♀}$ "; in mathematics, this can be understood as 'the sum of females'.

[460 words]

## **6. Action plan**

Provide an action plan as an appendix. An action plan template is available on the Athena SWAN website.


The Action Plan should be a table or a spreadsheet comprising actions to address the priorities identified by the analysis of relevant data presented in this application, success/outcome measures, the post holder responsible for each action and a timeline for completion. The plan should cover current initiatives and your aspirations *for the next three years*.

## **7. Case study: impacting on individuals: maximum 1000 words**


[omitted]

[992 words]

## Appendix A: Assessment of Action Plan 2013-16

Action	Action already taken	Further action planned	Responsibility	Timescale	Success measure
2.1 Recruit new PGR student to the Department's Athena SWAN SAT	Completed October 2013	Ensure in the years to come that the SAT always has PGR representation	HoD	October 2013	Two new PGR students (both female) appointed to the SAT 
<p><b>Progress:</b> successfully completed</p> <p><b>Remarks</b></p> <ul style="list-style-type: none"> <li>* Since October 2014 two PhD students (female) have served continuously on the SAT</li> <li>* One PhD student left in summer 2016 in order to complete her studies; she was replaced by another PhD student</li> <li>* The PhD student SAT members took the lead in conducting, analysing and presenting data for the annual UG survey and the 2014 PhD student survey. They were paid by the department for this work.</li> </ul> <p><b>Further Action:</b> now standard practice</p>					
2.2 Reports from the Department's Athena SWAN SAT to become a standing agenda item at all-staff meetings	This was an item at the Oct 2013 staff meeting	To be included in all future staff meetings	HoD	From start of academic year 2013-14	Reports received and discussed at all staff meetings, with opportunities for non-SAT staff to be informed and contribute.
<p><b>Progress:</b> successfully implemented</p>					

Action	Action already taken	Further action planned	Responsibility	Timescale	Success measure
<p><b>Remarks</b></p> <ul style="list-style-type: none"> <li>* Every department all-staff meeting since 2013-14 has included 'Athena SWAN' as a standing agenda item</li> <li>* Update on Athena SWAN activities and progress on this Action Plan reported at these meetings</li> <li>* Increased awareness and appreciation of Athena SWAN values and objectives among all-staff</li> </ul> <p><b>Further Action:</b> now standard practice</p>					
2.3 Repeat PGR survey (see Sec. 4) every two years		Next survey in summer 2014	PGR representatives on SAT	Every 2 years	Increased positive responses from female PGR students, to the point that they are similar to males
<p><b>Progress:</b> survey completed 2014 but not 2016</p> <p><b>Remarks</b></p> <ul style="list-style-type: none"> <li>*Survey of 28 PhD students (5F,23M) conducted summer 2014, with responses considered by SAT in autumn 2014</li> <li>*There has been a substantial improvement in their morale compared to 2012</li> <li>*Positive feedback on supervisory relations, social and academic events: "<i>The environment is great, it is nice to be surrounded by colleagues who understand the challenges of doing a PhD and also get amazing support from them</i>" is one comment.</li> <li>*Some students still struggle with motivation and self-esteem, though there is no clear gender bias in this</li> <li>*3 of 5 female students have thought about leaving their PhD studies early compared to 40% of males</li> </ul>					

Action	Action already taken	Further action planned	Responsibility	Timescale	Success measure
<p>*No survey conducted in 2016 as the SAT believes that every 3 years is sufficient to assess the PhD student experience</p> <p><b>Further Action:</b> see new <b>Action 4.9</b> of appendix B</p>					
<p>3.1 Continue running annual 'Women in Mathematics days' ensuring female staff involvement</p>	<p>Ongoing: event will be held as usual in June 2014</p>	<p>To be held annually in June</p>	<p>UG Admissions Tutor</p>	<p>June of every year</p>	<p>Well-attended events by aspiring female university mathematics students some of whom apply successfully to UCL and other UK mathematics depts</p>
<p><b>Progress:</b> successfully run in June of every year</p> <p><b>Remarks</b></p> <p>*Events well attended with approx. 40 participants. This event is well-established and firmly on the calendar and planning of many London schools</p> <p>*Feedback is excellent</p> <p>*Majority of speakers female</p> <p>*UG female recruitment continues to be above UK average</p> <p><b>Further Action:</b> standard (well-established) event</p>					
<p>3.2 Monitor how our increased offer (A*A*A) affects the proportion of female applications, offers and acceptances at UG level</p>	<p>2013-14  and now available. To be discussed at next</p>	<p>To be discussed annually</p>	<p>UG Admissions Tutor reporting to SAT</p>	<p>Term 1 SAT meeting of every year.</p>	<p>Data presented annually to SAT in term 1. If these changes</p>

Action	Action already taken	Further action planned	Responsibility	Timescale	Success measure
	SAT meeting				have negative impact on gender balance then they will be revised
<p><b>Progress:</b> data carefully monitored and analysed</p> <p><b>Remarks</b></p> <p>* Recruitment of female UGs remains steady at the same level (approx 47%) as it was before the higher entry requirement, and is above the UK average for mathematical science</p> <p>* The department recruits highly-talented students, with females and males attaining excellent degrees in equal measure</p> <p>* Challenge is to encourage a higher proportion of these excellent students to study for a PhD.</p> <p><b>Further Action:</b> standard practice</p>					
3.3. At least 25% female staff to be involved in PhD student admission interviews	PGR tutors advised of this action	To be reviewed and proportion increased should more women staff be available	PGR tutors	Term 1 2013-14	SAT to monitor effects on PGR recruitment. The ultimate aim is to increase female admissions in PGR
<p><b>Progress:</b> partially achieved</p> <p><b>Remarks</b></p>					


Action	Action already taken	Further action planned	Responsibility	Timescale	Success measure
<p>* Typically, PhD applicant interviews involve 3-4 members of staff.</p> <p>* Most of these (e.g. 80% in 2015-16) have involved female staff: unfortunately we haven't achieved this with all interviews owing to our limited numbers of female staff who we are careful not to overburden. This is even the case with our innovative involvement of female PDRAs on interview panels who have been suitably trained in selection and recruitment by HR.</p> <p>*Where the applicant has been female we have met the ambition of greater than, or equal to, 25% female staff on the interview panel</p> <p><b>Further Action:</b> see new <b>Action 3.3</b> of appendix B</p>					
<p>3.4 Update website to a show a more dynamic research environment including images of female mathematicians and PhD students doing research</p>		<p>Call for such images to be made in term 2 2014</p>	<p>HoD, Dept. Administrator, Admissions Tutor</p>	<p>Images to be reviewed and possibly refreshed annually</p>	<p>Increased UG, PGT and PGR applications upon viewing positive role models and welcoming atmosphere</p>
<p><b>Progress:</b> successfully completed</p> <p><b>Remarks</b></p> <p>*14 new images uploaded to department homepage in 2015. Displayed in scrolling mode.</p> <p>*Five images show people, all of which include either PG or UG women in study, lecture, discussion and social modes</p> <p>*A new dedicated webpage 'Women in Mathematics' was created in 2014 which features the department's female staff and researchers, and a bespoke logo</p> <p>*Nine images do not show people. We feel that it would of further benefit in showing a more 'human face'</p> <p><b>Further Action:</b> see new <b>Action 3.2</b> of appendix B</p>					

Action	Action already taken	Further action planned	Responsibility	Timescale	Success measure
4.1 Increase the proportion of staff serving on appointing panel in unconscious bias awareness	HR has been approached to organise such training in Feb 2014 for a group of 10	Further training sessions for additional members of staff	HoD	First group to be trained in term 2 2013-14. Termly training sessions thereafter	From 2014-15 recruitment panels have at least 40% members trained in unconscious bias. This to increase by 10% per annum until 70% is reached
<p><b>Progress:</b> partly achieved</p> <p><b>Remarks</b></p> <p>*Eleven staff trained in unconscious bias in 2014, including HoD, deputy HoD, PGR and UG Admissions tutors and UG Tutor</p> <p>*In November 2016 more staff underwent unconscious bias training: two of the PGT Admissions Tutors and the other PGR Admission Tutor</p> <p>*The expense of such training has meant that the 'termly training' and recruitment panel targets above have not been met</p> <p>*The Chair of all appointing panels for academic (and professional services) staff has been trained in unconscious bias</p> <p>*Recently UCL has introduced online free unconscious bias training and all staff will be encouraged to complete this convenient training with this achievement recorded via appraisals</p> <p><b>Further Action:</b> see new <b>Action 4.4</b> of appendix B</p>					
4.2 Actively promote PhD study to all our UGs and, by default, our overseas students	Workshop for PhD students held in 2010-11 with good attendance	'What is a PhD?' workshop planned for term 2 2013-14. To feature talks by	PGR Admissions Tutors	Term 2 2013-14, annually thereafter	Good attendance. Increased applications for PGR study from our own UG female



Action	Action already taken	Further action planned	Responsibility	Timescale	Success measure
		female staff and Q and A by current PGR students (including females)			students
<p><b>Progress:</b> achieved with some notable successes</p> <p><b>Remarks</b></p> <p>*<i>What is a PhD?</i> workshops held annually to interested UGs. At least 1/3 of speakers/panel members are female PhD students.</p> <p>*Attendance (typically 30-50 students) is good, but dropped in 2016 to about 10 students due to a poorly timed event</p> <p>*Significant proportion of PhD applications are from our own students with many being accepted e.g. 27% of PhD students admitted since 2014-15 were former UCL UGs</p> <p><b>Further Action:</b> now standard practice</p>					
4.3 Repeat the UG survey for the next few years in order to follow a particular cohort of students throughout their UG study	First done term 2 2013 (as discussed)	UG survey to be held annually in Term 2	SAT - The PGR representatives on the SAT will lead on this process.	Annual in term 2.	Return rate greater than 50%. Thorough discussion, analysis and action by SAT
<p><b>Progress:</b> completed (but held in term 1 in 2015-16)</p> <p><b>Remarks</b></p> <p>*Data shows that (i) of female UGs approximately 60% seriously consider doing an MSc and 15% a PhD and (ii) of male UGs 50% and 22% a PhD</p>					

Action	Action already taken	Further action planned	Responsibility	Timescale	Success measure
<p>*Gender difference largely a result of high percentage of overseas UG women most of whom go on to do a MSc but not a PhD</p> <p>*Picture remarkably consistent over the period 2013-16</p> <p>*Survey questions shared with Department of Mathematics, University of York in 2016</p> <p><b>Further action:</b> no need for further surveys as the situation is now well understood</p>					
<p>4.4 Highlight research achievements by staff, especially female staff, more visibly around the Department</p>	<p>Prominent noticeboard now located on 6<sup>th</sup> floor near HoD and Dept. Administrator offices-a 'high traffic' area</p>	<p>Update from time to time with latest research highlights by female staff</p>	<p>Female staff/HoD</p>	<p>Reviewed and updated on a termly basis.</p>	<p>People stopping to read the noticeboard; interested 'conversational buzz' centred on content. Inspiring UGs into PGR study</p>
<p><b>Progress:</b> successfully implemented</p> <p><b>Remarks</b></p> <p>*New dedicated noticeboards on 6<sup>th</sup> floor immediately outside the HoD and Department Manager's office, and very close to the central office: the busy 'hub' of the department. The boards are frequently read by visitors. These replace outdated 'Men of Modern Mathematics' posters.</p> <p>*Research of women academic staff prominently featured</p> <p>*New noticeboard featuring work of early career researchers also prominent e.g. display of SET for BRITAIN posters produced by department members</p> <p><b>Further Action:</b> now standard practice</p>					

Action	Action already taken	Further action planned	Responsibility	Timescale	Success measure
4.5 The Department plans to hold an annual 'open day' for prospective mathematics PhD students in the autumn		Annual department-based open day for PhD study	PGR Admissions Tutors	Term 1 2014-15	Good attendance (at least 40 students). Increased applications for PGR study from non-UCL female students
<p><b>Progress:</b> well established annual event</p> <p><b>Remarks</b></p> <p>*Well-attended annual event (approx 40 prospective students from across UK attend each year)</p> <p>*Consists of series of brief presentations by staff and current PhD students with at least 1/3 of speakers women. This is followed by an informal gathering with snacks and drinks.</p> <p>*Some attendees (female and male) have subsequently been recruited as UCL PhD students</p> <p><b>Further Action:</b> now standard practice</p>					
4.6 Increase interaction between staff and PhD students	Specialist IT providers approached and quote received	Install large TV display screens advertising seminar, Department events etc.  Long term: co-locate staff and PhD students in	HoD, Dept. Administrator and seminar organisers  Dean/Provost/Estat es	2013   2016	Improved attendance by PGR at seminars and post-seminar networking (at least 75% of PGR students to attend a seminar every week)

Action	Action already taken	Further action planned	Responsibility	Timescale	Success measure
		same building			All mathematics personnel co-located
<p><b>Progress:</b> partly successful</p> <p><b>Remarks</b></p> <p>*Two large display screens located in busy areas were installed in 2014</p> <p>*Information displayed includes seminar announcements as well as items of general interest to staff and studentships</p> <p>*Attendance by PhD students is good for some seminar series (e.g. geometry, number theory, financial mathematics) but poor for other series (e.g. applied mathematics)</p> <p>*Department is still split site in adjacent buildings with bulk of PhD students separated from staff. The Department is continuing to lobby UCL Senior Management about the need to co-locate all department staff and PG students.</p> <p>*Despite the above interaction between staff and PhD students is now excellent e.g. The Internal Quality Review 2016 commented that PhD students "all appeared to have great affection for the Department".</p> <p><b>Further Action:</b> see new <b>Action 4.3</b> of appendix B</p>					
4.7 Appoint a 'summer project czar' whose role is to effectively promote the various summer UG research project schemes available	New 'czar' appointed in October 2014	'Czar' to advertise and promote summer studentships schemes among UG students and staff	Summer project czar	Project work undertaken during summer terms starting 2014	Talented students (in particular female students) undertake successful projects. They enjoy the experience and continue to PGR study

Action	Action already taken	Further action planned	Responsibility	Timescale	Success measure
					(monitored by their destinations upon graduation)
<p><b>Progress:</b> completed with excellent results</p> <p><b>Remarks</b></p> <p>*"Summer project co-ordinator" made an official administrative post in the department from 2014 with Dr Felix Schulze appointed to the role</p> <p>*A variety of summer project schemes widely advertised to staff and UGs e.g. LMS, Faculty-EP SRC and department sponsored schemes</p> <p>*Since 2014-15 the department has committed its own funds in order to increase the number of UG students taking up summer projects</p> <p>*22 summer students (13M,9F) have completed projects since 2015</p> <p>*In 2015-16 the LMS changed its mechanism for summer studentships, requiring matched funding in turn for allowing the department to make up to 4 nominations per year. The department enthusiastically participated in this scheme, nominating 4 students (2F, 2M). Three were successful (2F, 1M), although 1F declined and accepted a Faculty-EP SRC bursary instead (which are slightly more financially lucrative).</p> <p><b>Further Action:</b> now standard practice</p>					
4.8 Advertise Clifford Fellowship with the now standard encouragement welcoming applications from females	Advert now live. Closing date 1 December 2013	Shortlisting Dec 2013; interview Jan 2014	HoD	Advertise post every 3 years	Attracting outstanding early career mathematicians to UCL

Action	Action already taken	Further action planned	Responsibility	Timescale	Success measure
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**Progress:** Clifford fellowship established and inaugural Fellow presently in-post

**Remarks**

\*This is a department-funded 3 year Fellowship for early career mathematicians with additional funds for research expenses. It is comparable in its terms and conditions to other attractive Fellowships e.g. Royal Society URF.

\*The 2014 advertised post received over 200 applications. Male number theorist appointed.

\*Next Fellow being advertised autumn 2016

**Further Action:** now standard practice

4.9 From January 2014 all academic staff will be appraised annually	Appraisers notified of this commitment	All staff to be informed	HoD and appraisers	annual	Career development opportunities to be identified, resulting in successful promotions.
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**Progress:** some progress

**Remarks**

\*The average duration between appraisals for academic staff is about 18 months. This represents an improvement on the pre-2014 appraisal rate and is within UCL's recommended 2 year timeframe for non-professorial staff. Indeed, since 2012 Mathematics has consistently had the highest, or close to highest, appraisal completion rate in the Faculty.

\*Despite this, career progression is excellent as evidenced by many successful promotions, especially female staff.

**Further Action:** see new **Action 4.7** of appendix B

Action	Action already taken	Further action planned	Responsibility	Timescale	Success measure
4.10 Create a staff intranet for the provision of information for new and existing staff	Approach has been made (Sept 2013) to website developer		Dept. Administrator	By end of 2013-14 academic year	Implementation of intranet including upload of minutes of various Department committees, general information useful for staff
<p><b>Progress:</b> completed</p> <p><b>Remarks</b></p> <p>*Intranet has clearly sign-posted information for Staff (both academic and professional services), PhD students, PDRAs and visitors</p> <p>*All important information (e.g. minutes of various committee meetings, Athena SWAN action plan) placed on the intranet with clearly defined headings and links</p> <p>*A document giving guidance for research grants has been especially useful for new-starters, with some notable successes</p> <p><b>Further Action:</b> now standard</p>					
4.11 Create awareness of networking opportunities especially for new staff		Via email and new intranet	Intranet to be updated by admin. staff. Email notification for some events by HoD	From start of 2013-14	Staff to be fully aware of Dept. and UCL-wide networking opportunities – to be evidenced through increased attendance to events 

Action	Action already taken	Further action planned	Responsibility	Timescale	Success measure
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**Progress:** successfully achieved

**Remarks**

\*The number of networking opportunities arranged by the department has increased e.g. those of the *Women in Mathematics Network*.

\*Events tend to be advertised by the more visible display screens (rather than the intranet as stated in the above Action), on the 'Women in Mathematics' webpage and via email

\*UCL-wide events (e.g. those run by *UCL Women*) are notified to all staff by email from HoD or other department colleagues, the weekly UCL-wide newsletter and posters.

**Further Action:** now standard practice

4.12 Hold three joint Mathematics-Statistical-CoMPLEX lunches and networking events for female staff and PhD students per year	Inaugural event held October 2013	Further events to be funded by the 2 Departments and CoMPLEX	Prof Sofia Olhede (Statistics) and Dr Helen Wilson	3 such events are planned per year	Enhanced interaction between female staff leading to research, teaching and career development. Success measured through consistent high attendance from female staff.
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**Progress:** successfully implemented



Action	Action already taken	Further action planned	Responsibility	Timescale	Success measure
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**Remarks**

\*Nine events, funded by the departments of Mathematics, Statistical Science and CoMPLEX, have been held since October 2013, with five of them involving guest speakers (e.g. Prof Alison Etheridge, University of Oxford).

\*Events typically involve refreshments with associated networking opportunities

\*The first event of an academic year involves 'meet and greet' (typically 60 attending) with the other two events of the year centred on guest speaker and are typically attended by 20-30

\*Female 4<sup>th</sup> year UGs welcomed to all events from Spring 2015, several of who have gone on to do PhDs e.g. Stanford, UCL.

\*Female staff and students in departments had the feeling of being more of 'community' following such events

**Further Action:** now standard practice

4.13 Monitor closely committee membership and associated time effort of the Department's female staff	This is now actively monitored		HoD	From start of 2013-14	Females involved in making key decisions in the Department without being overburdened
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**Progress:** monitoring ongoing

**Remarks**

\*HoD actively monitors and records female staff participation on committees and appointing panels

\*Committee membership and administration duties of all academic staff is made transparent by annual publication

Action	Action already taken	Further action planned	Responsibility	Timescale	Success measure
<p>*As a consequence it has led to the relaxing of other targets (e.g. female membership of PhD interview panels-see progress on Action 3.3 above) so that female staff are not overburdened</p> <p>*Female academic staff able to perform excellently in teaching and research e.g. notable grant successes, promotions and excellent teaching</p> <p><b>Further Action:</b> now standard practice</p>					
4.14 Ensure at least 50% of the colloquia speakers are female	First speaker in 2013-14 was male	Speaker for term 2 2014 must be female	Colloquium organiser	From start of 2013-14	SAT to monitor. Role models to inspire next generation of female mathematicians. Increased attendance from female PhD and research staff
<p><b>Progress:</b> achieved</p> <p><b>Remarks</b></p> <p>* Since 2013-14, 50% of colloquia speakers (the Department's 'flagship' seminar programme) have been female including Profs Beatrice Pelloni (Heriot-Watt) and Sylvia Serfaty (NYU)</p> <p>* Events well attended by PhD students and PDRAs and are followed by receptions allowing for networking</p> <p><b>Further Action:</b> now standard practice</p>					
4.15 At least 66% of visitors and seminar	HoD had made	To be implemented	Various seminar	From start of	SAT to monitor.

Action	Action already taken	Further action planned	Responsibility	Timescale	Success measure
speakers should be entertained during core hours	clear this commitment to all seminar organisers.	from 2013-14 academic year	organisers.	2013-14 academic year	Increased attendance and networking opportunities for those with caring responsibilities. 66% of networking opportunities during core hours in 2013-14, and to continue each year

**Progress:** partially achieved

**Remarks**

\*The department runs a large number of seminar series (some in collaboration with other London Universities). Some series have successfully achieved this objective with close to 100% of speakers being entertained (typically lunch) during core hours. An example of this is the UCL-King's geometry seminar, for which lunches partially sponsored by the department are well attended by staff, PDRAs and, importantly, PhD students.

\*One long-running seminar series (shared with other London Universities) has entertainment that is almost exclusively held in the evening after the seminar. It has proved difficult to change this culture. They have now been given a strict target of 50% entertainment during core hours otherwise funding for entertainment will be withdrawn.

\*The financial mathematics seminar series (again shared with multiple universities) has a high numbers of attendees from London's financial industry who can only attend after core hours. In this case an exception has been given, but with organisers giving assurance to monitor attendance and to note anyone unable to attend owing to caring responsibilities, and to publish events well in advance so that plans to attend can be made.

\* Evening entertainment outside of core hours is not necessarily a bad thing: it often allows scientific discussion in an enjoyable atmosphere and early career staff (including PGR and PDRAs) appreciate the opportunity to socialise.

Action	Action already taken	Further action planned	Responsibility	Timescale	Success measure
<b>Further Action:</b> continue to monitor; ensure there are opportunities for all colleagues to participate in entertainment/networking					
4.16 We will ensure that an office available as a rest room for pregnant female staff. This can also be used for breastfeeding and expressing		When required	HoD	As and when required	Rest room made available and used by pregnant staff
<p><b>Progress:</b> Not yet required</p> <p><b>Remarks</b></p> <p>*To date the only staff requiring such a facility have had their own office.</p> <p>*The department has a small portable fridge which was relocated to the office of a staff member to enable the storage of breast milk</p> <p>* Should the need arise the department will provide such a facility and purchase another small fridge</p> <p><b>Further Action:</b> now standard practice</p>					

## Appendix B: Action plan

Action	Action already taken	Further action planned	Responsibility	Timescale	Success measure
<p><b>2.1</b> Refresh SAT</p>	<p>FMSP co-ordinator, Dr Luciano Rila, and Dr Hao Ni (Senior Lecturer) have agreed to join SAT in spring term 2017</p>	<p>Seek new SAT chair and other new members including professional services staff, PGT and UG student, ensuring a mix of gender, grade, ethnicity and skills</p>	<p>HoD</p>	<p>New team to be in place for start of 2017-18 academic year</p>	<p>New, re-invigorated, SAT further raise profile of Athena SWAN principles in the department, and more importantly across UCL and UK mathematical community. Successfully implement following Action plan. Work towards Athena SWAN gold.</p>
<p><b>3.1</b> Name room frequently used by mathematics students and staff after Emeritus Professor Susan Brown</p>	<p>Prof Brown consulted</p>	<p>Suitable room to be identified once long-term estate provision for the department has been finalised.</p> <p>Formal opening and lecture to celebrate naming.</p>	<p>SAT</p>	<p>As soon as long-term estate provision for the department is determined</p>	<p>Raising profile of former prominent female staff. Students aware of and inspired by scientific achievements of a former female staff.</p>
<p><b>3.2</b> monitor recruitment of UG UK females as proportion of UK UG. Ensure that it does not drop</p>	<p>Data shows that has been achieved to date. <i>Women in Mathematics</i> days;</p>	<p>Explicitly promote Athena SWAN values at UCAS open days; continue to develop website; use of social media</p>	<p>HoD, FMSP, Admissions Tutor, Professional service staff</p>	<p>Continual annual monitoring of data. Website to enhanced 2017-18. Social</p>	<p>Of the UG body from the UK, at least 30% are women</p>

below 30% (the % of females taking A-level Further Mathematics).	females well-represented at open days; portrayal of women on website; <i>Celebrating Women in Mathematics</i> events; promotion of A-level mathematics by FMSP	to promote department and its friendly, open ethos		media to be introduced and used regularly from 2017-18	
<b>3.3</b> Increase proportion of female PGR students	Department open days with females well-represented; at least one female on PhD interview panels for female applicants; promote/encourage our best female UG to attend LMS summer school; fund and promote summer UG projects; one PGR Tutor trained in unconscious bias.	Use EWM to promote PhD study at UCL; work with LSGNT to recruit female PhD students; both PGR admissions tutors to be trained in unconscious bias.  Ensure female present on all interview panels	PGR admission tutors; HoD; all staff (in relation to summer projects)	Year on year increase until steady state from 2020-21	Proportion of female PGR students to reach HESA average for mathematical sciences by 2020-21.  Note: this is ambitious given we do not have Statistical Science in our department, a discipline which traditionally attracts a greater proportion of females than mathematics, but is included in HESA data for mathematical science.
<b>3.4:</b> Monitor each stage of the PGR admission process.	This happens already but only as annual snapshot of retrospective data.	Frequent 'real-time' updates i.e. reporting every 2-3 weeks during the PhD recruitment season (typically November-March).	PGR admissions tutors reporting to SAT and HoD	From 2016-17	The proportion of women does not decline at either the application to offer step or offer to acceptance step during the PGR recruitment process.

		<p>Both PhD admissions tutors trained in unconscious bias awareness (see <b>Action 3.3</b>).</p> <p>Increase number of PhD student interview panels with female panellists from 70% (last 2 years) to 100% by 2018-19.</p>			
<p><b>4.1:</b> HoD to ensure procedures for professorial re-banding and pay awards are gender blind so that, for example, no professorial gender pay-gap emerges.</p>	<p>Continue to implement policies enabling all staff to flourish.</p>	<p>Explicitly discuss criteria for re-banding and pay awards at professorial appraisals and devise individual development plans enabling these criteria to be met</p>	<p>HoD</p>	<p>2021-22</p>	<p>Female professorial pay increases keeps pace (on average) with male counterparts who were also recently promoted</p> <p>No professorial pay-gap by 2021-22: female professors' pay has the same average as their male counterparts</p>
<p><b>4.2</b> Increase number and proportion of female applicants for academic posts</p>	<p>Athena SWAN awards and LMS good practice logos are placed prominently at the top</p>	<p>The 'welcoming' statement will be strengthened to reflect the department's commitment to equality and</p>	<p>HoD</p>	<p>From Jan 2017</p>	<p>Proportion of women applicants increases from 17%.</p>

	<p>of job's 'further particulars'. UCL's Athena SWAN Silver logo, Race Equality Charter Bronze award and Stonewall logos are placed on the advert.</p> <p>Jobs advertised widely, including US-based mathsjobs.org and the EWM network.</p> <p>Jobs advertised broadly i.e. typically in 'pure' or 'applied' mathematics with the intent to capture the widest pool of applicants.</p> <p>There is a statement 'particularly welcoming female and ethnic minority candidates as</p>	<p>valuing diversity in a friendly and inclusive environment.</p> <p>The further particulars will include a paragraph on the department's commitment to the Athena SWAN principles and the LMS good practice scheme and make explicit links to our Women in Mathematics pages as well as highlight a number of our activities aimed at promoting women in mathematics e.g. our women in mathematics days and networks.</p> <p>The ability to work flexibly will also be highlighted, as will selected positive responses to the 2015 staff survey.</p> <p>The aim is to reflect accurately the department's welcoming and inclusive</p>			<p>Presently there is no benchmark to target, but the HESA proportion of women PDRAs 22% is representative. Thus we aim to achieve 22% female applicants for all academic jobs advertised from 2017.</p>
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	they are under-represented.	nature.			
<b>4.3</b> Proactively invite early career female mathematicians (including PGR) to all our seminar programmes.		<p>Seminar organiser asked to invite early career female mathematicians to give seminar and visit the department e.g. lunch.</p> <p>Contacts to be made by all staff at conferences, workshops etc.</p> <p>Further encourage current PhD students to attend seminars by early-career peers.</p>	Seminar organisers	From 2017-18	<p>20% of seminars given by early career female mathematicians.</p> <p>Good relationships formed and these mathematicians apply to department PDRA, Fellowship and academic posts.</p> <p>Increased attendance at seminars by current PhD students as they appreciate more accessible talks given by their early-career peers</p>
<b>4.4:</b> PGT admissions staff (2) and the other PGR admission tutor to be trained in unconscious bias. Further staff staff to be encouraged via appraisal to	PGT and PGR staff already enrolled on training to take place in autumn 2016	All staff to undertake unconscious bias awareness training	From 2016-17	HoD and appraisers to monitor	Ensure that at least 80% of academic staff have been trained using the online training.

complete the online training.					
4.5 Run post-doctoral advice session for PGR students, led by a a gender-balanced panel of PDRAs.	PDRA panel members (gender mixed) identified. PDRAs instructed to talk about their careers including challenges, funding, highlights and successes.	Feedback from PGR students to be assessed by SAT. If positive, run as an annual event.	Anna Lambert, SAT and PDRAs	Term 2 of 2016-17	PGR students understand the next steps in the academic pipeline and what being a PDRA involves and how it differs from being a PhD student. Offering of informal career advice to PGR students, including making applications for PDRA posts  Making female PDRA role models more visisble, especially to PGR students
4.6: Welcome, encourage and support applicants, especially female, to apply for prestigious externally funded Fellowships	Externally funded Fellowships listed on website.  The department has an academic staff member acting as 'Fellowship coordinator'  Research proposal	Raise profile by making all staff aware of these opportunities and promoting them through their own networks e.g. meetings and conferences  Cross-linking women in mathematics webpages with fellowships webpage	Fellowship coordinator  All staff	From 2016-17	Increase in number of Fellowship and EPSRC doctoral prize application with some successes.  Increase in women holding Fellowships in the department

	<p>subject to internal and constructive peer review</p> <p>Female applicant for Royal Society Dorothy Hodgkin fellowship submitted November 2016</p>				
<p><b>4.7:</b> continue to increase appraisal rates</p>	<p>Last 3 years has seen increase in rate from every 2 years to every 18 months.</p>	<p>Train additional senior staff in giving appraisals by attending HR Organisational Development's 'Appraisal Workshop'</p>	<p>Appraiser.</p> <p>HoD to identify other colleagues to perform appraisals</p>	<p>From 2016-17.</p> <p>Average time between appraisals decreases by 2 months per year</p>	<p>Yearly appraisals for all staff achieved by 2019-20.</p>
<p><b>4.8:</b> nominate and support female colleague to participate in UCL's <i>Women in Leadership Programme</i></p>	<p>Helen Wilson participated in 2015.</p> <p>Other female academic staff approached and made aware of the programme.</p>	<p>Nominate female academic staff for the 2017 programme and subsequent programme.</p> <p>Include cost of the programmes in department budget</p>	<p>HoD</p>	<p>Nomination in December 2016</p>	<p>Increase number of female staff who have received leadership training.</p> <p>Female staff take on department, UCL and UK leadership roles.</p>

<p><b>4.9:</b> repeat PGR survey in summer 2017 and assess effectiveness of female staff mentors for PGR females.</p>		<p>Carry our survey summer 2017. Include specific question on effectiveness of female mentors to female PGR.</p>	<p>SAT</p>	<p>Survey summer 2017, with analysis of results by SAT in autumn 2017</p>	<p>Gaining of sufficient and feedback from PhD students which demonstrates that recent progress in enhancing their well-being and engagement with life in the department. Results carefully considered and further actions taken if necessary. Particular note will be taken of career-development of PGR students (e.g. post-PhD job planning, funding for workshops and conferences) and their relationship with supervisors and department.</p>
<p><b>4.10:</b> investigate pros and cons of various workload models and consult with staff as to their merit.</p>	<p>Light touch, qualitative model presently in operation</p>	<p>Consult with other UCL departments and other UK mathematics departments about their models. SMT, SAT to discuss and suggest 2 or 3 for wider discussion with staff. Run shadow model if sufficient interest and share results with all staff</p>	<p>SMT and SAT</p>	<p>Models to investigated from 2017-18; possibly run shadow model in 2018-19</p>	<p>Implement model but only if sufficient 'buy-in' from staff (bearing in mind present allocation of work is well-received)</p>
<p><b>4.11:</b> Consult with HR about the possibility of making academic, teaching and research posts available as</p>		<p>Consult with HR. Investigate if other UCL departments advertise academic or research posts as job-shares.</p>	<p>SMT</p>	<p>Investigation from 2017, with wider discussion with department</p>	<p>Advertised posts from 2017-18 in the department include the possibility of job-sharing.</p>

job-shares.

Discuss with colleagues the viability of job-shares in academic/research roles.

colleagues before start of 2017-18.